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APR 2 8 2015

HUGH NGUYEN, CLERK-RECORDER

BY: [signature] DEPUTY

Notice of Determination

Appendix D

TO:

☒ Office of Planning and Research

For U.S. Mail:
P.O. Box 3044
Sacramento, CA 95812-3044

Street Address:
1400 Tenth Street
Sacramento, CA 95814

☒ County Clerk
County of: Orange
Address: Hall of Records
12 Civic Center Plaza, Room 106
Santa Ana, CA 92701

FROM: APPLICANT

Public Agency: Irvine Ranch Water District

Address: 15600 Sand Canyon Avenue
Irvine, CA 92618
Contact: Jo Ann Corey
Phone: 949-453-5300
Lead Agency (if different from above):

POSTED

Address:

APR 28 2015

Contact:
Phone:

HUGH NGUYEN, CLERK-RECORDER

BY: [signature] DEPUTY

Subject: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2015011018

Project Title: Peters Canyon Channel Water Capture and Reuse Pipeline Project

Project Location (include county): Tustin, CA; Irvine, CA; Orange County

Project Description: The Project provides a cost-effective solution for the collection, transport and treatment of nuisance groundwater and surface water flows with high nitrate and selenium concentrations that discharge into Peters Canyon Channel. The Project would divert such flows to Orange County Sanitation District (OCSD) for treatment and reuse to protect and maintain local water quality and to augment local water supply.

This is to advise that the Irvine Ranch Water District has approved the above described project on
(☒ *Lead Agency* or ☐ *Responsible Agency*)

April 27, 2015 and has made the following determinations regarding the above described projects.
(*Date*)

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☒ was ☐ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☐ were ☒ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the Negative Declaration, is available to the General Public at:

IRWD Headquarters, 15600 Sand Canyon Ave, Irvine CA 92618; and http://www.irwd.com

Signature (Public Agency) [signature]

Title: Engineering Technician III

Date: 4/28/15

Date Received filing at OPR:

Recorded in Official Records, Orange County
Hugh Nguyen, Clerk-Recorder

2210.00

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Authority cited: Section 21083, Public Resources Code.
Reference: Section 21000-21174, Public Resources Code.

PETERS CANYON CHANNEL
WATER CAPTURE AND REUSE PIPELINE

Final Initial Study/Mitigated Negative Declaration
SCH #: 2015011018

Prepared for
Irvine Ranch Water District

April 2015

PETERS CANYON CHANNEL
WATER CAPTURE AND REUSE PIPELINE

Final Initial Study/Mitigated Negative Declaration
SCH #: 2015011018

Prepared for
Irvine Ranch Water District

April 2015

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130993

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Acronyms

AB	Assembly Bill
Afy	Acre Feet per Year
APE	Area of Potential Effect
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
BMPs	Best Management Practices
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalARP	California Accidental Release Prevention
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Policy Act
CFR	Code of Federal Regulations
CFS	Cubic feet per second
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNPS	California Native Plan Society Electronic Inventory
CO	Carbon Monoxide
CRA	California Resource Agency
CTR	California Toxics Rule
Cy	Cubic Yards
dBA	Decibel
District	Irvine Ranch Water District
DO	Dissolved Oxygen
DPM	Diesel Particulate Matter
DTSC	California Department of Toxic Substances Control
EIR	Environmental Impact Report
ERP	Emergency Response Plan
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
GHG	Greenhouse Gases
GWTF	Ground Water Treatment Facility
Gpm	Gallons Per Minute
H_2S	Hydrogen Sulfide
HCP	Habitat Conservation Plan
HMBP	Hazardous Materials Business Plan
I	Interstate
IAF	Impact Avoidance Framework
IRWD	Irvine Ranch Water District
KW/year	Kilowatts Per Year
LOS	Level Of Service
LST	Localized Significance Thresholds
MEP	Maximum Extent Practicable
µg/L	micrograms per Liter
Mg/L	Milligrams Per Liter

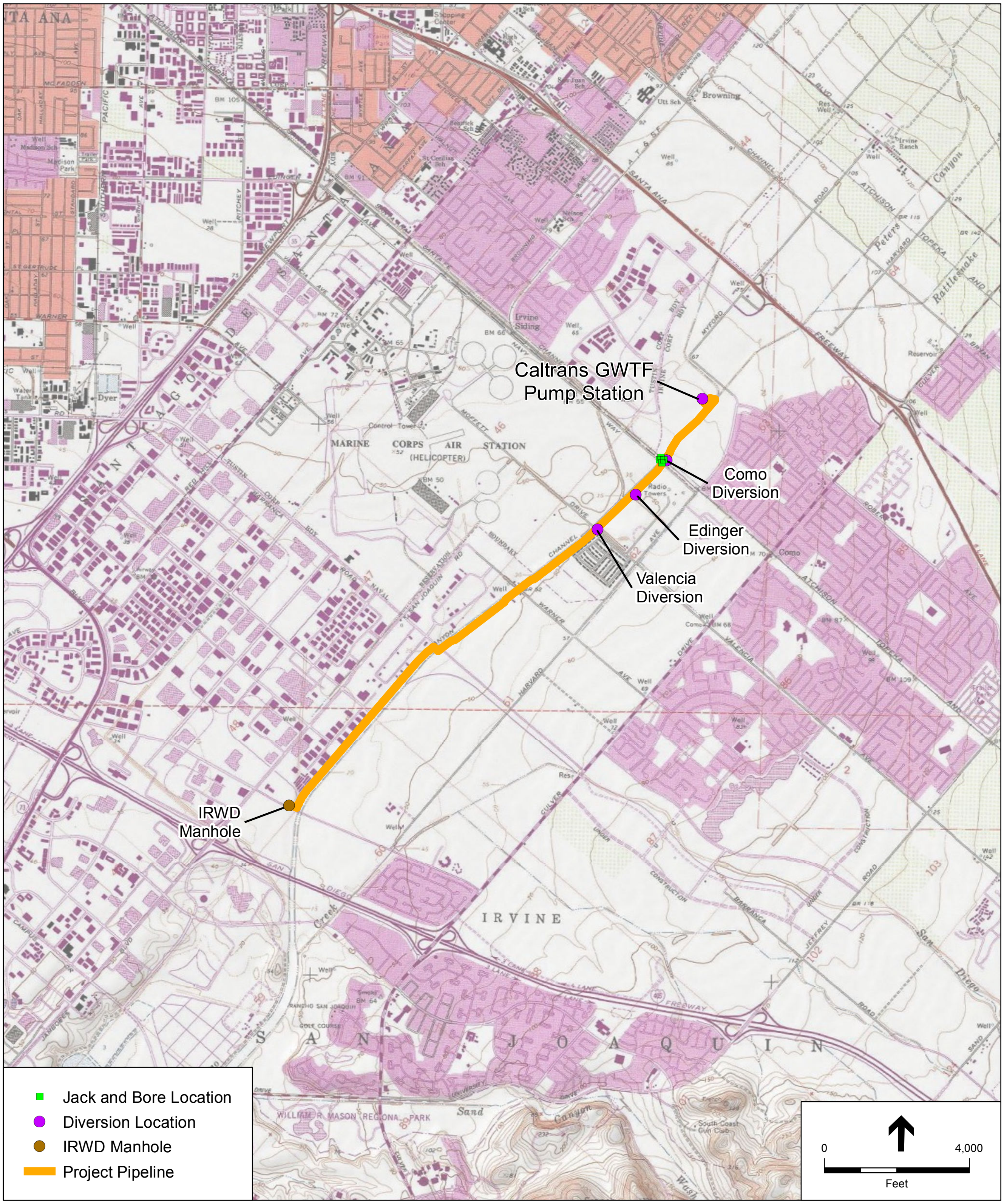
Mgd	Million Gallons Per Day
MGY	Million Gallons Per Year
NAAQS	National Ambient Air Quality Standards
NCCP	Natural Community Conservation Plan
NOI	Notice of Intent
NOx	Nitrogen Oxide
NPDES	National Pollutant Discharge Elimination System
O_3	Ozone
OCFA	Orange County Fire Authority
OCSD	Orange County Sanitation District
OCTA	Orange County Transportation Authority
OCWD	Orange County Water District
OSHA	Occupational Safety and Health Administration
PM	Particulate Matter
PPV	Peak Particle Velocity
PRC	Public Resources Code
RCP	Reinforced Concrete Pipe
RMP	Risk Management Plan
ROW	Right of Way
RWQCB	Regional Water Quality Control Board, Santa Ana Region
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SOx	Sulfur ~~Di~~Oxide
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
TAC	Toxic Air Contaminants
TCA	Transportation Corridor Agency
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
URBEMIS	Urban Emissions
USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOCs	Volatile Organic ~~Chemicals~~ Compounds

CHAPTER 1
Introduction

Irvine Ranch Water District (IRWD or "District"), in coordination with the partner agencies of Orange County Flood Control District (OC Flood), City of Irvine, City of Tustin, California Department of Transportation (Caltrans), and the Transportation Corridor Agency (TCA), are collectively seeking a cost-effective solution for the collection, transport and treatment of nuisance groundwater and surface water flows with high nitrate and selenium concentrations that discharge into Peters Canyon Channel. The Peters Canyon Channel Water Capture and Reuse Pipeline ("proposed project") would divert such flows to Orange County Sanitation District (OCSD) for treatment and reuse to protect and maintain local water quality and to augment local water supply. Currently, these high nitrate and selenium waters are discharged into either Peters Canyon Channel or into IRWD's sewer system under a temporary special discharge permit. High selenium groundwater currently discharging into Peters Canyon Channel is no longer allowed pursuant to the Regional Water Quality Control Board's (RWQCB) Order No. R8-2004-0041. Discharges to IRWD's sewer system must also be discontinued because the water is recycled and the treatment process is not designed to remove selenium.

The proposed project would install infrastructure that would capture nuisance groundwater and surface water flows from the Caltrans' Ground Water Treatment Facility (GWTF), Como Channel, and the Edinger and Valencia storm drains, for discharge to OCSD's 60-inch sewer located in Main Street in Irvine. The proposed project would install a water pipeline conveyance system with diversion structures and associated appurtenances in the cities of Tustin and Irvine (refer to **Figure 1,** Project Location Map). The proposed pipeline system begins at the existing Caltrans GWTF in ~~Tustin~~ Irvine, collects flow from three proposed diversion structures located at Como Channel, Edinger Circular Drain, and Valencia Drain, and discharges into a proposed IRWD manhole that discharges to OCSD's Main Street sewer for treatment (refer to **Figure 2**, Aerial Project Limits Map).

This Initial Study/Mitigated Negative Declaration (IS/MND) evaluates the potential effects on the environment from constructing and operating the proposed new facilities.



SOURCE: USGS

Figure 1
USGS Project Location Map

SOURCE: ESRI

Peters Canyon Channel Water Capture and Reuse Pipeline . 130993

Figure 2

Aerial Project Limits Map

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1.1 California Environmental Quality Act Compliance

IRWD is the lead agency pursuant to the California Environmental Quality Act (CEQA) and is responsible for analyzing and approving the proposed project CEQA document. OC Flood, cities of Irvine and Tustin, Caltrans, TCA, and OCSD are responsible agencies under CEQA. Responsible agencies include all public agencies, other than the lead agency, which have discretionary approval power over the project. IRWD, in consultation with OC Flood, cities of Irvine and Tustin, Caltrans, and TCA, has determined that an MND is the appropriate environmental document to be prepared in compliance with CEQA. This finding is based on the Initial Study Environmental Checklist (Section 3.0 of this Draft IS/MND). As provided for by CEQA Section 21064.5, an MND may be prepared for a project subject to CEQA when the project will result in significant environmental impacts that can be mitigated to below a level of significance.

This Draft IS/MND has been prepared by IRWD, in conformance with CEQA Guidelines Section 15070(a), to determine the potential significant impacts associated with construction and operation of the proposed project, and incorporate mitigation measures, as necessary, to reduce or eliminate the significant or potentially significant effects.

1.2 Existing Documents Incorporated by Reference

The following is incorporated by reference in this document according to the CEQA Guidelines, Section 15150:

- RBF Consulting, *Peters Canyon Channel Water Capture and Reuse Pipeline Final Concept Feasibility Study*, January 25, 2013. ("Concept Feasibility Study")
- Tetra Tech, *Peters Canyon Channel Water Capture and Reuse Pipeline, Basis of Design Memorandum*, July, 2014.

1.3 Findings

IRWD finds that the proposed project would not have a significant adverse effect on the environment based on the results of the Initial Study Environmental Checklist, as described in Section 3.0. Some potentially significant effects have been identified and mitigation measures have been incorporated into the project to ensure that these effects remain at less-than-significant levels. An MND is therefore proposed to satisfy the requirements of CEQA (California Public Resources Code, Section 21000 et seq.; 14 CCR 15000 et seq.). The Initial Study Environmental Checklist is used to review the potential environmental effects of the proposed project for each of the following areas:

- Aesthetics
- Agriculture and Forest Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation/Traffic

- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Utilities and Service Systems
- Energy
- Mandatory Findings of Significance

1.4 Public Review and Comment

In accordance with CEQA, a good-faith effort has been made during the preparation of this IS/MND to contact trustee and responsible agencies and persons and organizations who may have an interest in this project. Reviewers of this document should focus on the analysis of impacts and proposed mitigation measures for potentially significant effects. Responsible agency comments should be limited to those project activities that are within the responsible agency's area of expertise or that are required to be carried out or approved by the responsible agency or that will be subject to the exercise of powers by the responsible agency.

Comments may be made on this IS/MND in writing before the end of the comment period. Written comments should be sent to Jo Ann Corey at IRWD at the following address by 4:00 p.m., February 13, 2015.

Irvine Ranch Water District
Attn: Jo Ann Corey
Water Resources & Environmental Compliance
15600 Sand Canyon Avenue
Irvine, California 92618
Phone: 949-453-5300

1.5 Final IS/MND and Certification

Following the close of the public comment period, IRWD will consider this IS/MND and comments thereto in determining whether to approve the proposed project. Certification of this CEQA document and project approval will occur by the IRWD Board of Directors. Date and time information for the meeting where this document will be considered can be obtained from IRWD's website (www.irwd.com) or by contacting the IRWD Board Secretary at 949-453-5300.

In addition, the responsible agencies will also consider this IS/MND and comments thereto in determining whether to approve the proposed project.

CHAPTER 2
Project Description

2.1 Project Overview

The proposed project would install infrastructure for the collection and transport of nuisance groundwater and surface water flows with high nitrate and selenium concentrations to OCSD for treatment. The proposed project would divert flows from four sources; Caltrans GWTF, Como Channel, Edinger Circular Drain, and Valencia Drain. The proposed project would include installation of a pipeline conveyance system with diversion structures and ancillary support infrastructure in the cities of Irvine and Tustin. The proposed pipeline system would begin at the existing Caltrans' GWTF, located near the Walnut Avenue bridge crossing over Peters Canyon Channel in ~~Tustin~~ Irvine, then would connect to the three proposed storm drain diversion structures at Como Channel, Edinger Circular Drain, and Valencia Drain, then would connect to IRWD's existing gravity sewer line at a proposed new manhole west of San Diego Creek near Main Street in Irvine. The existing IRWD gravity sewer line discharges to OCSD's sewer in Main Street (refer to **Figure 2**, Aerial Project Limits Map). The project generally consists of the following elements:

- Pressurized collection system;
- Collection pipeline that follows an alignment alongside, but not within Peters Canyon Channel and San Diego Creek;
- Tie-in from Caltrans GWTF;
- Three new diversion structures with small pump stations (wet-well type with submersible pumps) at tie-ins for Como Channel, Edinger Circular Drain, and Valencia Drain;
- Bridge crossings over Peters Canyon at Walnut Avenue and at Barranca Parkway;
- Street crossings along Peters Canyon Channel involving open trenching for pipeline installation at Warner Avenue, Barranca Parkway, Alton Parkway, Edinger Avenue and Moffett Drive;
- A channel and railroad crossing requiring jack and bore construction methods at Como Channel and Achison Topeka & Santa Fe (AT&SF) Railroad;
- New manhole and connection to IRWD's 60-inch gravity sewer near Main Street; and
- Discharges to OCSD 60-inch sewer in Main Street.

No storage reservoir for off-peak discharge is required. The OCSD Dry Weather Urban Runoff Program allows for acceptance of dry weather urban runoff throughout the year on days when it is not raining, including flows from stormwater pump stations and storm channels. Diversions from the Caltrans GWTF would likely be sent to OCSD year round, regardless of weather conditions. To be eligible for its Dry Weather Urban Runoff Program, OCSD may not accept the nuisance groundwater and surface flows from the Como Channel, Edinger Circular Drain, and Valencia Drain during wet weather conditions. Thus, pump stations at the Como Channel, Edinger Circular Drain, and Valencia Drain would be shut down during OCSD-defined wet weather conditions, allowing flows to bypass diversion facilities and flow into the Peters Canyon Channel.

2.2 Project Location

Newport Bay Watershed

The project is located in the Newport Bay Watershed, which encompasses all waters draining to Newport Bay. Newport Bay Watershed drains approximately 152.02 square miles to the Pacific Ocean within southern Orange County. This watershed has been divided into four subwatersheds: Lower Bay, Upper Bay, Santa Ana Delhi Channel, and San Diego Creek/Peters Canyon Channel. The project area is located within San Diego Creek/Peters Canyon Channel subwatershed, which is the largest subwatershed within the Newport Bay Watershed. San Diego Creek/Peters Canyon Channel and its tributaries collectively drain into the northeastern end of Upper Newport Bay.

The San Diego Creek/Peters Canyon Channel watershed is divided into two main tributaries: Peters Canyon Channel and San Diego Creek. Peters Canyon Channel drains Peters Canyon, Rattlesnake Canyon, and Hicks Canyon, which have their headwaters in the foothills of the Santa Ana Mountains. The Lower Peters Canyon Channel area, where the project is located, is in the heart of the historical Swamp of the Frogs, and is characterized by dry weather baseflows supported by seeping groundwater, via seeps, weepholes and through the bottom of the unlined channel, that contributes the majority of selenium loadings for the entire watershed. The main channels that drain into lower Peters Canyon Channel include Santa Ana-Santa Fe Channel, Como Channel, Valencia Drain, and Warner Channel (RBF, 2013).

Peters Canyon Channel is tributary to San Diego Creek. Reach 1 of San Diego Creek is located downstream of Jeffrey Road and Reach 2 of San Diego Creek lies upstream of Jeffrey Road to the headwaters. Reach 2 of San Diego Creek receives flows from Bee Canyon, Round Canyon, Marshburn Channel, Agua Chinon Wash, Borrego Canyon Wash, and Serrano Creek. Reach 1 of San Diego Creek provides habitat to a large number of bird and fish species due to slow moving water and abundant vegetation. Main drainage channels along Reach 1 of San Diego Creek include Peters Canyon Channel, Barranca Channel, Lane Channel, San Joaquin Channel, Sand Canyon Channel, and Bonita Channel (RBF, 2013).

Drainage

The proposed project area is located adjacent to and alongside Peters Canyon Channel and San Diego Creek. The proposed project area includes the section of Peters Canyon Channel running from the channel's intersection with Walnut Ave in ~~Tustin~~ Irvine to the channel's intersection with Main Street in Irvine **(Figure 2)**. Peters Canyon Channel is fed by multiple drainages through this section. **Figure 3** shows all drainages, along with their tributaries. The channel eventually terminates at its confluence with San Diego Creek near the intersection of Barranca Parkway and Peters Canyon Trail. San Diego Creek continues to flow southwest, passing by the IRWD San Joaquin Marsh and UC Reserve**.** The channel then passes under Highway 73 and discharges into the Upper Newport Bay, which drains into the Lower Newport Bay and eventually into the Pacific Ocean.

2.3 Purpose and Need

A Total Maximum Daily Load (TMDL) is the regulatory process in which an allowable limit for a particular pollutant in a waterbody is set at a level, or load, for all sources of that pollutant, such that the beneficial uses of the waterbody are protected. To address nutrient issues in the Newport Bay Watershed, the Santa Ana Regional Water Quality Control Board (RWQCB) adopted an amendment to the Basin Plan in 1998 to establish a TMDL for nutrients. In 2002, the United States Environmental Protection Agency (USEPA) issued TMDLs for 14 toxic pollutants, including selenium, for San Diego Creek watershed and Newport Bay (USEPA, 2002). The TMDL for selenium was based primarily on exceedances of the California Toxics Rule (CTR) chronic criterion for selenium in freshwater (5 µg/L).

In 2003, when the RWQCB renewed the National Pollutant Discharge Elimination System (NPDES) permit (Order No. R8-2003-0061), the Newport Bay Watershed was specifically excluded from its terms and conditions due to concerns that elevated levels of selenium and nitrogen in short-term groundwater-related discharges had the potential to adversely affect surface waters and would not comply with the adopted TMDLs in the Watershed. The RWQCB subsequently developed and issued a separate general NPDES permit specific to the Newport Bay Watershed - Order No. R8-2004-0021, which was amended by R8-2007-0041 and R8-2009-0045 (collectively Order); NPDES No. CAG998002, General Waste Discharge Requirements for Short-Term Groundwater-Related Discharges and de minimus Wastewater Discharges to Surface Waters within the San Diego Creek/Newport Bay Watershed (General Dewatering Permit). This order was necessitated by the TMDLs and the recognition that groundwater-related discharges had the potential to contribute selenium to the Watershed. The Order acknowledged that while current groundwater levels exceeded the CTR limit of 5 ug/L for selenium, a feasible treatment technology did not exist to lower the levels in the discharges to the CTR standard. Therefore, the Order incorporated an alternative compliance approach by authorizing the formation of a Nitrogen and Selenium Management Program (NSMP) Working Group and the implementation of a Work Plan to develop a comprehensive understanding of and management plan for groundwater-related selenium and nitrogen discharges in the Watershed. The NSMP Work Plan

SOURCE: ESRI

Peters Canyon Channel Water Capture and Reuse Pipeline . 130993

Figure 3
Drainage Overview

tasks included monitoring, testing and evaluation of best management practices (BMP), and development of a BMP Strategic Plan (~~December~~RBF, 2013), an offset and trading program, TMDLs and site-specific water quality objectives (SSOs), among others. The proposed project is included in the NSMP's BMP Strategic Plan.

The proposed project diverts nuisance discharges to Lower Peters Canyon Channel, within the historical Swamp of the Frogs, where nitrate- and selenium-laden shallow groundwater enters the storm drain and surface water system via seeps, weepholes, and through the bottom of the unlined channel. These groundwater associated flows constitute the principal source of selenium in the sub-watersheds. These groundwater flows are also the most-likely primary source of nitrogen, originating from historical agricultural land uses. Selenium is a naturally occurring element necessary for life at low levels, but becomes toxic at slightly higher levels. Nitrogen is an essential nutrient for plants, but it can cause harmful algal blooms when nitrogen levels are excessive (County of Orange, 2014a).

IRWD and the City of Irvine each operate facilities that contribute high selenium and nitrogen laden, nuisance groundwater to Peters Canyon Channel. The City of Irvine is currently discharging high selenium groundwater from its dewatering operations at the Culver Drive and Jeffrey Road grade separation facilities to Como Channel, which is tributary to Peters Canyon Channel. It is anticipated that these discharges to Peters Canyon Channel would no longer be permitted by the RWQCB after December 10, ~~2016~~2019, and the City needs to find an alternate discharge solution. High selenium groundwater from the Caltrans GWTF can no longer be discharged to IRWD's sewer system because the flow is recycled and the treatment process is not designed to remove selenium. In addition, IRWD is participating in the project in order to receive nitrogen and selenium credits that can be used throughout the San Diego Creek watershed in order to offset infrequent discharges with high nitrogen and selenium associated construction activities, non-potable water supply operations and Natural Treatment System operations including the IRWD San Joaquin Marsh.

Various treatment and disposal alternatives have been studied over the past several years by IRWD and the partner agencies through participation in the NSMP. Together the agencies completed the Final Concept Feasibility Study in 2013 (RBF, 2013) to evaluate the conditions and costs associated with the proposed project. IRWD and the partner agencies are proposing this project to implement a preferred solution to address these identified high priority discharges. In developing the proposed project concept, analyses for various project elements were performed. These include comparing gravity versus pressure flow in the pipeline, pipe sizing, analysis of several alternative pipeline alignments, consideration of right-of-way issues, and pump station hydraulics. Refer to the Concept Feasibility Study (RBF, 2013) for additional information regarding various alternatives considered.

2.4 Project Objectives

The objectives of the proposed project are to:

- To divert nuisance groundwater and surface water flows with high nitrate and selenium concentrations to OCSD for treatment and reuse.
- To establish compliance with the NPDES Permit issued by the Santa Ana RWQCB by reducing or eliminating selenium and nitrogen loads from groundwater dewatering discharges.

2.5 Project Components

The proposed project would install a water pipeline conveyance system with diversion structures, including pump stations and other appurtenant structures, as described in detail below.

Pipeline Conveyance System

The proposed pipeline conveyance system consists of approximately 17,300 lineal feet of pressurized pipeline. The pipeline would be sized eight-inch to 16-inch in diameter and would be designed to convey a maximum of 1,621 gallons per minute (gpm) of pumped flow at the OCSD Main Street sewer connection point. The pipeline would be constructed primarily within OC Flood and City of Tustin property and right-of-way (ROW). The OC Flood ROW along Peters Canyon Channel and San Diego Creek extends from the top of the channel to an outer boundary defined by a wall or fence line. The pipeline would be installed approximately four to nine feet from the outer wall or fence. The pipeline conveyance system would be constructed in the following pipeline segments, as described further below and shown in Figure 2: Main Street to Alton Parkway; Alton Parkway to Barranca Parkway; Barranca Parkway to Warner Avenue; Warner Avenue to Como Channel; and Como Channel to Walnut Avenue.

Main Street to Alton Parkway

Approximately 3,271 feet (or 0.62 mile) of linear pipe would be installed on the west side of the San Diego Creek, between the junction of IRWD's and OCSD's 60-inch sewer lines in Main Street just west of San Diego Creek (see Section 2.5.4 below) and Alton Parkway within the City of Irvine. The pipeline would be installed within the OC Flood ROW, which is approximately 19 feet wide. The proposed pipeline would be buried deeper (approximately 5 feet of cover) than the existing area drain pipes located in this segment. The ROW in this segment is characterized by a gravel access road, which is not accessible to the public.

Alton Parkway to Barranca Parkway

Approximately 2,555 feet (or 0.48 mile) of linear pipe would be installed along the west side of San Diego Creek, between Alton Parkway and Barranca Parkway within the City of Irvine. Peters Canyon Channel joins with San Diego Creek just south of Barranca Parkway, and the proposed pipeline would cross Peters Canyon Channel by hanging on the north side of the Barranca Bridge.

Tetra Tech has completed preliminary structural analyses of the Barranca Bridge (Tetra Tech, 2014) and determined the Barranca Bridge would support the proposed pipeline on the north side, between the exterior girder and first interior girder. The portion of pipeline not on the bridge is anticipated to be constructed within the OC Flood ROW, which is approximately 23 feet wide. The ROW in this segment is characterized by a gravel access road, which is not accessible to the public. The proposed pipeline would be buried deeper than existing area drain pipes (about nine feet of cover).

Barranca Parkway to Warner Avenue

Approximately 2,672 feet (or 0.51 mile) of linear pipe would be installed on the east side of Peters Canyon Channel from Barranca Parkway to Warner Avenue within City of Irvine. The proposed pipeline would be constructed within the OC Flood ROW, which is approximately 20 feet wide. There is a reinforced concrete box (RCB) at the end of the Warner Channel, north of Warner Avenue. The proposed pipeline would cross the Warner Channel RCB with a depth to top of pipe of approximately three feet. There is an existing bike path and walking trail within the project area between Barranca Parkway and Warner Avenue, which is maintained by the City of Irvine. The existing bike path would be detoured during construction to Harvard Avenue from Barranca Parkway.

Warner Avenue to Como Channel

Approximately 5,940 feet (or 0.97 mile) of linear pipe would be installed on the east side of Peters Canyon Channel, from Warner Avenue to Como Channel, within City of Tustin limits. The proposed pipeline would be constructed within the OC Flood ROW, which is approximately 40 feet wide, and installed approximately four feet to seven feet from the existing residential walls along the east side of Peters Canyon Channel. The proposed depth of the pipeline would allow for a minimum of three feet cover to subgrade.

Within this segment, the pipeline would cross Moffet Drive, Edinger Avenue, Como Channel, and the AT&SF railroad. Moffet Drive is currently a residential feeder street, allowing traffic from Harvard Avenue to residential developments. Moffett Drive ends at Peters Canyon Channel. There are proposed diversion structures at Moffett Drive for the Valencia Storm Drain, at Edinger Avenue for the Edinger Circular Drain, and at Como Channel, as detailed in Section 2.5.3 below. Como Channel and the railroad are coincidentally located, along with a sewer siphon. Jack and bore construction methods would be used to allow the proposed pipeline to cross all three features without disturbance, as detailed further in Section 2.6.

Como Channel to Walnut Avenue and GWTF

Approximately 2,182 feet (or 0.41 mile) of linear pipe would be installed on the east side of Peters Canyon Channel, from Como Channel to Walnut Avenue, on property owned by OC Flood. This segment of the pipeline alignment is characterized by a maintenance road and bike path. Overall the maintenance road varies in width from 18 to 30 feet from the top of the channel and the existing bike path is 12 feet wide. This pipeline segment would run adjacent to Harvard Park and residential land uses. There is fencing running along the top of slope of the Peter

Canyon Channel side walls and fencing along the boundary of Harvard Park, which is 10 feet lower than the maintenance road.

The proposed pipeline would cross Peters Canyon Channel by hanging on the south side of Walnut Bridge. The proposed pipeline would connect to the downstream side of Caltrans GWTF pumps west of Peters Canyon Channel. Preliminary structural analyses of the Walnut Bridge have determined the Walnut Bridge would support the proposed pipeline under the south overhang (Tetra Tech, 2014.).

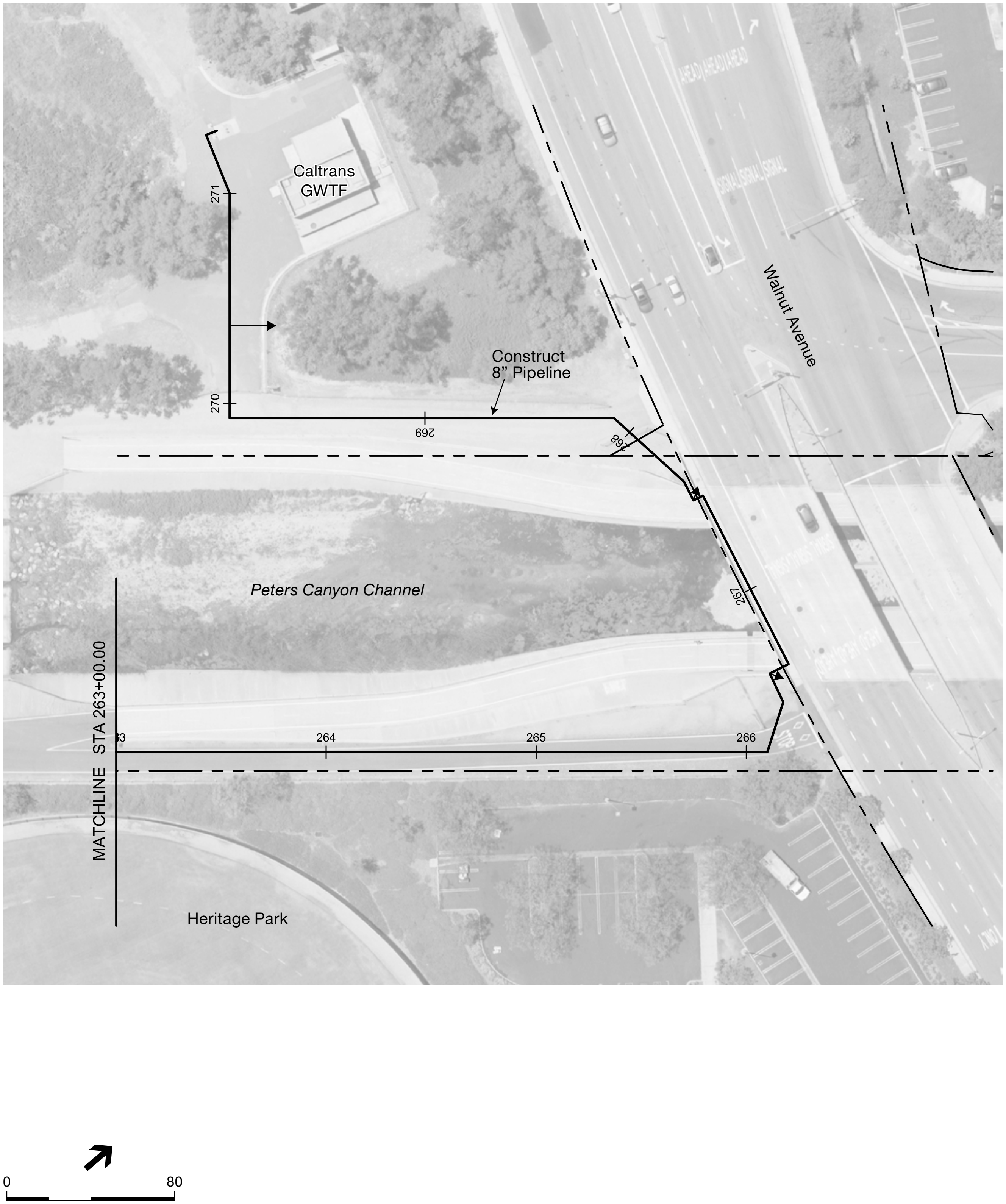
Caltrans Ground Water Treatment Facility

The Caltrans GWTF is owned and operated by Caltrans and is located near the corner of Jamboree Road and Walnut Avenue. Currently, groundwater that contains high selenium and nitrogen concentrations is pumped at State Route 261 to protect the roadway from high groundwater levels. At the GWTF, this pumped flow is diverted into a pipeline that discharges to IRWD's sewer system. (As a result, there is no treatment of flows at the GWTF.) A new discharge pipeline would be required to divert 1.1 cfs (491 gpm of flow) from the existing Caltrans GWTF Pump Station into the proposed pipeline. The Caltrans GWTF existing pumps are rated for 800 gpm at 82 feet head, which is adequate for the proposed project (RBF, 2013). No pumping modifications to the Caltrans GWTF are anticipated. Refer to **Figure 4** for the proposed design of the diversion structure at Caltrans GWTF.

Diversion Structures

In addition to the Caltrans GWTF, the reuse pipeline would have three inflow connections, Como Channel, Edinger Circular Drain and Valencia Drain. All diversion structures would include a wet well with submersible pumps, valve, and flow meter. Once installed, these diversion structures components would be below ground.

The only aboveground components would be electrical cabinets, antennas, transformers, and service panels. IRWD has consulted with Southern California Edison (SCE), which has determined that new electrical utility facilities would be required to bring power to the proposed diversion structures. New transformers would be required at each diversion structure, to be located alongside the other proposed electrical cabinets and service panels. SCE has stated a



SOURCE: Tetra Tech, 2014
NOTE: Preliminary Design and subject to change

Peters Canyon Channel Water Capture and Reuse Pipeline . 130993

Figure 4
Caltrans GWTF Pump Station

preliminary plan to run new electrical conduit from each transformer to existing SCE electrical facilities in Harvard Avenue. This would require installation of conduit along the roadway right-of-way within Moffett Drive, Edinger Avenue, and the existing bike trail along Como Avenue.

These aboveground appurtenant structures would be clustered together, adjacent to each diversion structures. Electrical cabinets would have a footprint of approximately 15 square feet with a height of approximately 7.5 feet; electrical panels would have a footprint of approximately 8 square feet with a height of approximately 6 feet; the SCE transformer would have a footprint of approximately 16 square feet with a height of approximately 4 feet; the antennas would have a height of up to 25 feet.

Como Channel

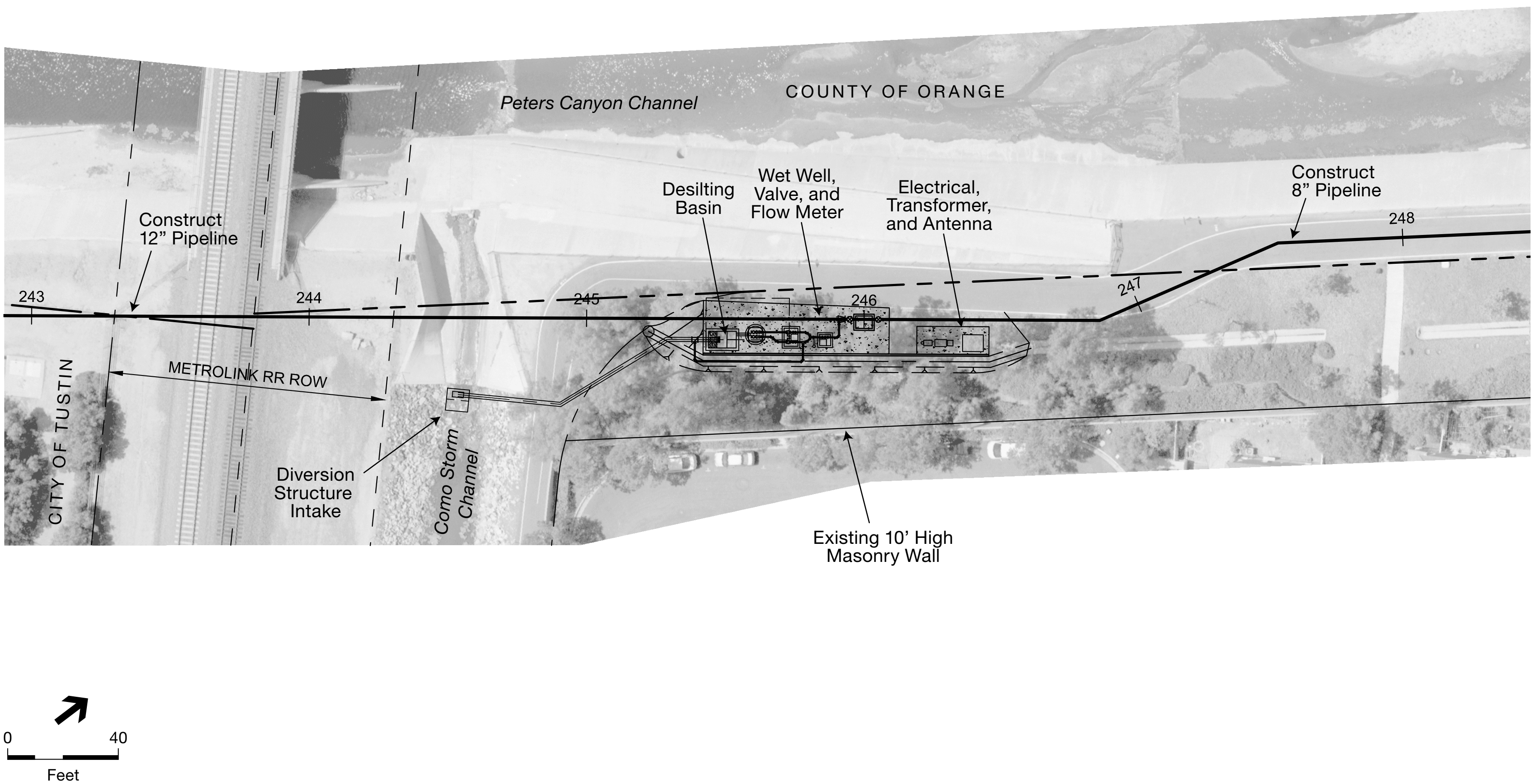
Como Channel is an open, rip-rap-lined channel that drains into Peters Canyon Channel and is adjacent to the AT&SF Railroad. Flow at Como Channel would be diverted using a grated drop inlet structure that would capture and convey the flow to be diverted. The drop inlet structure would be approximately two-foot by four-foot and would be surrounded by an existing reinforced concrete apron. The inlet structure would be located in the channel invert just upstream of the existing Como Channel outlet structure, about 68 feet upstream of the confluence with Peters Canyon Channel. The inlet would lead to an underground desilting basin, which would connect to a wet well via an 18-inch reinforced concrete pipe (RCP). The wet well would contain two submersible pumps to move the water from the wet well to the pipeline. There would be two 20 horse power (hp) pumps sized for a total flow 1.1 cfs (492 gpm). Refer to **Figure 5** for the proposed design of the diversion structure at Como Channel.

Edinger Circular Drain

The Edinger Circular Drain system’s outlet is located just downstream of the Edinger Avenue bridge for Peters Canyon Channel. The proposed diversion of flow at the 96-inch Edinger Circular Drain would require a modified junction structure to divert water to the wet well. The junction structure would be located approximately 136 feet upstream of the confluence with Peters Canyon Channel such that a manhole shaft in Edinger Avenue would be provided. An 18-inch RCP would connect to the proposed wet well with two submersible 7.5-hp pumps designed to capture and divert the required 0.3 cfs (123 gpm) of flow. Refer to **Figure 6** for the proposed design and potential alternative locations of the diversion structure at Edinger Circular Drain.

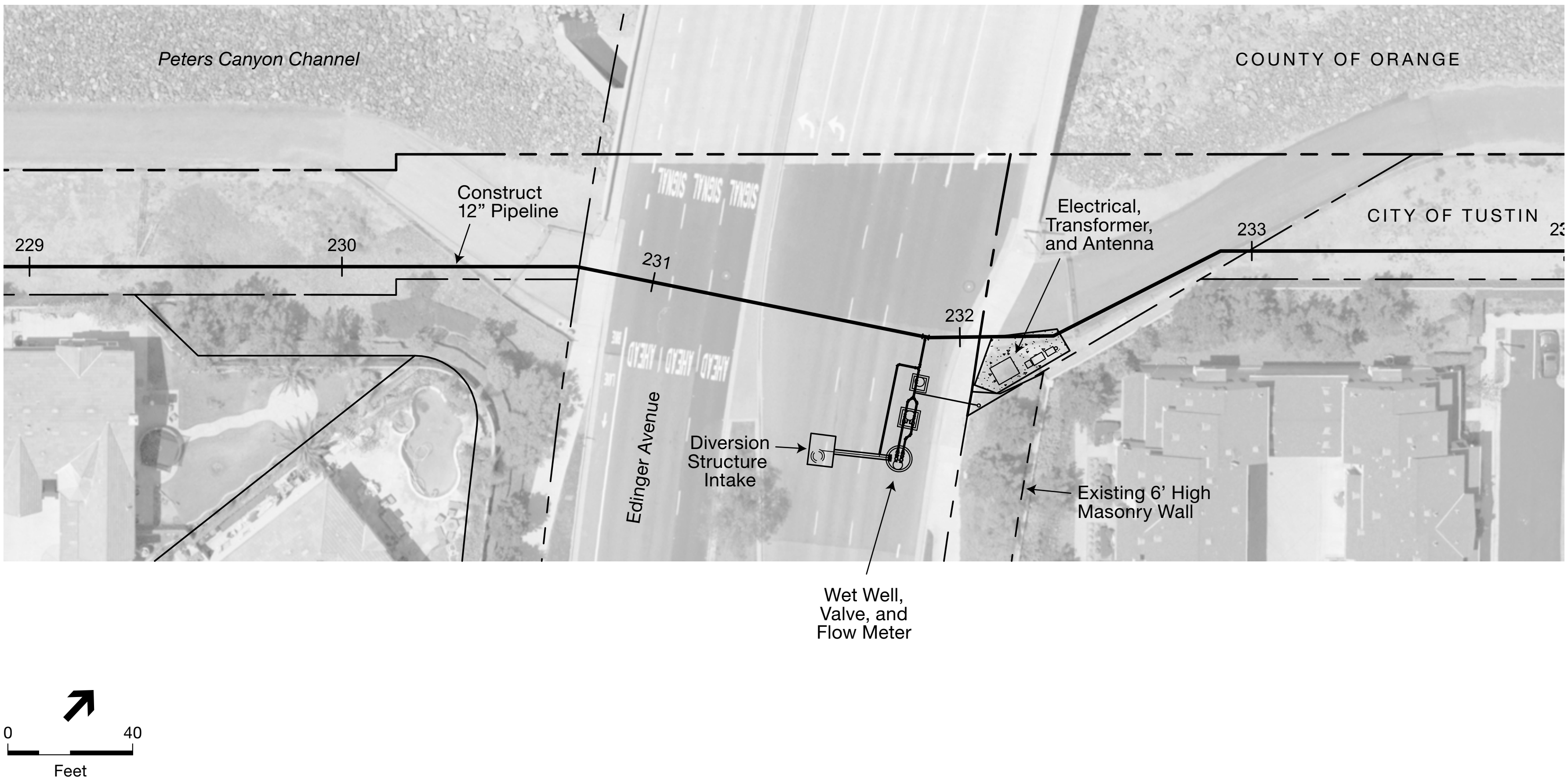
Valencia Drain

Flow at Valencia Drain would be diverted using a two-foot by four-foot grated drop inlet structure that would be located within the existing Valencia Channel. The inlet structure would be located approximately 197 feet upstream of the confluence with Peters Canyon Channel such that a manhole shaft in Moffett Drive would be provided. A proposed 18-inch RCP would connect to the proposed wet well with two submersible 20-hp pumps sized for total flow of 1.2 cfs (515 gpm). Refer to **Figure 7** for the proposed design of the diversion structure at Valencia Drain.



SOURCE: Tetra Tech, 2014
NOTE: Preliminary Design and subject to change

Figure 5
Como Channel
Diversion Structure



SOURCE: Tetra Tech, 2014
NOTE: Preliminary Design and subject to change

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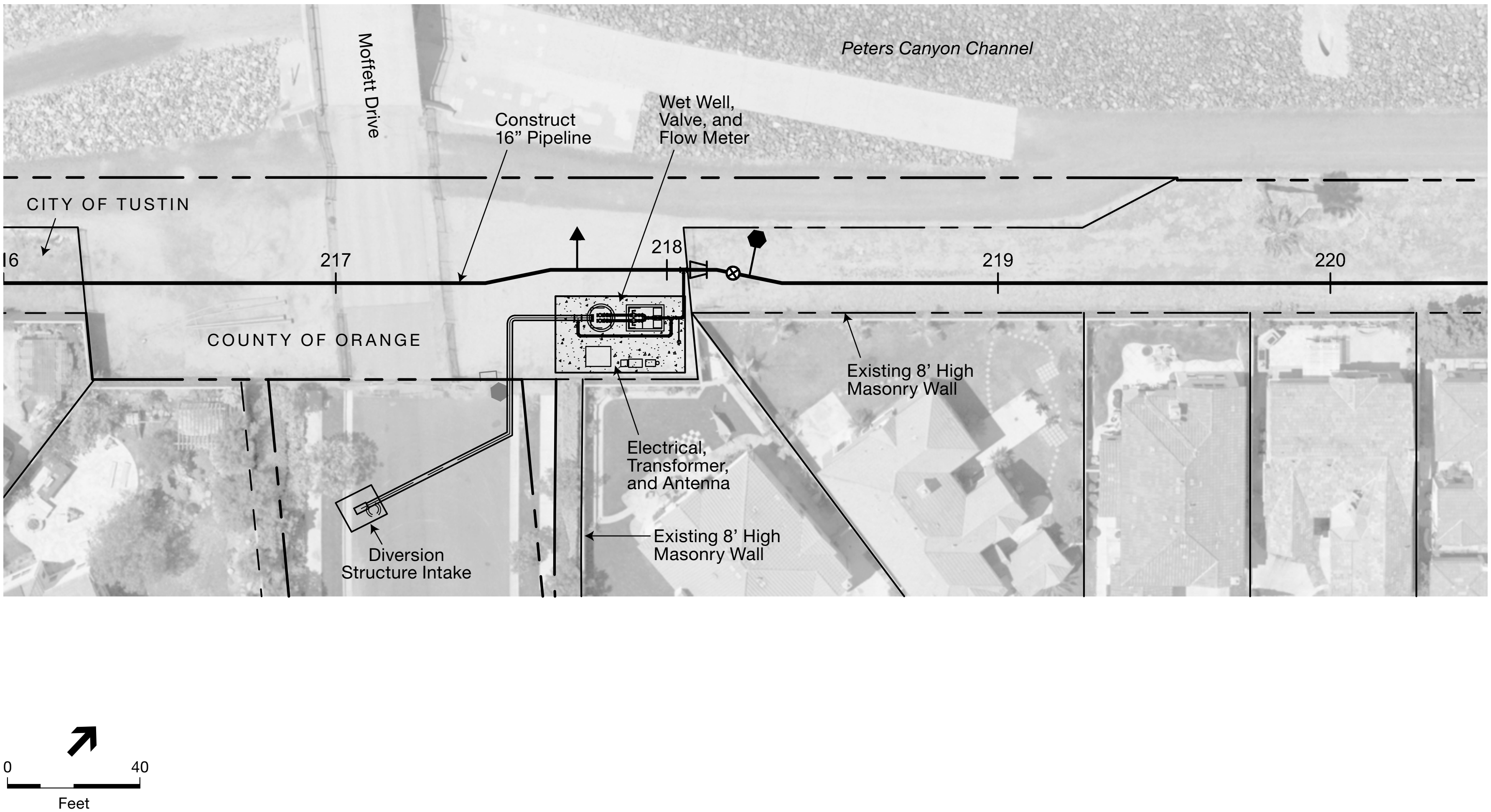
Figure 6
Edinger Circular Storm Drain
Diversion Structure



SOURCE: Tetra Tech, 2014
NOTE: Preliminary Design and subject to change

Peters Canyon Channel Water Capture and Reuse Pipeline . 130993

Figure 7
Valencia Storm Drain
Diversion Structure

OCSD Main Street Connection

The southwestern terminus of the proposed pipeline would be located at a new manhole where the 16-inch project pipeline would join with IRWD's 60-inch gravity sewer line, just upstream of the connection to OCSD's 60-inch sewer line in Main Street. This connection point would also require ancillary meter and backpressure vaults (**Figure 8**).

2.6 Project Construction

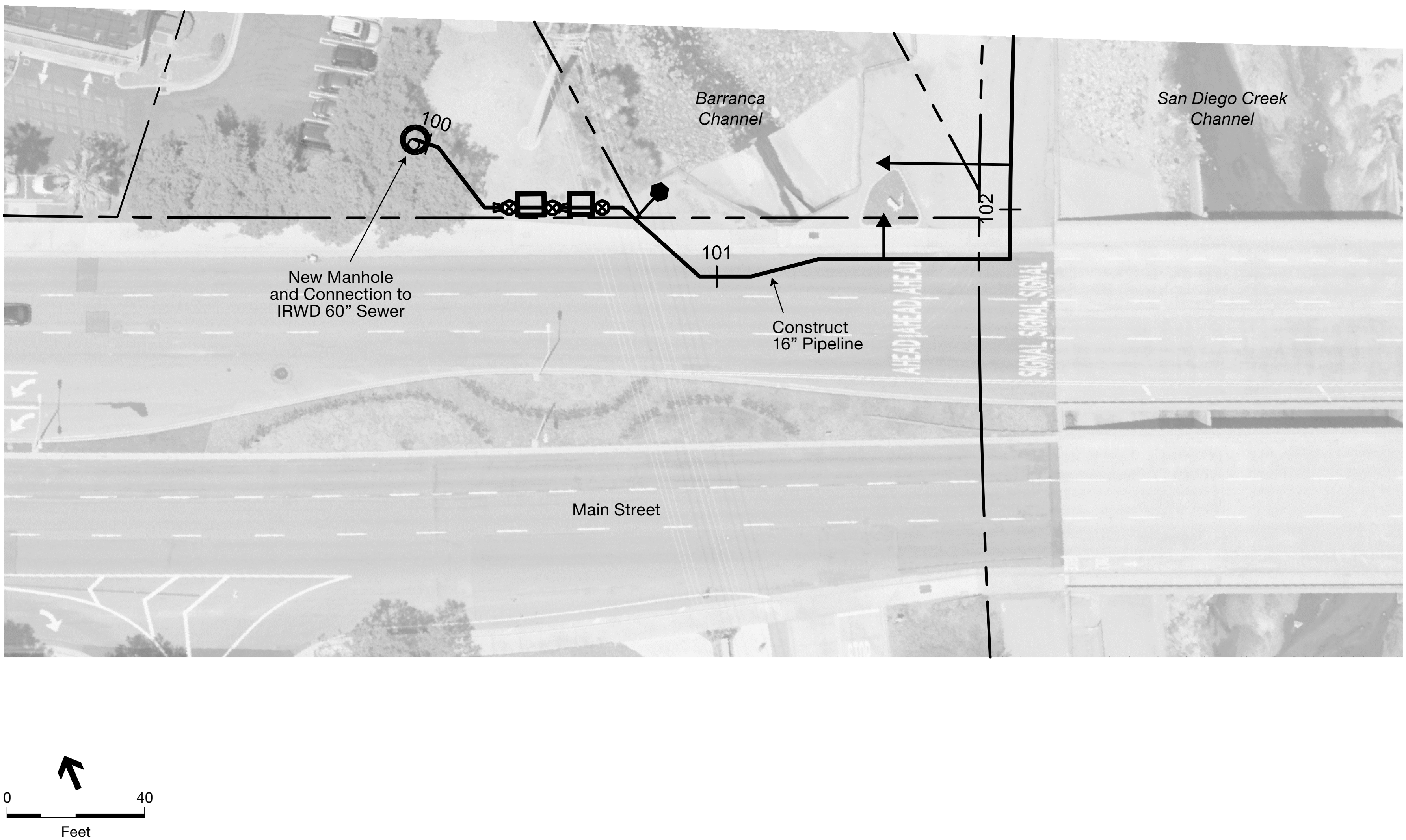
The majority of the project area is within paved or gravel access roads and bike paths. The only portion of the pipeline alignment that is not an access road or bike path is the pipeline segment from Warner Avenue to Como Channel. This area is expected to be paved in 2016 as part of the planned Peters Canyon Channel widening associated with the Tustin Legacy Project. Where feasible, the pipeline would be constructed via open-cut sloped trenches. Vertical trenching may be required along certain portions of each pipeline segment. The pipeline would be constructed with a minimum cover of approximately four feet and deeper in several places. In addition, installation of electrical conduit from the diversion structures to existing electrical service in Harvard Avenue also may require trenching in places where there are no existing ducts to run the lines.

Jack and bore construction methods would be required under Como Channel, the railroad and the sewer siphon. Como Channel, the railroad, and the sewer siphon are coincidentally located, such that jack and bore methods would allow for one pipeline crossing of all three features without disturbance. Pits would be deep enough to go under the sewer siphon. The receiving pit would be located on the north side of Como Channel and the bore pit on the south of Como Channel and the railroad. Based on past experience, groundwater infiltration is anticipated and would require dewatering during construction.

Pipeline suspension on bridge structures would also be required for the proposed pipeline to cross Peters Canyon Channel at Walnut Avenue and Barranca Parkway. The bridge suspension method would allow for channel crossing without disturbance.

The majority of pipeline installed would be polyvinyl chloride (PVC) eight-, 12-, and 16-inch pipelines. For the bridge crossings, the pipeline would be either welded steel pipe or ductile iron. Up to 4,000 cubic yards of sand would be imported to backfill around the pipeline. Native soils could be used as backfill from 12 inches above the pipe surface.

The construction areas along the proposed pipeline alignment would vary in width, as described in Section 2.5 above. The available width of the construction area influences the equipment staging method during trenching, which influences the rate of pipeline installation. Where possible, trenching would utilize a two-train (or side-by-side) construction technique, enabling hauling vehicles and excavation equipment to pass each other within the work area. Two lane construction typically requires approximately 25 feet of width when adjacent to a wall, or 20 feet



SOURCE: Tetra Tech, 2014
NOTE: Preliminary Design and subject to change

Peters Canyon Channel Water Capture and Reuse Pipeline . 130993

Figure 8
OCSD Main Street Pipeline Connection

in width when there is no obstruction at the end of the work area. Any work areas of 20 feet or less width would require single-train construction technique, and would require hauling vehicles to back up to the area of excavation for loading. Single-train construction slows the rate of pipeline installation relative to two-train construction.

Construction will be required at the Como Channel, Edinger Circular Drain, and Valencia Drain diversions to the pipeline. Construction methods will include deep shoring, open cut trenching, concrete, rebar placement, piping, mechanical, pavement placement, and landscape restoration.

During construction within city streets, one (1) open lane (15-foot width minimum) would be maintained between the hours of 9:00 a.m. to 3:00 p.m. and two (2) lanes at all other times. Trench plating would be recessed when lanes are opened up after construction work hours, especially in areas with high traffic speeds such as Edinger Avenue. A K-rail would be utilized if there would be overnight lane closures. The existing bike paths would be detoured to Harvard Avenue during construction of the proposed project, in accordance with recommendations from the City of Irvine.

Once construction is complete, all surface areas disturbed to install underground facilities would be restored to pre-construction conditions, including paving or graveling of roadways and reseeding or replanting vegetation.

Construction Schedule

The estimated construction start date is ~~Spring~~ Summer 2015. Construction is expected to progress at a rate of 100 linear feet to 250 linear feet of pipeline per day, with a completion date estimated at the end of 2015. Diversion structures would be constructed concurrent with the construction of the proposed pipeline. Jack and bore of the pipeline under the railroad, Como Channel, and the sewer siphon may take approximately five to six months. The maximum number of workers expected to be on-site at any given time is 24 persons. Construction equipment is expected to include excavators, cement trucks, dewatering equipment, air compressors, backhoes, drill rigs, compactor, dumpers, loaders, pavers, tractors, and off-highway trucks. Construction access would be provided through the existing OC Flood access points along the channel; all staging and stockpiling would occur in the area between the top of the channel and the existing fence or walls along the outer boundary, between access points.

The pipeline would be constructed from access point to access point beginning at Main Street (e.g., Main Street to Alton Parkway; Alton Parkway to Barranca Parkway; Barranca Parkway to Warner Avenue; Warner Avenue to Moffett Drive; Moffett Drive to Edinger Avenue; Edinger Avenue to Como Channel; and Como Channel to Walnut Avenue). Diversion structures are expected to be constructed in the summer while flow is low in the channels.

OC Flood conducts silt removal yearly from Walnut Avenue to a point upstream of Edinger Avenue. The pipeline construction in this area would need to schedule around this annual work.

2.7 Project Operation and Maintenance

The proposed project would be designed to convey a maximum flow of 1,621 gpm (3.7 cfs) to the OCSD Main Street sewer connection point, including dry weather flow from Como Channel, Edinger Circular Drain, and Valencia Drain and year-round flow from the Caltrans GWTF. Currently, the Caltrans GWTF does not discharge to Peters Canyon Channel. Therefore, total dry weather flow diverted from Peters Canyon Channel as a result of the proposed project would be approximately 1,130 gpm (2.6 cfs), including 492 gpm, 123 gpm, and 515 gpm (1.1 cfs, 0.3 cfs, and 1.2 cfs) from Como Channel, Edinger Circular Drain, and Valencia Drain, respectively.

A major component of the proposed project is the ability for IRWD, the cities of Tustin and Irvine, and OC Flood to discharge to OCSD under the terms and conditions of OCSD's Dry Weather Urban Runoff Program. This Runoff Program provides treatment of urban runoff at no cost as long as discharges are discontinued during a wet weather event when OCSD does not have excess treatment capacity. As a result, the proposed project would discontinue diversions from Como Channel, Edinger Circular Drain, and Valencia Drain during OCSD-designated wet weather events, allowing all storm flow to bypass the diversion structures. Caltrans' groundwater discharges from the GWTF would be diverted to OCSD 365 days a year.

Some routine maintenance for the diversion structures and pumps would be required to keep them clear of minor accumulations of grit and small debris on a regular basis. Upon initial installation, maintenance could occur as frequently as once per month, and could include a visual check, debris clearing, and/or equipment repair. One inspection and cleaning at the beginning of the rainy season, and a second annual inspection after the rainy season would be expected until performance history of the diversion structures is established. For the Como Channel diversion structure, maintenance may require temporary detour of the bike path along Como Avenue and Peters Canyon Channel to Harvard Avenue.

2.8 Project Approvals and Discretionary Actions

IRWD would use this IS/MND and supporting documentation in its decision to certify this IS/MND and approve the project. The Responsible Agencies would similarly use this IS/MND and supporting documentation to support additional discretionary actions, such as:

- **City of Irvine**: Encroachment Permit (including Barranca Parkway Bridge crossing, and Walnut Avenue Bridge crossing)
- **City of Tustin**: Encroachment Permit ~~(including Walnut Avenue Bridge crossing)~~
- **Orange County Flood Control District**: Encroachment Permit; Right of Entry Permit
- **Orange County Sanitation District**: Dry Weather Urban Runoff Diversion Permit, Special Purpose Discharge Permit
- **State Water Resources Control Board**: Notice of Intent to comply with NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (Construction General Permit) and associated Storm Water Pollution Prevention Plan

- **Regional Water Quality Control Board**: Waste Discharge Requirements for dewatering discharges
- **Private Property Owners/Homeowner Associations:** Easements and/or Encroachment Permits
- **California Department of Transportation:** Encroachment permit

CHAPTER 3
Initial Study Environmental Checklist

1. Project Title:	Peters Canyon Channel Water Capture and Reuse Pipeline Project
2. Lead Agency Name and Address:	Irvine Ranch Water District 15600 Sand Canyon Avenue Irvine, CA 92618
3. Contact Person and Phone Number:	Ray Bennett (949) 453-5300
4. Project Location:	Cities of Irvine and Tustin, Orange County, CA
5. Project Sponsor's Name and Address:	Irvine Ranch Water District 15600 Sand Canyon Avenue Irvine, CA 92618
6. General Plan Designation(s):	Recreation (City of Irvine); MCAS Tustin ~~Planned Community~~ Specific Plan (City of Tustin)
7. Zoning Designation(s):	1.5 Recreation (City of Irvine); MCAS Tustin Specific Plan District, Regional Riding and Hiking Trail (City of Tustin)
8. Description of Project:	See Chapter 2, Project Description.
9. Surrounding Land Uses and Setting:	Recreation; Residential; Industrial
10. Other public agencies whose approval is required:	See Chapter 2, Section 2.8.
11. Discretionary Actions:	See Chapter 2, Section 2.8.

Environmental Factors Potentially Affected

The proposed project could potentially affect the environmental factor(s) checked below. The following pages present a more detailed checklist and discussion of each environmental factor.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☒ Biological Resources	☒ Cultural Resources	☒ Geology, Soils and Seismicity
☐ Greenhouse Gas Emissions	☒ Hazards and Hazardous Materials	☒ Hydrology and Water Quality
☐ Land Use and Land Use Planning	☐ Mineral Resources	☒ Noise
☐ Population and Housing	☐ Public Services	☐ Recreation
☒ Transportation and Traffic	☐ Utilities and Service Systems	☒ Mandatory Findings of Significance
☐ Energy		

DETERMINATION: (To be completed by Lead Agency)
On the basis of this initial study:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.

[signature]	4/21/15
Signature	Date
JoAnn Corey	IRWD
Printed Name	For

Environmental Checklist

3.1 Aesthetics

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
1. AESTHETICS — Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	☐	☐	☐	☒

Discussion

a) ***Less Than Significant Impact.*** The proposed project is located in the cities of Tustin and Irvine. The natural setting around the project site provides a combination of mountains, hills, and flatlands. Located in central Orange County, Irvine and Tustin are bound by the City of Orange to the north, Santa Ana to the west, the San Joaquin hills to the south, and the Cleveland National Forest to the east. The proposed project would result in the construction of new pipeline facilities along Peters Canyon Channel and San Diego Creek (Figure 2). Some of the construction equipment would be visible from surrounding streets; however introduction of such equipment into the visual landscape would be temporary. There are no designated scenic vistas within the City of Tustin or City of Irvine (City of Tustin, 2008; City of Irvine, 2006). Therefore, temporary placement of construction equipment would have no impact on scenic vistas.

In addition, once constructed, the proposed water conveyance pipeline would generally be located below ground, with the exception of pipeline segments suspended from existing bridges. The diversion structures would require some ancillary above ground structures such as electrical cabinets, antennas, transformers, and service panels. With the exception of the antennas, these would be relative small and low-lying features (up to 7.5 feet tall), no taller than a single-story building. Although the antennas could be up to 25 feet in height, they would be thin and would not be new dominant features that could have a significant effect on a scenic view. The antennas also would be in areas directly adjacent to roadways, roadway overpasses and bridges, and channelized flood control channels where views from public vantage points are primarily industrial in nature. Impacts would be less than significant.

b) ***No Impact.*** The cities of Tustin and Irvine do not contain any state-designated scenic highways within their jurisdictional limits, as designated by the California Department of

Transportation (Caltrans) under the California Scenic Highway Program (Caltrans, 2014). Accordingly, both cities do not have any associated state scenic highway corridors, which are defined as the land generally adjacent to and visible by motorists from a scenic highway. In addition, the proposed facilities would not impact rock outcroppings or historic buildings. Therefore, construction and operation of the proposed project would have no impact to scenic resources within a state scenic highway corridor. There would be no impact.

c) ***Less than Significant Impact.*** The project proposes to construct a water conveyance pipeline that follows an alignment alongside but not within Peters Canyon Channel and San Diego Creek, along with diversion structures and ancillary support infrastructure in the cities of Irvine and Tustin. The pipeline would be installed primarily underground, or suspended from existing roadway bridges, and the area of disturbance restored to pre-construction conditions. As such, there would be no changes to visual character of the pipeline alignment or its surroundings. There would be no impact.

The diversion structures, including the wet wells and pumps, would be located below ground. Similar to pipeline installation, any surface disturbance would be restored to pre-construction conditions, with the exception of necessary manholes or other access structures. The diversion structures would require some ancillary aboveground components such as electrical cabinets, antennas, transformers, and service panels. These aboveground structures could affect visual character as described below.

The Como Channel diversion structure would be located near the Peters Canyon Channel and AT&SF railroad bridge crossing, within an existing landscaped area adjacent to the bike path. Multi-family residential units are located adjacent to the proposed site of the diversion facilities and supporting aboveground facilities. The site for the electrical cabinet, antenna, transformer, and service panel is shielded from view and separated from the residential units by vegetation and an existing 10-foot masonry wall. Given the surroundings include the flood control channel and neighboring railroad, the proposed facilities would not substantially alter the visual character of the site and surroundings. Impacts would be less than significant.

The Edinger Circular Drain diversion structure would be located near the Peters Canyon Channel and Edinger Avenue intersection, generally within Edinger Avenue and part of an adjacent roadside landscaped area, adjacent to the entrance to the bike path. Multi- and single-family residential units are located adjacent to the proposed work area on both sides of Edinger Avenue. The site for the electrical cabinet, antenna, transformer, and service panel would be shielded from view and separated from neighboring residences by an existing 6-foot masonry wall. Given the surroundings include the adjacent roadway, flood control channel, chain-link fence enclosure for the bike path, and bridge overpass, the proposed facilities would not substantially alter the visual character of the site and surroundings. Impacts would be less than significant.

The Valencia Drain diversion structure would be located near the Peters Canyon Channel and Moffett Avenue intersection, where the road ends and beyond the existing roadside landscaping, in an area that appears vacant and unimproved. Single family residential units are located adjacent to the proposed work area; however, the proposed facilities would be shielded from view and separated from these properties by an existing 8-foot masonry wall. Given the surroundings include the adjacent roadway and flood control channel, the proposed facilities would not substantially alter the visual character of the site or surroundings. Impacts would be less than significant.

The existing Caltrans GWTF would require only minor modifications to connect to the proposed project. The existing Caltrans GWTF would largely remain visually the same; any minor changes would be compatible with the existing facility. As such, there would be no changes to the visual character of the GWTF site or surroundings. There would be no impact.

d) ***No Impact***. Construction of the proposed project facilities would be limited to daytime hours, generally from 8:00 a.m. to 4:00 p.m., in accordance with the cities of Irvine and Tustin and IRWD policies. As a result, there would be no need for nighttime construction lighting, and the project would have no affect to light or glare during construction.

No new permanent nighttime security lighting is necessary for the proposed project. The majority of facilities are below ground. No additional lighting would be required at the Caltrans GWTF. Therefore, operation of the proposed project would not require lighting that would affect neighboring land uses due to light or glare. There would be no impact.

3.2 Agricultural and Forest Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
2. AGRICULTURAL AND FOREST RESOURCES — In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. **Would the project:**				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion

a/b) ***No Impact.*** According to the maps prepared for the Farmland Mapping and Monitoring Program of the California Resource Agency (CRA), the project area does not include agricultural resources. The project sites are not designated as Prime, Unique or Important Farmland. The proposed project sites are designated as Urban and Built-Up Land and have already been developed (Department of Conservation, 2011). None of the proposed project components are located on lands that are subject to a Williamson Act contract (CDOC, 2004). Therefore, the proposed project would not conflict with a Williamson Act contract. There would be no impact.

c/d) ***No Impact.*** The project site does not contain forest land or timberland. The project area is located adjacent to and alongside Peters Canyon Channel and San Diego Creek and is completed developed in an urban context. The portion of project site passing through Irvine is zoned as Recreation; the section of channel in Tustin is zoned as a regional riding and hiking trail under the MCAS Tustin Specific Plan District. Therefore, implementation of the project would not result in any conflicts with existing zoning or cause rezoning of forest land or timber land. The proposed project would not convert existing forest land to non-forest uses. There would be no impact.

e) ***No Impact.*** Existing and designated land uses within and adjacent to the project area do not include agricultural land, forest land or timberland. Thus, implementation of this project would not result in changes in the environment, which would result in the conversion of farmland to non-agricultural use or conversion of forest land to non-forest use. No impacts related to agricultural or forest lands would occur from implementation of the project.

3.3 Air Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
3. AIR QUALITY — Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. **Would the project:**				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Discussion

a) ***Less than Significant Impact.*** A significant air quality impact may occur if a project is not consistent with the applicable Air Quality Management Plan (AQMP) or would in some way obstruct the implementation of the policies or obtainment of the goals of that plan. The proposed project is located within the cities of Tustin and Irvine in Orange County, California. These cities are located in the South Coast Air Basin (Basin), which is within the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The SCAQMD is the agency principally responsible for comprehensive air pollution control in the Basin. To that end, the SCAQMD, a regional agency, works directly with the Southern California Association of Governments (SCAG), county transportation commissions, local governments, and cooperates actively with all state and federal government agencies. The SCAQMD develops rules and regulations, establishes permitting requirements, inspects emissions sources, and enforces such measures though educational programs or fines, when necessary. SCAQMD and SCAG are responsible for preparing the AQMP, which addresses federal and state Clean Air Act (CAA) requirements. Pursuant to these requirements, the SCAQMD is required to reduce emissions of criteria pollutants for which the Basin is in non-attainment. The AQMP details goals, policies, and programs for improving air quality in the Basin.

The 2012 AQMP is currently the most recent plan for the Basin, and was adopted by the SCAQMD Governing Board on December 7, 2012. The 2012 AQMP was prepared to accommodate growth, to reduce the high levels of pollutants in the Basin, to meet federal and state air quality standards, and to minimize the fiscal impact that pollution control measures have on the local economy. It builds on the approaches taken from the previous 2007 AQMP and sets forth a comprehensive and integrated program that will lead the Basin into compliance with the federal 24-hour $PM_{2.5}$ air quality standard, and to provide an update to the Basin's commitments towards meeting the federal 8-hour ozone standards. SCAG, which is the regional metropolitan planning organization for the Southern California area, has established the assumptions for growth, in terms of demographic growth and associated air quality impacts, and these assumptions are utilized in SCAQMD's AQMP.

Since the forecasted growth in SCAQMD's AQMP for the Basin relies on SCAG's regional growth forecasts, and because SCAG's growth forecasts are based upon, among other things, land uses specified in city general plans, a project that is consistent with the land use designated in a city's general plan would also be consistent with the AQMP growth projections. As discussed in Chapter 2 (Project Description), the proposed project would install infrastructure for the collection and transport of nuisance groundwater surface water flows with high nitrate and selenium concentrations from the Peters Canyon Channel to OCSD for treatment. Specifically, the proposed project would include the installation of a pipeline conveyance system and diversion structures alongside and in proximity to Peters Canyon Channel. Given that the proposed project is an infrastructure project that serves only to divert groundwater and surface waters to OCSD for treatment and reuse to comply with the NPDES Permit issued by the Santa Ana RWQCB, implementation of the proposed project would not result in any additional population or housing growth in the project area that has not been accounted for in the general plans of the cities of Tustin and Irvine. Consequently, as no growth-inducing development or land use would occur under the project, implementation of the project would not conflict with or obstruct the implementation of SCAQMD's AQMP.

In addition, SCAQMD regional significance thresholds were designed to assist SCAQMD in determining if a project would worsen air quality conditions in the Basin. The determination of AQMP consistency is primarily concerned with the long-term influence of the proposed project on air quality in the Basin. As discussed under Question 3(b) below, the proposed project would not result in significant regional construction emissions and would not interfere with the attainment of air quality standards. Thus, the project's construction activities would not conflict with or obstruct implementation of the AQMP. Overall, the proposed project would result in a less-than-significant impact related to the AQMP.

b) ***Less than Significant Impact.*** A project may have a significant impact where project-related emissions would exceed federal, state, or regional standards or thresholds, or where project-related emissions would substantially contribute to an existing or projected air quality violation. As the proposed project consists of the installation of a pipeline conveyance system and diversion structures in the cities of Irvine and Tustin along the Peters Canyon Channel, potential air quality impacts associated with the project would only occur during the construction phase as the operation of construction equipment would result in additional air emissions in the region. Once construction activities have been completed, operation of the proposed project would not involve any direct pollutant emissions sources onsite. The operation of the diversion pumps would be powered through electricity obtained from the regional grid, and would not result in any direct pollutant emissions. In addition, while vehicle emissions would be generated by worker trips to and from the project area for routine maintenance of the diversion structures and pumps, these trips are anticipated to occur only once a month. As such, the mobile emissions generated during project operations would be negligible and would not exceed SCAQMD's applicable regional thresholds. Thus, this analysis focuses on the potential air quality impacts that could result from construction of the proposed project.

Construction of the proposed project's pipeline conveyance system would occur in multiple pipeline segments spanning a length of approximately 17,300 lineal feet. Construction of the pipeline would mostly involve the open-trench method, while one location would require use of the jack and bore construction methods. Construction activities at each open-trench or jack and bore site would generate pollutant emissions from the following construction activities: (1) site preparation, excavation, and pipe installation; (2) construction workers traveling to and from the construction site; (3) delivery and hauling of construction supplies and debris to and from the construction site; (4) the fuel combustion by onsite construction equipment; and (5) restoration of the work site. Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards for outdoor concentrations to protect public health. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include carbon monoxide (CO), nitrous oxides (NOx), particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter (PM_{10} and $PM_{2.5}$), sulfur oxides (SOx), and reactive organic gasses (ROG). Construction activities associated with the project involving site preparation and excavation would primarily generate respirable particulate matter (PM_{10}) emissions. Mobile source emissions (use of diesel-fueled equipment onsite, and traveling to and from the construction site) would primarily generate oxides of nitrogen (NOx) emissions. The amount of emissions generated on a daily basis would vary, depending on the amount and types of construction activities occurring at the same time.

It is mandatory for all construction projects in the Basin to comply with SCAQMD Rule 403 (Fugitive Dust) for controlling fugitive dust emissions. Specific Rule 403 control requirements include, but are not limited to, applying water in sufficient quantities to prevent the generation of visible dust plumes, applying soil binders to uncovered areas, reestablishing ground cover as quickly as possible, and maintaining effective cover over exposed areas. Site watering and application of soil binders would reduce the particulate matter from becoming airborne, while washing of transport vehicle tires and undercarriages would reduce re-entrainment of construction dust onto the local roadway network. According to SCAQMD, compliance with Rule 403 would reduce $PM_{2.5}$ and PM_{10} emissions associated with construction activities by approximately 61 percent.

The analysis of daily construction emissions has been prepared utilizing the California Emissions Estimator Model (CalEEMod). CalEEMod was used to determine whether short-term construction-related emissions of criteria air pollutants associated with the proposed project would exceed SCAQMD's applicable regional thresholds and where mitigation would be required. Modeling was based on project-specific data, when available. Where project-specific information was not available, default model settings were used to estimate criteria air pollutant and ozone precursor emissions. For the purpose of this analysis, the construction emissions occurring on a peak (worst-case) day over the entire project construction period were estimated and evaluated against the applicable SCAQMD significance thresholds. Based on project information provided by IRWD, it was determined that a worst-case construction day for the proposed project would involve the concurrent construction activities at both an open-trench site and a jack and bore site.

The estimated daily emissions that are estimated to occur on peak construction days for the proposed project are shown in **Table 3-1**. These calculations take into account that appropriate dust control measures under SCAQMD Rule 403 would be implemented by the project during each phase of construction.

TABLE 3-1
PROJECT PEAK DAY CONSTRUCTION EMISSIONS

	Pounds Per Day					
Emissions Source	**ROG**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Open-Trench Site[a]						
Off-Road Equipment	4.07	38.55	24.66	0.04	2.40	2.26
On-Road Vehicles	0.14	0.19	2.11	0.005	0.39	0.11
Fugitive Dust	--	--	--	--	--[b]	--[b]
Subtotal Emissions	4.21	38.74	26.77	0.05	2.79	2.37
Jack and Bore Site[c]						
Off-Road Equipment	4.07	38.50	24.62	0.04	2.40	2.26
On-Road Vehicles	0.14	0.19	2.11	0.005	0.39	0.11
Fugitive Dust	--	--	--	--	--[d]	--[d]
Subtotal Emissions	4.21	38.69	26.73	0.05	2.79	2.37
Total Peak Daily Emissions	**8.42**	**77.43**	**53.50**	**0.10**	**5.58**	**4.74**
Regional Significance Threshold	75	100	550	150	150	55
Exceed Threshold?	No	No	No	No	No	No

[a] The peak daily construction emissions for each pollutant for an open-trench site would occur during the work site restoration phase.
[b] Although fugitive emissions would be generated primarily during the excavation phase associated with project construction, the peak day PM_{10} and $PM_{2.5}$ emissions at an open-trench site were determined to occur during the work site restoration phase. As such, the fugitive dust emissions generated during the excavation phase are not shown in this table.
[c] The peak daily construction emissions for each pollutant for a jack and bore site would occur during the work site restoration phase.
[d] Although fugitive emissions would be generated primarily during the excavation phase associated with project construction, the peak day PM_{10} and $PM_{2.5}$ emissions at a jack and bore site were determined to occur during the work site restoration phase. As such, the fugitive dust emissions generated during the excavation phase are not shown in this table.

NOTE: See **Appendix A** for CalEEMod output.

As shown in Table 3-1, the peak daily regional emissions generated during project construction would not exceed the SCAQMD daily significance thresholds for ROG, NO_X, CO, SOx, $PM_{2.5}$ and PM_{10}. Since construction emissions would not exceed the SCAQMD thresholds, the regional impacts related to air quality during project construction activities would be less than significant.

c) ***Less than Significant Impact.*** With respect to air quality, a significant impact may occur if the project would add a considerable cumulative contribution to federal or state non-attainment pollutants. As the Basin is currently classified as a state nonattainment area for ozone, PM_{10}, and $PM_{2.5}$, cumulative development consisting of the proposed project along with other reasonably foreseeable future projects in the Basin as a whole could violate an air quality standard or contribute to an existing or projected air quality violation. With respect to determining the significance of the proposed project's contribution to regional emissions, the SCAQMD neither recommends quantified analyses of cumulative construction emissions nor provides methodologies or thresholds of significance to be used to assess cumulative construction impacts. Instead, the SCAQMD recommends that a project's potential contribution to cumulative impacts should be assessed utilizing the same significance criteria as those for project specific impacts. Furthermore, SCAQMD states that if an individual development project generates less than significant construction or operational emissions then the development project would not generate a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment (SCAQMD, 2003).

As discussed under Question 3(b) above, the proposed project would not generate construction emissions that would exceed the SCAQMD's recommended thresholds. Once construction activities have been completed, operation of the proposed project would not involve any direct pollutant emissions sources onsite as the new diversion pumps would be powered through electricity obtained from the regional grid. In addition, because mobile emissions generated from worker trips to and from the project area for routine maintenance of the diversion structures and pumps are anticipated to only occur once a month, the mobile emissions generated would be negligible. As such, project operations would not generate substantial pollutant emissions that would exceed SCAQMD's applicable regional thresholds. Therefore, the proposed project would not generate a cumulatively considerable increase in emissions of the pollutants for which the Basin is in nonattainment, and impacts would be less than significant.

d) ***Less than Significant Impact.*** A significant impact may occur if a project were to generate pollutant concentrations to a degree that would significantly affect sensitive receptors. Sensitive receptors are populations that are more susceptible to the effects of air pollution than are the population at large. The SCAQMD identifies the following as sensitive receptors: long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, child care centers, and athletic facilities. The nearest and most notable off-site sensitive receptors to the project would be the existing residential uses that are currently located adjacent to and along the Peters Canyon Channel and San Diego Creek.

Localized Construction Emissions

Emissions from construction activities have the potential to generate localized emissions that may expose sensitive receptors to harmful pollutant concentrations. The SCAQMD has developed localized significance thresholds (LSTs) that are based on the amount of pounds of emissions per day that can be generated by a project that would cause or contribute to adverse localized air quality impacts. These localized thresholds, which are found in the mass rate look-up tables in the *Final Localized Significance Threshold Methodology* document prepared by the SCAQMD, apply to projects that are less than or equal to five acres in size and are only applicable to a project's on-site emissions for the following criteria pollutants: NOx, CO, PM_{10}, and $PM_{2.5}$. LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standards, and are developed based on the ambient concentrations of that pollutant for each source receptor area (SRA) within the Basin. The project area, which consists of an approximately 3-mile stretch along Peters Canyon Channel and San Diego Creek, traverses the cities of Tustin (SRA 17) and Irvine (SRA 20).

The LSTs developed by SCAQMD are provided for the following distances from the source of emissions: 25 meters, 50 meters, 100 meters, 200 meters, and 500 meters. Additionally, the LSTs at these distances also vary based on the size of the project site. The SCAQMD has provided LSTs for sites that are 1-acre, 2-acre, and 5-acre in size. As the total construction work area for an open-trench or jack and bore site would be approximately 1.4 acres, the LSTs for a 1-acre site is used for this analysis. The nearest and most notable off-site sensitive receptors that could potentially be subject to localized air quality impacts associated with construction of the proposed project would be the existing residential uses located adjacent to and along Peters Canyon Channel and San Diego Creek. Given the proximity of these sensitive uses to the construction areas where the proposed conveyance pipeline would be installed, the LSTs for a one-acre site with receptors located within 25 meters (82.02 feet) are used to address the potential localized air quality impacts associated with the project's construction-related NOx, CO, PM_{10}, and $PM_{2.5}$ emissions.[1]

As discussed in Question 3(b) above, it was determined that a worst-case construction day for the proposed project would involve the concurrent construction activities at both an open-trench site and a jack and bore site along the approximately 3-mile pipeline alignment. However, whereas the construction emissions analysis conducted under Question 3(b) pertained to the project's total daily mass emissions, the LST analysis is

[1] Although some of the existing sensitive uses (i.e., residential uses) located along Peters Canyon Channel would be located closer than 25 meters from the project's construction areas where open-trench and jack and bore sites would operate, the SCAQMD's LST methodology indicates that projects with boundaries located closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters.

concerned with a project's localized air quality impacts. While construction activities at both an open-trench site and a jack and bore site would occur concurrently during the project's peak construction day, the geographic location of these two construction sites are anticipated to be far enough apart on the proposed pipeline path such that the construction emissions generated at each site would only affect their respective localized sensitive receptors. As such, the LST analysis for the proposed project evaluates the construction emissions generated at a single open-trench site and a jack and bore site separately.

The peak daily emissions generated at an open-trench and jack and bore site during construction activities were estimated using CalEEMod and are shown in **Table 3-2.** As LSTs are only concerned with a project's on-site emissions, the emissions shown in Table 3-2 only account for off-road equipment operating at an open-trench site and a jack and bore site.

TABLE 3-2
LOCALIZED CONSTRUCTION POLLUTANT EMISSIONS

	Pounds Per Day			
Construction phase	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
Open-Trench Site				
Site Preparation	12.04	9.07	3.25	1.35
Excavation and Shoring and Pipeline Installation	29.64	20.77	3.34	1.94
Work Site Restoration	38.57	24.94	2.40	2.26
Peak Day Localized Emissions	**38.57**	**24.94**	**3.34**	**2.26**
City of Irvine Localized Significance Threshold[a]	92	647	4	3
Exceed City of Irvine Threshold?	No	No	No	No
City of Tustin Localized Significance Threshold[b]	81	485	4	3
Exceed City of Tustin Threshold?	No	No	No	No
Jack and Bore Site				
Site Preparation	12.04	9.07	3.25	1.35
Excavation and Shoring	22.38	16.83	2.74	1.36
Pipeline and Casing Installation	23.36	16.83	1.51	1.43
Removal of Jacking and Receiving Pit	16.16	11.02	0.96	0.89
Work Site Restoration	38.57	24.94	2.40	2.26
Peak Daily Localized Emissions	**38.57**	**24.94**	**3.25**	**2.26**
City of Irvine Localized Significance Threshold[a]	92	647	4	3
Exceed City of Irvine Threshold?	No	No	No	No
City of Tustin Localized Significance Threshold[b]	81	485	4	3
Exceed City of Tustin Threshold?	No	No	No	No

NA = non-applicable. See **Appendix A** for CalEEMod output.
[a] LSTs for a 1-acre site located in SRA 20. [b] LSTs for a 1-acre site located in SRA 17.

As shown in Table 3-2, the peak daily emissions generated at either an open-trench or jack and bore site during project construction activities would not exceed the applicable construction LSTs. Therefore, localized air quality impacts from the project's construction activities on the surrounding off-site sensitive receptors would be less than significant.

Localized Traffic-Related Emissions

Construction of the proposed project pipeline alignment is not anticipated to result in substantial air quality impacts to the public with respect to traffic congestion. The proposed project limits the construction of the pipeline to within existing access roads or within access roads planned as part of the future channel widening for the Tustin Legacy development. For work within city streets, the proposed project would require that phased pipeline construction must maintain one (1) open lane (15-foot width minimum) between the hours of 9 A.M. to 3 P.M. and two (2) lanes at all other times. Additionally, the proposed project would require that trench plating be recessed due to high traffic speeds at Edinger Avenue when lanes are opened up after construction work hours. Furthermore, the proposed project would be required to implement all applicable traffic control standards established by the Orange County Transportation Authority (OCTA) to minimize traffic disruption as part of the proposed project's Traffic Control Plan. Overall, the proposed project would result in a less-than-significant impact related to localized, traffic-related pollutant concentrations during construction.

Toxic Air Contaminants

A substance is considered toxic if it has the potential to cause adverse health effects in humans. A toxic substance released into the air is considered a toxic air contaminant (TAC). TACs are identified by state and federal agencies based on a review of available scientific evidence. In the State of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management was designed to protect residents from the health effects of toxic substances in the air.

Construction of the proposed project would result in short-term diesel exhaust emissions from off-road heavy-duty equipment. Diesel exhaust is considered a TAC. Construction would result in the generation of diesel exhaust emissions from the use of off-road diesel equipment required for site preparation and excavation, and other construction activities.

The dose to which sensitive receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the proposed project. Although construction of the entire project would occur over approximately a seven month period, the project's construction activities during that time would be separated into different open-trench sites and one jack-and-bore site located along the proposed pipeline alignment. As such, the project's construction activities would not be permanently stationed at any one location but instead would occur in a linear fashion along the proposed pipeline alignment. The construction period for each open-trench or jack-and-bore site would be approximately three to four months. Once the construction activities at an active site are completed, the construction activities would move to another location along the approximately three-mile pipeline alignment. Thus, the duration of the proposed construction activities at any one open-trench or jack and bore site would only constitute a small percentage of the total 70-year exposure period. Thus, diesel particulates from construction activities would not be anticipated to result in the exposure of sensitive receptors to levels that exceed applicable standards, and impacts would be less than significant.

e) ***Less Than Significant Impact.*** A significant impact may occur if objectionable odors occur which would adversely impact sensitive receptors. According to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. As the proposed project consists of the installation of infrastructure for the collection and transport of nuisance groundwater and surface water flows from the Peters Canyon Channel to OCSD for treatment, the proposed project is not a type of use identified by the SCAQMD as being associated with odors. Thus, the proposed project would not result in objectionable odors during operations, and this impact would be less than significant.

During construction of the proposed project, exhaust from equipment may produce discernible odors typical of most construction sites. Such odors would be a temporary source of nuisance to adjacent uses, but would not affect a substantial number of people. As odors associated with project construction would be temporary and intermittent in nature, the odors would not be considered to be a significant environmental impact. Therefore, impacts associated with objectionable odors would be less than significant.

3.4 Biological Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
4. BIOLOGICAL RESOURCES — Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☒	☐	☐

Discussion

The analysis provided below is based on the *Biological Resources Technical Report* included in **Appendix B** and *Reduced Discharge Technical Study* included in **Appendix C**.

A biological reconnaissance survey was conducted by ESA biologists on February 19, 2014, within the limits of the area of potential effect (APE) for project construction, namely the area of ground disturbance plus areas that are approximately 500 feet from the APE boundary. In addition, a biological survey was conducted on April 1, 2014 within and downstream of the construction APE for purposes of evaluating the operational effects of the project diversions. For purposes of this analysis the operational or downstream APE includes all areas downstream of the three project diversion points, including Peters Canyon Channel, San Diego Creek, and the IRWD San Joaquin Marsh. Descriptions of existing baseline conditions in the downstream APE are included in Section 3.9 Hydrology and Water Quality under Item 9(f).

a) ***Less Than Significant with Mitigation Incorporation***.

<u>Construction Impacts to Special-Status Plants</u>: Table 1 in the Biological Resources Technical Report (Appendix B**)** lists special-status plant species identified as having the potential to occur within the construction APE and immediate vicinity. This table contains detailed information on each of the species' habitat requirements and potential for occurrence within the project area. One special-status plant species, Coulter's Matilija poppy (*Romneya coulteri*), was observed within the immediate vicinity of the construction APE during project surveys; however, no individuals were identified within the proposed limits of project construction. Additionally, southern tarplant (*Centromadia parryi* ssp. australis) and mud nama (*Nama stenocarpum*) have been previously recorded in close proximity to the construction APE. These two species were determined to have a high potential to occur within the project area because of the nearby known occurrences and the presence of suitable habitat. If present, Coulter's Matilija poppy, southern tarplant, and mud nama could be impacted during the installation of the proposed pipeline and diversion structures. **Mitigation Measures BIO-1** and **BIO-5** include preconstruction surveys and measures to avoid impacts to these species to the greatest extent feasible. Construction-related impacts to special-status plants would be less-than-significant with mitigation.

<u>Construction Impacts to Special-Status Wildlife</u>: Table 2 in the Biological Resources Technical Report (Appendix B) lists special-status wildlife species identified as having the potential to occur within the project site and immediate vicinity. This table contains detailed information on each of the species' habitat requirements and potential for occurrence within the project area. Three special-status avian species; western burrowing owl (*Athene cunicularia*), white-tailed kite (*Elanus leucurus*), and California horned lark (*Eremophila alpestris actia*); may overwinter or nest adjacent to the project site. Additionally, several other resident or migratory birds and raptors protected under California Fish and Game Code and/or the Migratory Bird Treaty Act (MBTA), including great blue heron (*Ardea herodias*), have the potential to forage and/or nest within the immediate vicinity of the project area as well. While most potentially-occurring special-status wildlife species were not observed during the field reconnaissance, suitable habitat does exist and the construction of the project could result in adverse effects if a protected species were to be present during construction. Swallows (*Hirundinidae*) are known to nest under bridges within the project area, based on the observation of old mud nests. In order to avoid impacts to bird nests, it is recommended that construction of the project be conducted outside of the nesting season, which is generally recognized as February 1 through August 31. The MTBA and the California Fish and Game Code Section 3503 and 3503.5 consider the loss of active nests (i.e., nests with eggs or young) of all native bird species as unlawful. Consequently, the loss or abandonment of active bird nests as a result of construction-related activities would be considered a significant impact. Impacts to nesting birds are potentially significant; however, implementation of **Mitigation Measures BIO-1 through BIO-3** would reduce these impacts to less-than-significant levels.

Pallid bat (*Antrozous pallidus*) has the potential to roost, particularly underneath concrete bridges in the area, as well as forage over the watercourses located within and adjacent to the project site. Construction activities, particularly noise and vibration, could result in roost abandonment. The abandonment of a roost as a result of construction-related activities would be considered a significant impact. As indicated **in Mitigation Measure BIO-6**, it is recommended that construction near bridges occur outside of the roosting season, which is recognized as April 1 through July 31; otherwise, avoidance measures should be implemented. Implementation of this mitigation measure would reduce these impacts to less-than-significant levels.

The western pond turtle *(Emys marmorata*) has a high potential to occur within Peters Canyon Channel, San Diego Creek, and associated tributaries when water is present. Construction activities will not directly impact Peters Canyon Channel or San Diego Creek; however, indirect impacts to western pond turtle may occur, if present, through increased siltation or release of pollutants by construction equipment and construction activities adjacent to the channels. However, compliance with the Statewide Construction General Permit would require implementation of erosion and sediment controls best management practices to reduce the discharge of sediment to the maximum extent practicable into the channels. Impacts to western pond turtle could be potentially significant during construction; however, **Mitigation Measures BIO-1** and **BIO-4**, which include guidance for relocating turtles if found, would reduce these impacts to less-than-significant levels.

<u>Operational Impacts to Special-Status Plants</u>: Operation of the proposed project would reduce existing dry weather flow in Peters Canyon Channel downstream of the diversion structures and in San Diego Creek downstream of the confluence with Peters Canyon Channel. Table 1 in the Biological Resources Technical Report (Appendix B**)** lists special-status plant species identified as having a high potential to occur within the downstream APE and immediate vicinity, including southern tarplant, mud nama, Coulter's Matilija poppy, and white rabbit-tobacco (*Psuedognaphalium leucocephalum)*.

Peters Canyon Channel downstream of the project diversions is a trapezoidal flood control channel, comprised of a relatively wide, sandy bed with rip-rap or concrete banks and generally lacking any notable riparian habitat. There is little in-stream vegetation or aquatic habitat under existing conditions since the channel is managed for flood control and is periodically cleared through either planned maintenance activity or scour floods. There are no special-status plant species or natural communities; thus project operation would have no effect on resources in this area. Similarly, there are no special-status plant species or natural communities in the portion of San Diego Creek between the confluence with Peters Canyon Channel and approximately the I-405 Freeway bridge crossing.

Downstream of the I-405 bridge, within San Diego Creek, there are three Sediment Basins that are operated and maintained by OC Flood. These basins are characterized by riparian and freshwater marsh vegetation and as such have the potential to support special-status plant species. Riparian and aquatic habitat within the Sediment Basins reach is generally of higher quality than the project area reaches upstream, having more wetted and open water habitat, more emergent vegetation (e.g., cattails), and a riparian corridor/buffer (approximately 40 feet wide) that is maintained along the east bank area of the basins. The sediment basin downstream of Campus Drive has not been recently maintained and the channel bottom supports a significant area of riparian habitat. As described in the Reduced Discharge Technical Study prepared for the project (Appendix C), operation of the proposed project would reduce flow in these Sediment Basins; however, even during the driest of years, such as 2013, flow would not be completely eliminated in the basins. Even though flow may be temporarily reduced relative to historic baseline conditions, surface flow and groundwater would remain available to support in-channel vegetation. In addition, the wetted perimeter of the channel and the extent of riparian vegetation would not likely change substantially due to the shape of the sediment basins and their operation and maintenance. Modifications to flow through the basins are buffered as basins fill before spilling over to the next basin. The Reduced Discharge Technical Study demonstrated that as a result of project operation, average depth in the sediment basins would be reduced by 0.44, 0.45, and 0.40 feet for basins 1, 2, and 3, respectively. This represents an average depth reduction of approximately 16 percent during dry season months (April through September, Water Years (WY) 2009-2013). Such a reduction in depth would not have a significant adverse effect on special-status plant species or natural communities that may be present within downstream portions of San Diego Creek.

For the IRWD San Joaquin Marsh, as reported in the Reduced Discharge Technical Study (Appendix C), the proposed project would reduce the average annual daily flow available at the IRWD San Joaquin Marsh inlet from approximately 7.5 cfs to 5.3 cfs and would reduce the San Joaquin Marsh influent from approximately 5.7 cfs to 4.6 cfs, a 19 percent reduction (see Item 3.9(f) below). This would result in a reduction in annual influent to the marsh by approximately 260 MGY, from 1,345 MGY under existing conditions to 1,085 MGY under project conditions. This analysis represents a conservative assessment of project effects during low-flow conditions since the existing baseline includes drought conditions that exacerbate low flows during dry weather periods. During normal to wet climatic periods, operation of the proposed project may have no effect on inflow to the San Joaquin Marsh.

The reduction in inflow would potentially affect pond water levels within the San Joaquin Marsh, which could affect water availability for special-status plant species. However, this would only occur if the volume of water cycling through the marsh was less than the volume of water consumed within the marsh due to evaporation or other processes (e.g., transpiration). For WY 2009-2013, average dry season evaporative losses under baseline conditions represent only about 13 percent of total San Joaquin Marsh input. Therefore, since inflow to the marsh would still far exceed the estimated losses within the marsh, the water levels are unlikely to be affected by the proposed project, as is the extent of vegetation, including special-status plant species. As a result, operation of the proposed project is not anticipated to effect special-status plant species. Impacts would be less than significant.

Operational Impacts to Special-Status Wildlife: Generally, operation of the proposed project has the potential to benefit wildlife due to improvements to water quality through removal of selenium and nitrogen in upstream diversions and reductions in the concentrations of these constituents downstream. Selenium can be bioaccumulated, from water and aquatic sediments, through uptake by benthic invertebrates. Elevated selenium levels in dietary items can cause reproductive toxicity to wildlife and especially to some species of birds. The project would reduce the loading of selenium downstream in Peters Canyon Channel and San Diego Creek by 32 to 35 percent, and the San Joaquin Marsh by 22 percent, and thus reduce the potential for such negative effects to wildlife to occur.

More specifically, in Peters Canyon Channel downstream of the project diversion points, there is no habitat or natural communities that would support special-status wildlife species; thus project operation would have no effect on resources in this area. Similarly, there is no habitat or natural communities to support special-status wildlife in the portion of San Diego Creek between the confluence with Peters Canyon Channel and approximately the I-405 Freeway bridge crossing. Downstream of the I-405 bridge, there is riparian vegetation, freshwater marsh, and some open water that could potentially support special-status wildlife species as identified in Table 2 of the Biological Resources Technical Report (Appendix B). Such special-status wildlife species include, but may not be limited to, western pond turtle, great blue heron, southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), yellow breasted chat (*Icteria virens*), California least tern (*Sternula antillarum browni*) and California black rail (*Laterallus jamaicensis coturniculus*). As described above, operation of the proposed project would reduce flow in this portion of San Diego Creek, which includes the three Sediment Basins. Even though flow may be temporarily reduced relative to historic baseline conditions, surface flow and groundwater would remain available to support in-channel vegetation, although the wetted perimeter of the channel and the extent of riparian vegetation may temporarily change. Therefore, operation of the project is not anticipated to impact habitat for special-status wildlife species that may be present within downstream portions of San Diego Creek.

As reported in the Reduced Discharge Technical Study (Appendix C) and described above, operation of the project is not expected to affect water levels in the ponds in San Joaquin Marsh and thus the extent of riparian features and natural communities such as Southern Willow Scrub, Southern Riparian Scrub, Southern Cottonwood Riparian Forest, and Cattail Marsh would not be affected. However, project operation is anticipated to result in increased residence time of water flowing through the ponds. The increase in residence time, however, may induce undesirable conditions, such as increased water temperature, increased algae production, and a sustained reduction in dissolved oxygen (DO) levels during drought and summer dry conditions. These reduced water quality conditions if sustained may impact the benthic and fish community in the marsh. For example, in the event that algal mats develop and die off as a result of reduced circulation and increased retention time, diurnal fluctuations in dissolved oxygen may result in anoxic conditions (dissolved oxygen of 0-2). Sustained low oxygen conditions can impact benthic communities, potentially result in fish kills, and create odor problems. These adverse effects could significantly impact the foraging base for special-status wildlife. Therefore, **Mitigation Measure HYDRO-1** requires implementation of an Impact Avoidance Framework (IAF) to ensure water quality in the San Joaquin Marsh is maintained. With implementation of the IAF, during critical dry weather periods, adverse impacts to water quality would be avoided or mitigated by ensuring water quality parameters, such as dissolved oxygen concentrations, remain within an acceptable established range. Indirect impacts to special-status wildlife species (e.g., western pond turtle, great blue heron, southwestern willow flycatcher, least Bell's vireo, yellow breasted chat, and California black rail) would be considered less than significant with mitigation.

Operation of the proposed project would not impact any designated critical habitat. The closest critical habitat to the project site and downstream APE is that for coastal California gnatcatcher (*Polioptila californica californica*), which is identified approximately two miles south.

b) ***Less Than Significant with Mitigation Incorporation.*** The City of Irvine General Plan and City of Tustin General Plan include provisions designed to protect riparian and water resources within the respective plan area (City of Irvine, 2013; City of Tustin, 2014). Peters Canyon Channel, San Diego Creek, and associated tributaries are considered water resources, and support cattail marsh, a CDFW Sensitive Natural Community, within portions of the immediate vicinity of the project site. Construction of the proposed project is not expected to impact riparian habitat, including cattail marsh. Installation of diversion structures may impact portions of Como Channel, Edinger Circular Drain, and Valencia Drain, which are considered water resources as described within the City of Irvine General Plan and City of Tustin General Plan. Impacts to these areas could be considered significant during construction; however, implementation of **Mitigation Measure BIO-1**, including the installation of sediment and erosion control measures, would reduce these impacts to less-than-significant levels.

During project operation, reduced discharges would affect dry weather flow downstream of the project diversions. As discussed above under Item 3.4(a), within the downstream APE there is no riparian habitat in Peters Canyon Channel or in the portion of San Diego Creek between the confluence with Peters Canyon Channel and approximately the I-405 Freeway bridge crossing. Downstream of the I-405 bridge, there is riparian vegetation and freshwater marsh vegetation in the Sediment Basins. The Reduced Discharge Technical Study (Appendix C) documents the potential for average water depth in the Sediment Basins to be reduced by up to 16 percent during dry weather periods due to reductions in flow. This reduction in average depth would not significantly change the wetted perimeter of the channel or extent of riparian vegetation due to the shape of the

Sediment Basins and their operation and maintenance. In addition, operation of the proposed project is not expected to affect water levels in the San Joaquin Marsh, and therefore the extent of riparian features and natural communities such as Southern Willow Scrub, Southern Riparian Scrub, Southern Cottonwood Riparian Forest, and Cattail Marsh would not be affected. Impacts would be less than significant.

c) ***Less Than Significant Impact.*** Although a formal delineation of federal wetlands was not conducted, no federal wetlands are anticipated to occur within the APE during construction, due to the limited presence of hydrophytic vegetation and lack of mapped hydric soils. However, it is likely that federal, state, and local agencies (e.g., CDFW, USACE, RWQCB, County of Orange, City of Irvine, and/or the City of Tustin) would apply jurisdiction over Peters Canyon Channel, San Diego Creek, Como Channel, Edinger Circular Drain, Valencia Drain, and San Joaquin Marsh. If any direct impacts to potentially jurisdictional areas occur as a result of the project, including those associated with the installation of diversion structures, acquisition of a Clean Water Act Section 404 permit, Section 401 Water Quality Certification, and Streambed Alteration Agreement may be required. IRWD would be required to comply with the terms and conditions of such permits, which may include preparing a wetland delineation or mitigation/compensation measures to reduce any potentially significant impacts to jurisdictional features. Compliance with permit conditions would ensure impacts to jurisdictional features are less than significant. No additional mitigation is required.

Operation of the proposed project would affect the San Joaquin Marsh due to a reduction in flow available to divert into the marsh. The San Joaquin Marsh is likely to be considered federal wetlands, due to the presence of extensive hydrophytic vegetation and perennial inundation. Peters Canyon Channel San Diego Creek, Como Channel, Edinger Circular Drain, and Valencia Drain are all considered perennial drainages and relatively permanent waters. San Diego Creek flows to Newport Bay and thus a significant nexus with the Pacific Ocean exists; therefore, these perennial drainages would be considered non-wetland waters of the U.S under the jurisdiction of the USACE. The limits of USACE jurisdiction would extend between the identified Ordinary High Water Mark (OHWM) on both banks of the drainages. These drainages transport water to the San Joaquin Marsh, and thus a significant nexus with the Pacific Ocean exists.

As described in the Reduced Discharge Technical Study (Appendix C), operation of the project is anticipated to result in a reduction in dry weather flows within Peters Canyon Channel and San Diego Creek. However, this reduction is not anticipated to cause a reduction in the OHWM as the project will not affect wet weather flows which generally characterize the OHWM. Additionally, as described above in Item 3.4(b), the project is not expected to have significant adverse effects on riparian habitat located within Peters Canyon Channel or San Diego Creek. In addition, operation of the proposed project is not expected to affect water levels in the San Joaquin Marsh, and therefore the extent of wetland features would not be affected. Impacts would be less than significant.

d) ***Less Than Significant with Mitigation Incorporation.*** Both the Peters Canyon Channel and San Diego Creek are likely utilized by local wildlife populations for small-scale (i.e., non-migratory) movements and dispersal. The San Joaquin Marsh is a recognized stopover location for migratory birds travelling along the Pacific Flyway. Many of the birds that utilize the marsh could wade and forage within Peters Canyon Channel and San Diego Creek (and associated tributaries) when water is present. San Diego Creek and Peters Canyon Channel can be considered movement corridors for these wading bird species, as well as many other common or rare species dependent on water or moisture, such as fish species, amphibians, and certain reptiles (e.g., pond turtles). As described above, operation of the project has the potential to affect water quality in the San Joaquin Marsh, during critical dry years and dry weather periods. Such potential impacts to the marsh would be mitigated through implementation of the IAF as required by **Mitigation Measure HYDRO-1**, ensuring that available habitat at the San Joaquin Marsh is maintained. Thus, the ability of the marsh to function as a migratory stopover also would be maintained with implementation of the IAF. Potential impacts to wildlife movement and habitat linkages associated with the operation of the project would be considered less than significant with mitigation.

e) ***Less Than Significant with Mitigation Incorporation.*** The City of Tustin General Plan calls for the protection of imported trees, including eucalyptus trees (City of Tustin, 2013). Surveys conducted for the project identified several eucalyptus trees within the project area and immediate vicinity, particularly in the upstream portion of the pipeline alignment. Eucalyptus trees present within the project area may be impacted during the installation of the proposed pipeline. Trees may be trimmed or removed during construction activities; therefore, measures are recommended to avoid impacts. The implementation of **Mitigation Measures BIO-1** and **BIO-5** include avoidance measures and preconstruction surveys to avoid impacts to identified protected trees to the greatest extent feasible, and would reduce potential impacts to less-than-significant levels.

f) ***Less Than Significant with Mitigation Incorporation.*** Portions of San Diego Creek and the San Joaquin Marsh potentially affected by operation of the proposed project are within the Orange County NCCP/HCP, mapped as Non-reserve Open Space (County of Orange 1995b). Specifically, special-status species, including Coulter's Matilija poppy and least Bell's vireo, and plant communities, including riparian and coastal marsh habitats are covered under the NCCP/HCP. As discussed above, the reduction in dry weather flows associated with the operation of the project is not anticipated to have a significant impact upon special-status biological resources within San Diego Creek, including those covered under the Orange County NCCP/HCP. However, operation of the project is anticipated to result in increased residence time for flows through the San Joaquin Marsh during certain dry weather periods. As described above, increased residence time may affect water quality, which in turn could potentially affect biological resources covered by the NCCP/HCP. With implementation of the IAF as required by **Mitigation Measure HYDRO-1**, however, potential impacts would be reduced to less than significant levels.

Mitigation Measures

BIO-1: The following Best Management Practices (BMPs) shall be implemented during construction:

- Sediment and erosion control measures should be developed and implemented in accordance with Regional Water Quality Control Board (RWQCB) Construction General Permit requirements in order to reduce the potential for the project to result in increased siltation of, or release of pollutants into, Peters Canyon Channel, San Diego Creek, and their tributaries.
- The footprint of disturbance should be limited to the maximum extent feasible, such as limiting access to the project area via pre-existing access routes to the greatest extent possible. Parking areas, staging, storage, excavation, and disposal site locations should be confined to the smallest areas possible and be positioned at previously disturbed areas to the greatest extent practical.
- To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than two-feet deep should be covered with tarp, plywood or similar materials at the close of each working day to prevent animals from being trapped. Ramps may be constructed of earth fill or wooden planks within deep walled trenches to allow for animals to escape, if necessary. Before such holes or trenches are backfilled, they should be thoroughly inspected for trapped animals. If trapped animals are observed, escape ramps or structures should be installed immediately to allow escape. If the trapped animal is injured and cannot use escape ramps or structures, a qualified biologist should be contacted to identify the appropriate next steps.
- All construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods should be thoroughly inspected for burrowing owls and nesting birds before the pipe is subsequently buried, capped, or otherwise used or moved. An option is to cap the ends of any stored pipes to prevent any animals from entering. If an animal is discovered inside a pipe, that section of pipe should not be moved until the project biologist or designated representative has been consulted and the animal has either moved from the structure on its own accord or until the animal has been captured and relocated out of harm's way by an approved biologist.

BIO-2: A pre-construction survey shall be conducted for burrowing owls 14 to 30 days prior to initiation of ground disturbance by a qualified biologist in accordance with the most recent CDFW protocol, currently the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). Surveys shall cover suitable burrowing owl habitat disturbed by construction including a 500-foot buffer. The survey would identify adult and juvenile burrowing owls and signs of burrowing owl occupation. If occupied burrowing owl habitat is detected on the proposed project site, measures to avoid, minimize, or mitigate impacts shall be incorporated into the proposed project and shall include, but not be limited to, the following:

- Construction monitoring will occur throughout the duration of ground-disturbing construction activities to ensure no impacts occur to burrowing owl. The frequency of monitoring will be determined by IRWD through consultation with the qualified biologist.

- Construction exclusion areas shall be established around the occupied burrows in which no disturbance shall be allowed to occur while the burrows are occupied. Buffer areas shall be determined by IRWD through consultation with a qualified biologist based on the recommendations outlined in the most recent *Staff Report on Burrowing Owl Mitigation* (CDFW 2012).
- If burrow avoidance is infeasible, a qualified biologist should implement a passive relocation program in accordance with the *Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans* of the CDFW 2012 Staff Report on Burrowing Owl Mitigation (CDFW, 2012).

BIO-3: Prior to the commencement of construction activities, the following are recommended to minimize potential impacts to nesting birds.

- If construction is scheduled to commence outside of the nesting season (i.e., generally September 1 to January 31), no preconstruction surveys or additional measures are required. Potential nesting habitat should be removed prior to the bird nesting season.
- Otherwise, within 15 days of ground disturbing activities, a qualified biologist shall conduct a preconstruction migratory bird nesting survey. The biologist must be qualified to determine the status and stage of nesting by migratory birds and all locally breeding raptor species without causing intrusive disturbance. The survey shall include species protected under the Migratory Bird Treaty Act. The survey shall cover all reasonably potential nesting locations for the relevant species on or closely adjacent to the project area of disturbance.
- If active nests are found during surveys then IRWD through consultation with a qualified biologist shall determine whether construction activities have the potential to disturb the nest(s) and determine appropriate construction limitations, which may include but are not limited to erection of sound barriers, full-time monitoring by a qualified biologist or establishment of no-construction buffers (usually 300 ft for nesting song birds and 500 ft for nesting raptors and special-status bird species). In addition, a qualified biologist shall serve as the construction monitor during those periods when construction activities will occur near the active nest areas to ensure that no inadvertent impacts to the nest occur. If necessary, limits of construction to avoid active nest shall be established in the field with flagging, fencing, or other appropriate barriers and construction personnel shall be instructed on the sensitivity of the nest areas.

BIO-4: Any western pond turtles observed within the boundaries of construction impact areas should be collected and relocated outside of the project area by a qualified biologist with possession of a Memorandum of Understanding (MOU) and Scientific Collection Permit (SCP) from the CDFW Relocation procedures and communication responsibilities should be carried out in accordance with the requirements of both the MOU and SCP. Generally, western pond turtles should be relocated only if they do not move out of the construction area on their own accord within one-day following the observation.

BIO-5: Prior to the commencement of construction activities, the following are recommended to minimize impacts to special status plant species:

- Where vegetation is present within the project area of disturbance, a qualified biologist shall conduct a preconstruction survey no more than 30 days prior to the commencement of ground-disturbing activities to identify any special-status or locally protected plant species. The biologist should have knowledge of the identification and life history of target species.
- If a special-status plant species is observed within the project impact area, the qualified biologist should clearly delineate the individuals with flagging so that the area can be avoided. The flagging will retain a buffer of at least five feet around any herbaceous protected plant. If any protected trees are located, temporary fencing should be installed to delineate an appropriate buffer around the tree as determined by the biologist, typically five feet from the dripline or 15 feet from the trunk of the tree, whichever distance is greater. The biologist will notify construction crews of the buffer areas and educate them on the importance of avoiding these resources.
- If a special-status plant species is identified within an area of impact and cannot be avoided, then the qualified biologist should notify IRWD. IRWD, in consultation with the qualified biologist, shall determine whether consultation with regulatory agencies (e.g., CDFW, U.S. Fish and Wildlife Service [USFWS], U.S. Army Corps of Engineers [USACE], City of Irvine, City of Tustin) is appropriate to determine mitigation requirements.

BIO-6: Prior to the commencement of construction activities, the following are recommended to minimize impacts to special-status bat species:

- If construction is proposed outside of the bat roosting season (i.e., generally April 1 to July 31), no focused surveys for bats are recommended. If construction is proposed within the bat roosting season, a qualified biologist should conduct focused day and night emergence surveys of all suitable roosting habitat within the project area. Surveys should be conducted no more than 14 days prior to construction activities. If an active roost is found, a suitable buffer should be established around active roosts as determined by IRWD through consultation with the qualified biologist. No construction or intrusion into the buffer should be allowed until a qualified biologist has determined that the roost is no longer active. Encroachment into the buffer may occur at the discretion of a qualified biologist. Moreover, nighttime lighting should be avoided to the greatest extent feasible if an active roost is found to avoid impacts to the roost, as well as, to avoid impacts to juvenile bats that may be foraging within the watercourses.

HYDRO-1: See Section 3.9, Hydrology and Water Quality.

3.5 Cultural Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
5. CULTURAL RESOURCES — Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Discussion

The information in this section is based on the following technical reports included in **Confidential Appendix D**: *Archaeological Survey Report for the Peters Canyon Channel Water Capture and Reuse Pipeline Project, Irvine and Tustin, Orange County, California* (Vader et al., 2014) and *Paleontological Resource Report: Irvine Ranch Water District Peters Canyon Channel Water Capture and Reuse Pipeline, Cities of Tustin and Irvine, California* (Siren and Aron, 2014).

a) ***Less than Significant Impact with Mitigation Incorporated.*** A records search at the South Central Coastal Information Center (SCCIC), a review of the California Department of Transportation (Caltrans) Historic Highway Bridge Inventory, a historic map review, Native American scoping, a geoarchaeological review, and a pedestrian cultural resources survey were conducted to identify cultural resources within the project area (Vader et al., 2014). The records search indicated that 77 cultural resources studies have been conducted within a ½-mile radius of the project area. Of these 77 previous studies, 21 appear to include portions of the project area. The entire project area has been surveyed as part of the previous cultural resources studies. Furthermore, the records search indicated that a total of seven cultural resources have been previously recorded within the ½-mile record search study area. Of the seven resources, two (CA-ORA-195 and -508) are prehistoric archaeological sites, two (P-30-176663/176664 and -176837) are historic built resources, two (P-30-100190 and -100350) are prehistoric isolates, and one (P-30-100351) is a historic-period isolate.

Resource CA-ORA-195: This resource, located about 0.50 miles from the project area, was recorded in 1967 and was described as a prehistoric archaeological site dating to the early horizon that exhibits signs of aboriginal occupation. Artifacts described in the site record include manos, a pestle, broken projectile points, chert debitage, a chert scraper, hammerstones, a plummet fragment, a knife and shell fragments. The site was largely destroyed by the construction of the Jamboree Road on-ramp.

Resource CA-ORA-508: This resource, located approximately 0.60 miles from the project area, was originally recorded in 1975 and was described as a large prehistoric milling stone site covering 30 acres. Cultural constituents included three manos, two metate fragments, one hammerstone, two cores, five flakes, and one Polinices shell. The site was subject to testing in 1978 and the site record updated in 1979. The update describes the site as a lithic and shell scatter with no midden soil that covers an area of 20 meters by 50 meters. Artifacts identified in the update include five projectile points, two bifaces, three scrapers, seven hammerstones, two chopping tools, eleven manos, nine metate fragments, and two possible groundstone fragments.

Resource P-30-100190: This resource, located about 0.20 miles from the project area, was recorded in 2013 during monitoring of grading activities and was described as an isolated sandstone bowl fragment consisting of approximately 50 percent of the original item.

Resource P-30-100350: This resource, located within 150 feet of the project area, was recorded in 2004 during construction monitoring and is described as an isolated andesite mortar bowl.

Resource P-30-100351: This resource, located within 150 feet of the project area, was recorded in 2004 during construction monitoring and is described as an isolated array of six pipes.

Resource P-30-176663/176664: This resource, which bisects the northern portion of the project area, is a historic built resource consisting of a segment of the former ATSF Railroad right-of-way, later known as the BNSF or Metrolink right-of-way. The right-of-way originally dates to the 1880s; however, the existing tracks and associated features are mostly modern and show no particular historical characteristics.

Resource P-30-176837: This resource, located about 0.85 miles from the project area, is a historic built resource that consists of two buildings located on the ground of the Marine Corps Air Station, Tustin (MCAS Tustin). The buildings include: the Reserve Center, an irregularly shaped concrete block building with brick veneer, built in 1963; and the Organizational Maintenance Shop, a concrete block, brick veneered structure on a concrete slab foundation with a composite roof, constructed in 1974.

Two bridges are also located within the project area, the Walnut Avenue over Peters Canyon Channel Bridge (Caltrans Bridge No. 55C0342L; 55C0342R) and the Barranca Parkway over Peters Canyon Channel Bridge (Caltrans Bridge No. 55C0439L; 55C0439R). A review of the Caltrans Historic Highway Bridge Inventory was conducted to identify whether these bridges constitute historical resources under CEQA. The review revealed that both bridges are listed as not locally designated or otherwise identified as significant in a local survey meeting the Office of Historic Preservation’s standards (Category 5).

The historic map review indicated that a moderate degree of development occurred within the vicinity of the Project area, but did not become large scale until the mid-20th century when much of the area was developed for military, industrial, commercial, and suburban uses. Prior to development, the vicinity around the Project area was used primarily for agricultural purposes.

A Sacred Lands File Search for the project performed by the Native American Heritage Commission (NAHC) on January 10, 2014 indicated that no documented sites of Native American traditional/cultural significance are located within or immediately adjacent to the project area. Follow-up correspondence was conducted with all individuals and groups indicated by the NAHC as having affiliation with the project area to solicit information on the whereabouts of resources in the project vicinity. To date, two responses have been received, one from John Tommy Rosas of the Tongva Ancestral Territorial Tribal Nation, and one from Rebecca Robles, of the United Coalition to Protect Panhe. Mr. Rosas stated that the project is located in a culturally sensitive area and requested that Orange County Sanitation District and Caltrans tribal liaisons be made available for tribal coordination. Additionally, Mr. Rosas inquired as to the kind of permitting the project required. Ms. Robles stated that she knows of no resources located within the project area, but requested that if the SCCIC records search indicated that the project area is sensitive for cultural resources that an archaeological and Native American monitor be retained to monitor project-related ground disturbing activities.

The geoarchaeological review indicated that the age of deposition of near-surface sediments fits within the early-Holocene/late-Pleistocene timeframe of the arrival and florescence of people within southern California (circa 12,000 years ago). The depth of ground disturbance anticipated within the project is likely to occur within deposits of the correct geological age to contain archaeological resources. Surface prehistoric archaeological sites and subsurface isolates have been recorded within ½-mile of the project area, at both ends and on each side of the project area, suggesting there may be a high probability for additional archaeological resources, including buried archaeological sites within the vicinity.

On February 12, 2014, a cultural resources survey of the project area was conducted. The project area is highly urbanized containing paved and gravel roads, bike paths, and walkways, as well as residential and commercial properties and landscaped areas. Due to the urbanized nature of the project area, survey methods included a reconnaissance-level survey focused on areas of visible ground surfaces with minimal disturbance in order to identify the presence of surface cultural resources. Five percent of the project area contained visible, undisturbed surfaces that were subject to intensive inspection. Aside from the single previously recorded resource (P-30-176663/176664 [BNSF and Metrolink right-of-way]), which was relocated within the project area by surveyors, no other surface evidence of cultural resources was encountered.

Although resource P-30-176663/176664 bisects the northern portion of the project area, jack and bore methods will be used to install the pipeline segment bisecting the resource. Resource P-30-176663/176664 will be avoided by the project and no impact to this resource is anticipated.

The record search and geoarchaeological review suggest a high probability for archaeological resources, including buried archaeological sites, within the vicinity of the project. Resources CA-ORA-195 and -508, both located within about a ½-mile of the project area, indicate substantial prehistoric habitation of the area. Moreover, the three previously recorded isolates were documented as part of construction monitoring suggesting that the project area may contain subsurface archaeological resources. Additionally, the historic map review suggests that the project area had been used for agricultural purposes since at least the mid-20th century and because the project area has been continuously used since at least the mid-20th century, there exists the possibility that historic-period archaeological resources may be impacted by the project. Although the project area is highly urbanized and has been disturbed by development that has largely occurred during the latter half of the 20th century, the project involves ground-disturbing activities that may extend into undisturbed soils. Therefore, the project may encounter buried archaeological resources and could cause a substantial adverse change in the significance of a historical resource as defined in §15064.5. Impacts to historical resources would be reduced to a less-than-significant level with the incorporation of **Mitigation Measures CUL-1 and CUL-2**.

b) ***Less than Significant Impact with Mitigation Incorporated.*** As discussed above under impact statement (a), no archaeological resources were identified within the project area; however, there is a high probability for archaeological resources, including buried archaeological sites, within the vicinity of the project. The proposed project involves ground-disturbing activities that may extend into undisturbed soils. These actions have the potential to cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5. Impacts to unique archaeological resources would be reduced to a less-than-significant level with the incorporation of **Mitigation Measures CUL-1 and CUL-2**.

c) ***Less than Significant with Mitigation Incorporated.*** A paleontological study for the project was undertaken to evaluate the paleontological resource sensitivity of the project area (Siren and Aron, 2014). The study included a review of regional geological maps and relevant reports, a literature search, a paleontological database check, and a review of previous paleontological investigations in the area and documented fossil-bearing localities. The geologic map review indicated that modern artificial fill, as well as Quaternary young axial-channel and alluvial fan deposits (Qya and Qyf, respectively) underlie the project. Moreover, the Quaternary young deposits are presumed to be underlain by older Quaternary deposits (Qopf) mapped nearby. Modern artificial fill underlies existing, man-made structures (e.g., roadways and buildings), and due to the fact that these deposits are modern in nature, they contain no fossils, and thus have a low paleontological sensitivity. The near-surface, unconsolidated Quaternary young deposits are Holocene in age (less than 10,000 years old) and consist of sedimentary deposits derived from the hills to the northeast. These deposits usually do not contain significant vertebrate fossils, at least in the uppermost layers. The Quaternary older deposits are associated with the Santa Ana River, lower Santiago Creek, and Peters Canyon Wash and include late Pleistocene to Holocene floodplain and stream terrace deposits. These deposits consist of unconsolidated to poorly consolidated, non-marine mixtures of sand, silt, and gravel. The Pleistocene-age (less than 500,000 years old) deposits are considered to have a high sensitivity for the presence of paleontological resources and could produce significant vertebrate fossils. The depth to these deposits below the surface of the project area is not known.

According to the literature search and database check, there are no documented fossil localities within a 1-mile radius of the project. However, the Natural History Museum of Los Angeles County (LACM) indicated previously recorded fossil localities from Pleistocene-age sedimentary deposits from areas in the general vicinity outside of the 1-mile study radius. Such deposits have yielded the fossilized remains of Ice Age mammals, among others. These fossil localities include LACM 1066, 1068-1069, 1086, 1240, 3407, 3877, 4426, and 6732, located east of Upper Newport Bay, approximately 2.25 miles southwest of the project. An additional locality, LACM 7867, was discovered 25 feet below the ground surface in the northwestern portion of the former El Toro Marine Corp Air Station (MCAS), located approximately 4.1 miles east of the project. Moreover, a report prepared for the Irvine Business Complex, located just to the south of the project, indicated that significant vertebrate fossils have been found 8 to 25 feet below the surface during city-required paleontological monitoring. These fossils were associated with sediments that have been encountered between 6 to 25 feet below the modern surface over a wide area of Irvine. Separate construction projects carried out approximately 3.5 miles southwest and 2.5 miles south of the project area, respectively, revealed numerous Pleistocene vertebrate fossils located 12 to 16 feet below the ground surface.

The project area is comprised of Holocene-aged Quaternary young deposits at surface, presumably overlying Pleistocene-age Quaternary old deposits at depth. The paleontological sensitivity of the Pleistocene-age deposits is considered to have high sensitivity for the presence of paleontological resources. Excavations into undisturbed Pleistocene-age deposits may unearth scientifically significant fossils during construction. It is anticipated that ground disturbing activities, particularly at depth, could encroach into these Pleistocene-age deposits of high paleontological sensitivity and have the potential to directly or indirectly destroy paleontological resources. Impacts to a unique paleontological resource or site or unique geologic feature would be reduced to a less-than-significant level with the incorporation of **Mitigation Measures CUL-3** and **CUL-4**.

d) **Less than Significant Impact with Mitigation Incorporated.** No human remains are known to exist within or adjacent to the project area and it is unlikely that the project would disturb unknown human remains. However, because the project involves ground-disturbing activities, it is possible that such actions could unearth, expose, or disturb previously unknown human remains. With the incorporation of **Mitigation Measure CUL-5**, which requires compliance with California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98, impacts to human remains would be reduced to a less-than–significant level.

Mitigation Measures

CUL-1: Prior to earth moving activities, a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology shall conduct cultural resources sensitivity training for construction personnel. Construction personnel shall be informed of the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains.

CUL-2: IRWD shall contract with a qualified professional archaeologist to be available "on-call" throughout the duration of the ground-disturbing activities. In the event that prehistoric or historic subsurface cultural resources are discovered during ground-disturbing activities, all work within 50 feet of the resources will be halted and IRWD will consult with the qualified archaeologist to assess the significance of the find according to *CEQA Guidelines* Section 15064.5. If any find is determined to be significant, IRWD and the archaeologist will meet to determine the appropriate avoidance measures or other appropriate mitigation. IRWD will make the final determination. All significant cultural materials recovered will be, as necessary and at the discretion of the consulting archaeologist, subject to scientific analysis, professional museum curation, and documentation according to current professional standards.

CUL-3: Prior to the commencement of construction activities, an Orange County Certified (OCC) Paleontologist shall be retained to review project design plans and geotechnical investigations in order to ascertain where excavation will exceed five (5) feet in depth, or the depth of documented artificial fill, and could impact highly sensitive sediments. Based on this information the OCC Paleontologist will determine, in consultation with IRWD, when and where paleontological monitoring is required during construction. Paleontological resource monitoring shall be performed by qualified paleontological monitors under the direction of the OCC Paleontologist. Based on observations of subsurface soil stratigraphy or other factors, monitoring may be reduced or discontinue if the OCC Paleontologist determines that the possibility of encountering fossiliferous deposits is low. When onsite, monitors shall prepare logs, and the OCC Paleontologist shall prepare a final monitoring report to be submitted to IRWD.

The OCC Paleontologist shall also contribute to any construction worker cultural resources sensitivity training either in person or via a training module provided to the qualified archaeologist. The training session shall focus on the recognition of the types of paleontological resources that could be encountered within the project area and the procedures to be followed if they are found.

CUL-4: In the event of the discovery of paleontological resources, the contractor shall immediately cease all work activities within 50 feet of the discovery, and IRWD shall be contacted immediately. The OCC Paleontologist shall evaluate the significance of the find and if it is determined that the discovery constitutes a significant resource under CEQA, the OCC Paleontologist in cooperation with IRWD shall determine appropriate procedures to follow before construction can resume at the location of the find. If the OCC Paleontologist determines that avoidance of the find is not feasible, then a Paleontological Resources Treatment Plan shall be prepared and submitted to IRWD for review and approval. The Treatment Plan shall be implemented by a qualified paleontologist

CUL-5: In the unlikely event that human remains are encountered, CA Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to CA Public Resources Code Section 5097.98. The county coroner shall be notified immediately if any human remains are found. If the remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission, which will determine and notify the most likely descendant. With the permission of IRWD or an authorized representative, the most likely descendant may inspect the site of the discovery. IRWD will meet and confer with the most likely descendant regarding their recommendations prior to disturbing the site by further construction activity.

3.6 Geology, Soils, and Seismicity

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
6. GEOLOGY, SOILS, AND SEISMICITY — Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☒	☐	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Discussion

a.i) ***No Impact.*** The southern reach of the project site is located 8.2 miles northwest of a section of the Newport-Inglewood Fault. There are no known active faults cross the project sites, and the project sites are not located within or immediately adjacent to an Alquist-Priolo Earthquake Fault Zone (CDOC, 1986), which are regulatory zones that encompass surface traces of active faults that have a potential for future surface fault rupture (CDOC, 2013). Therefore, the project site would not be subject to surface fault rupture. There would be no impact.

a.ii) ***Less than Significant Impact.*** The City of Irvine is located within Uniform Building Code Seismic Zone 4, which represents the highest seismic intensity in the United States. The project site is located in Seismic Response Area (SRA) 1, defined by the City of Irvine General Plan as an area with soft or loose soils and high groundwater, indicating a greater potential for liquefaction than the other seismic response areas (City of Irvine, 2012). The City of Tustin General Plan identifies the City as being located within a seismically active area (City of Tustin, 2008). Therefore, the project sites would be likely subject to ground shaking, and could be seriously damaged if not properly designed. According to Division 9, Chapter 1 of the Irvine Municipal Code and Article 8, Chapter 1 of the Tustin Municipal Code, project design and construction would be required to comply with California Building Code (CBC) standards. CBC standards involve the most stringent building design requirements for Seismic Zone 4. According to the Irvine Seismic Land Use Compatibility Matrix, the project (categorized as a flood control facility) would be a highly compatible land use within SRA 1 (City of Irvine, 2012). Compliance with applicable CBC requirements and relevant General Plan policies would reduce impacts related to ground shaking to less than significant.

a.iii) ***Less than Significant with Mitigation Incorporated.*** The proposed project is located in a liquefaction zone as identified by the California Geological Survey (CDOC, 2001), and is located within the City of Irvine designated SRA 1, identified as an area with a higher-than-average risk of liquefaction (City of Irvine, 2012). In addition, the proposed project is located within an area identified as high liquefaction potential by the City of Tustin (City of Tustin, 2008). The project design would be subject to stringent CBC standards due to its location in Seismic Zone 4 in the cities of Irvine and Tustin. The project would be required to comply with the CBC, the cities' seismic standards, and other applicable standard engineering practices and design criteria. Prior to implementation of the proposed project, **Mitigation Measure GEO-1** would require preparation of a geotechnical report that would evaluate the soils in the project area and recommend design features to incorporate into the project to mitigate for any potential risks associated with geological hazards, including liquefaction. Impacts associated with liquefaction would be less than significant with mitigation.

a.iv) ***No Impact.*** Landslides are mass movements of the ground that include rock falls, relatively shallow slumping and sliding of soil, and deeper rotational or transitional movement of soil or rock. The project site is not located on a hill or adjacent to a hillside. In addition, the project is not located in a landslide zone, as designated by the California Geological survey (CDOC, 2011). The project site is a flat location and implementation of the project would not result in hillside or other conditions that could create landslides. As a result, implementation of the project would not result in impacts related to landslides.

b) ***Less than Significant Impact.*** The project site is comprised of mostly paved ground. Construction of the project facilities would require pavement and concrete breaking, excavation and trenching, which would expose and loosen bare soil and could contribute to its loss via erosion from wind and rain. However, construction of the project would be subject to the requirements of the Construction General Permit, which requires the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP would be prepared by a qualified professional and would identify the appropriate erosion and sediment control best management practices (BMPs) to be implemented on-site during construction. Examples of such erosion and sediment control

BMPs include scheduling and installation of fiber rolls and storm drain protection measures. In particular, OC Flood would allow pipeline construction along Peters Canyon Channel during the dry season and during the wet season in accordance with conditions to be specified in the County-issued encroachment permit. Such conditions may include, for example, requirements for the contractor to plate any open trenches and remove any vehicles and equipment from the ROW when rain is forecasted or present. OC Flood may require the contractor to prepare a Flood Contingency Plan to demonstrate the steps to be taken to prevent discharge from the construction area and allow access to OC Flood vehicles and equipment during a rain event**.** With implementation of these BMPs, impacts to loss of topsoil during construction would be less than significant. Upon installation of the proposed facilities, the majority of the disturbed area would be repaved, thereby reducing the possibility of topsoil loss. Impacts would be less than significant.

c) ***Less than Significant Impact.*** Refer to Response 3.6(a.iii) and (a.iv), regarding liquefaction and landslides. Lateral spreading is associated with landslides on a gentle slope (USGS, 2012); as stated previously, the project is expected to have less than significant impacts related to landslides and would therefore have less than significant impacts related to lateral spreading. The term "collapse" is most commonly linked to sinkholes in geologic context. The project site is not considered an area prone to collapse sinkholes (USGS, 2014). Impacts related to collapse would be less than significant.

d) ***Less than Significant with Mitigation Incorporated.*** Expansive soils are soils that exhibit moderate to high shrink/swell potential and may cause damage to components, including underground utilities, pipelines, foundations, and infrastructure. The project area is composed mainly of Chino silty clay loam and Omni clay (NRCS, 2014). Soils containing clay tend to have a high expansion potential. However, the project design would be subject to stringent CBC standards and the cities' seismic standards, and other applicable standard engineering practices to mitigate for expansive soils, such as the use of engineered fill to backfill around underground infrastructure. Sand would be used to backfill around the proposed pipeline. Engineered fill would be required at the base of all concrete structures. Implementation of **Mitigation Measure GEO-1** would ensure that the project geotechnical report would evaluate the potential for expansive soils to damage project facilities and would recommend design features to mitigate for such effects. Therefore, impacts related to expansive soils would be less than significant with mitigation.

e) ***No Impact.*** The proposed project consists of a water pipeline conveyance system and diversion structures for nuisance groundwater and surface water flows; no septic systems are proposed as part of the project. There would be no impact regarding soils incapable of supporting septic systems.

Mitigation Measures

GEO-1: During the design phase of the proposed project, a geotechnical report shall be prepared that evaluates soils and seismic and geologic hazards in the project area, including the potential for expansive soils and liquefaction to occur. The geotechnical report shall make recommendations related to protecting the proposed facilities from structural damage due to seismic and geologic hazards, and such recommendations shall be incorporated into the project design.

3.7 Greenhouse Gas Emissions

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
7. GREENHOUSE GAS EMISSIONS — Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Discussion

Gases that trap heat in the atmosphere are referred to as greenhouse gases (GHGs) because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. The accumulation of GHGs has been implicated as a driving force for global climate change. Definitions of climate change vary between and across regulatory authorities and the scientific community, but in general can be described as the changing of the earth's climate caused by natural fluctuations and anthropogenic activities, which alter the composition of the global atmosphere.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), chlorofluorocarbons (CFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Carbon dioxide is the "reference gas" for climate change, meaning that emissions of GHGs are typically reported in "carbon dioxide-equivalent" (CO_2e) measures. There is international scientific consensus that human-caused increases in GHGs have and will continue to contribute to global warming, although there is uncertainty concerning the magnitude and rate of the warming. Potential global warming impacts in California may include, but are not limited to, loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.

In 2005, in recognition of California's vulnerability to the effects of climate change, Governor Schwarzenegger established Executive Order S-3-05, which sets forth a series of target dates by which statewide emission of GHG would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

In 2006, California passed the California Global Warming Solutions Act of 2006 (Assembly Bill No. 32; California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), which requires CARB to design and implement emission limits, regulations, and other measures, such that feasible and cost-effective statewide GHG emissions are reduced to 1990 levels by 2020.

On March 18, 2010, the California Office of Planning and Research (OPR) submitted amendments to the *CEQA Guidelines* for GHG emissions, as required by Public Resources Code section 21083.05. These *CEQA Guideline* amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in draft CEQA documents. The amendments are relatively modest changes to various portions of the existing *CEQA Guidelines*.

a) ***Less Than Significant Impact.*** The proposed project would primarily contribute to global climate change as a result of emissions of GHGs, primarily CO_2, emitted during construction activities associated with the installation of a pipeline conveyance system and diversion structures. Once construction activities have been completed, operation of the proposed project would only generate minimal GHG emissions sources from vehicle emissions associated with worker trips to and from the project area for routine maintenance of the diversion structures and pumps. However, because these trips would only occur once a month, these GHG emissions would be negligible. However, operation of the newly installed diversion pumps would be powered through electricity obtained from the regional grid distributed by Southern California Edison (SCE). The consumption of electricity for operation of the diversion pumps would represent an indirect source of GHG emissions that would be generated offsite.

GHG impacts are considered to be exclusively cumulative impacts (CAPCOA, 2008); there are no non-cumulative GHG emission impacts from a climate change perspective. Thus, the purpose of this GHG analysis is to determine whether the contribution of GHG emissions by the proposed project would be cumulatively considerable.

IRWD has not adopted any significance criteria or guidelines for GHG analysis. While SCAQMD has issued proposed standards and guidelines, there is no adopted state or local standard for determining the cumulative significance of the proposed project's GHG emissions on global climate change. SCAQMD has currently adopted a 10,000 metric ton per year (MT/year) CO_2e threshold for industrial projects for which it is the lead agency. Additionally, SCAQMD has proposed, but not adopted, a 3,000 MT/year CO_2e threshold for mixed use developments, a 3,500 MT/year CO_2e threshold for residential developments, and a 1,400 MT/year CO_2e threshold for commercial developments. These draft threshold options are being evaluated through the GHG Thresholds Working Group and have not been adopted as of this writing (SCAQMD, 2010).

In the absence of an adopted threshold that is applicable to the proposed project, which is a water conveyance infrastructure project that would primarily generate GHG emissions during construction, the use of a screening threshold would be appropriate to determine whether the project would require further analysis and mitigation with regard to climate change. The California Air Pollution Control Officers Association (CAPCOA) has recommended a conservative screening criterion of 900 MT/year CO_2e for determining which projects would require further analysis and mitigation with regard to climate change. For the purpose of this analysis, the project's total annual GHG emissions resulting from construction activities and electricity consumption to power the newly installed diversion pumps have been quantified and evaluated against the 900 MT/year CO_2e screening criteria.

As was conducted for the proposed project's air quality analysis in Question 3 (Air Quality), the project's construction-related GHG emissions were estimated for equipment exhaust, truck trips, and worker commute trips using CalEEMod. The construction of the entire project is anticipated to occur over approximately a seven month period. During this construction period, installation of the proposed pipeline and ancillary support infrastructure would proceed in a linear fashion along the approximately 3-mile proposed pipeline alignment. For the purpose of this analysis, the project's annual construction GHG emissions and operational GHG emissions generated from electricity consumption were estimated and evaluated against the 900 MT/year CO_2e screening criteria.

The project's estimated annual GHG emissions during are shown in **Table 3-3**. With respect to construction GHG emissions, SCAQMD recommends that the total emissions for a project be amortized over a 30-year period and added to its operational emission estimates (SCAQMD, 2008). To determine the total construction emissions that would be generated from the project's water conveyance system, the annual GHG emissions estimated for a single pipeline segment under a worst-case construction scenario was taken and increased by seven-fold to conservatively represent the total emissions that would be generated from construction of the seven pipeline segments. Total construction-related GHG emissions was calculated to be 1,033 CO_2e MT/yr. Amortized over 30 years, the proposed project construction-related GHG emissions would be 34 CO_2e MT/yr. With respect to operational emissions, the indirect GHG emissions generated by the proposed project as a result of electricity consumption to power the newly installed diversion pumps were estimated in this analysis by determining the amount of electrical power required to operate the pumps and then applying SCE emissions factors for the GHG components (i.e., CO_2, CH_4, and N_2O) obtained from the CalEEMod model. Based on information provided by IRWD, the proposed project would require a maximum annual electricity use of 600 megawatt hours (MWh).

TABLE 3-3
ESTIMATED PROJECT CONSTRUCTION GHG EMISSIONS

Emission Source	Proposed Project Emissions CO_2e (MT/yr)
Construction	
Annual Project Construction (Amortized over 30 yrs)[a]	34
Operation	
Energy Consumption	172
Total Annual Emissions	206
CAPCOA Screening Threshold	900
Significant Impact?	No

NOTES: CO_2e= carbon dioxide equivalent; MT/yr = metric tons per year; see Appendix A for CalEEMod model outputs.

[a] The total project construction GHG emissions were derived by estimating the peak annual construction GHG emissions for a single pipeline segment and then increasing that amount by seven-fold to represent the GHG emissions generated from construction of all seven proposed pipeline segments. Total project construction GHG emissions = 1,033 CO_2e MT/yr. Amortized over 30 years, annual project construction GHG emissions = 34 CO_2e MT/yr.

As shown in Table 3-3, the proposed project's total annual GHG emissions resulting from construction activities and project operation would be approximately 206 MT CO_2e per year. Thus, the project's total annual GHG emissions would not exceed the 900 MT of CO_2e per year screening threshold recommended by CAPCOA. Therefore, the proposed project would not result in the generation of substantial levels of GHG emissions and would not result in emissions that would adversely affect the statewide attainment of GHG emission reduction goals of AB 32. This impact would be less than significant.

b) ***Less Than Significant Impact.*** The proposed project would generate temporary construction-related GHG emissions and minimal GHG emissions during operations. As the proposed project only involves the installation of water conveyance infrastructure, implementation of the project would not result in, or induce, growth in the project area that has not been accounted for by the cities of Tustin and Irvine. Consequently, no growth-inducing development or land use that would generate GHG emissions would occur under the project. The proposed project would not conflict with any adopted plan's goals of reducing GHG emissions.

Overall, implementation of the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Therefore, this impact would be less than significant.

3.8 Hazards and Hazardous Materials

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
8. HAZARDS AND HAZARDOUS MATERIALS — Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

Discussion

a/b) ***Less than Significant Impact.*** Materials hazardous to humans and wildlife would be present during project construction; the proposed project would involve the transport of various hazardous materials to and from the project site on an as-needed basis by equipment service trucks. These materials may include diesel fuel, gasoline, equipment fluids, concrete, cleaning solutions and solvents, lubricant oils, and adhesives. Therefore, potential exists for direct impacts to human health from accidental spills of small amounts of hazardous materials from construction equipment during construction.

Existing federal and state law regulates the handling, storage and transport of hazardous materials and hazardous wastes. Pursuant to the federal Hazardous Materials Transportation Act, 49 U.S.C. § 5101 et seq., the United States Department of Transportation promulgated strict regulations applicable to all trucks transporting hazardous materials. Occupational safety standards have been established in federal and state laws to minimize worker safety risks from both physical and chemical hazards in the workplace, including construction sites. The California Division of Occupational Safety and Health has primary responsibility for developing and enforcing standards for safe workplaces and work practices in California in accordance with regulations specified in CCR Title 8. For example, under Title 8 CCR 5194 (Hazard Communication Standard), construction workers must be informed about hazardous substances that may be encountered, and under Title 8 CCR 3203 (Injury Illness Prevention Program) workers must be properly trained to recognize workplace hazards and to take appropriate steps to reduce potential risks due to such hazards. This is particularly important where previously unidentified contamination or buried hazards may be encountered. If additional investigation or remediation is determined to be necessary, compliance with standards for hazardous waste operations (Title 8 CCR 5192) would be required for those individuals involved in the investigation or cleanup work. Thus, during construction contractors handling, storing or transporting hazardous materials or wastes must comply with regulations that would reduce the risk of accidental release and provide protocols and notification requirements should an accidental release occur. Compliance with these existing regulations would ensure impacts during construction would be less than significant.

Operation of the proposed project would not involve the routine transport, use, or disposal of hazardous materials. The purpose of the project is to prevent existing flows containing high levels of nitrate and selenium from discharging into Peters Canyon Channel and affecting downstream water quality. When concentrated, nitrate and selenium can have a negative effect on aquatic ecosystems; however these substances occur naturally in soil and water and are not considered hazardous to the public nor the environment. Impacts would be less than significant.

c) ***Less Than Significant Impact.*** Although the project site is located approximately 0.2 mile from Creekside High School, the proposed project includes installation of a water pipeline conveyance system and diversion structures and is not anticipated to generate hazardous emissions or require the routine use of hazardous materials that could be accidentally released into the environment. All hazardous materials utilized on-site during construction and during operations would be handled in accordance with existing federal and state laws, as described in Response 3.8(a) and 3.8(b) above. Therefore, impacts would be less than significant.

d) ***Less Than Significant Impact.*** ESA performed a regulatory agency database search for the project area using the California State Water Resources Control Board (SWRCB) GeoTracker and the California Department of Toxic Substances Control (DTSC) Envirostor databases (SWRCB, 2014; DTSC, 2014) in addition to review of other hazardous site lists maintained by the State (Cal EPA, 2013). The project site is not located on a listed hazardous site. There are some contaminated sites located in the project vicinity. The Moffet Trenches Landfill, an open military cleanup site, is located adjacent to the Peters Canyon Channel near the Edinger Avenue bridge crossing. Additionally, three leaking underground storage tank (LUST) open cleanup sites are located within the project vicinity; Sunset Property services and C&W are located approximately 0.2 mile northwest of the channel between Warner Avenue and Barranca Parkway and Shell Oil is located approximately 0.1 mile southeast of the Main Street bridge (SWRCB, 2014). However, construction activities would not impact these sites nor interfere with their operation. Compliance with applicable state and federal regulations (as mentioned above) during construction would ensure that any potential risk would be less than significant.

e) ***No Impact.*** A section of the proposed pipeline alignment is located adjacent to the Marine Corps Air Station (MCAS) Tustin; however MCAS Tustin was officially closed down in July of 1999 (City of Tustin, 2008). The project site is located slightly less than 1.5 miles west of the John Wayne Airport. However, the project site is not within the airport's Impact Zones, as specified by the Airport Environs Land Use Plan (AELUP) for John Wayne Airport (ALUC, 2008). Further, the project consists of water conveyance infrastructure and would not increase the amount of people living or working in the vicinity of the airport, and would therefore not result in a safety hazard for people living or working in the vicinity of the airport. Impacts would be less than significant.

f) ***No Impact.*** There are no private airstrips in the vicinity of the proposed project. There would be no impact.

g) ***Less than Significant with Mitigation Incorporation.*** The City of Irvine has a Natural Hazards Mitigation Plan that addresses a variety of ways to lessen the impact of disasters locally (City of Irvine, 2012). The City of Tustin has an Emergency Operations Plan that addresses City's the planned response to emergency situations associated with natural disasters, technological incidents and natural security emergencies (City of Tustin, 2012). Both cities participate in the Federal Emergency Management Agency's (FEMA) Community Emergency Response Training (CERT) program, a series of classes that educate people about disaster preparedness for hazards that may impact their area and trains them in disaster response skills (CERT, 2014). The project would not interfere with the goals of the Irvine Natural Hazards Mitigation Plan and the Tustin Emergency Operations Plan, nor with implementation of CERT. Construction access would be provided through the existing OC Flood access points along the channel; all staging and stockpiling would occur in the area between the top of the channel and the existing fence, between access points. Construction of the proposed pipelines would mainly occur within the existing channels' ROW, which substantially limits the construction that occurs within the street. Where construction of the proposed pipeline would affect roadways, emergency access would be maintained through coordination with emergency service providers, as required by the Traffic Control/Traffic Management Plan required under **Mitigation Measure TR-1** (see Section 3.16 below). Therefore, impacts would be less than significant with mitigation.

h) ***Less than Significant Impact.*** The project site is located in the areas of Irvine and Tustin that are relatively urbanized. The Irvine portion of the project site is not located within a City of Irvine-designated fire hazard area (City of Irvine, 2012) and the entire project site is not in a CAL FIRE very high fire hazard severity zone (CAL FIRE, 2011). The City of Tustin is subject to both wild and urban fires as its eastern portion is contiguous with the Cleveland National Forest. However, the proposed project area is not identified by the Tustin General Plan as having a high fire hazard rating. The project would not include flammable structures such as residences that could be threatened from wildfires nor would the project generate a large number of people that could be threatened by a wildfire. The proposed structures would be designed to current fire code and CBC standards. Impacts with regard to wildfire would be less than significant.

3.9 Hydrology and Water Quality

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
9. HYDROLOGY AND WATER QUALITY — Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, in a manner that would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☐	☒
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☒	☐	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Discussion

a) ***Less than Significant Impact***. Short-Term Construction-Related: Construction activities associated with implementation of the project could result in temporary impacts on water quality from erosion and sedimentation, as well as storage of construction-related hazardous materials (e.g., such as fuels, etc.) on site. These construction activities would disturb surface soils that are currently covered by asphalt/concrete or vegetation. The proposed concrete/pavement removal, excavation/trenching, and installation of the project components would increase the potential for temporary erosion and sediment transport of material both within and downstream of the proposed facilities.

Project construction would encompass an area greater than an acre; therefore project construction would be subject to a Construction General Permit under the NPDES permit program of the federal Clean Water Act. As required under the Construction General Permit, IRWD or its contractor would prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). The objectives of a SWPPP is to identify pollutant sources (such as sediment) that may affect the quality of storm water discharge and to implement best management practices (BMPs) to reduce pollutants in storm water.

In particular, erosion control BMPs would be used to prevent the degradation of water quality in the construction area. Other BMPs that could be used to enhance erosion control include scheduling to avoid wet weather events; preservation of existing vegetation where feasible; hydraulic mulching; hydroseeding; using soil binders; straw mulching; using geotextiles, plastic covers, and erosion control blankets/mats; and wood mulching. Example of erosion control BMPs are installing a silt fence; creating a sediment/desilting basin; installing sediment traps; installing check dams; using fiber rolls; creating gravel bag berms; street sweeping and vacuuming; creating a sandbag barrier; creating a straw bale barrier; and storm drain inlet protection. In addition, as mentioned previously, OC Flood would allow pipeline construction along Peters Canyon Channel during the dry season and during the wet season in accordance with conditions to be specified in the County-issued encroachment permit. Such conditions may include, for example, requirements for the contractor to plate any open trenches, remove any vehicles and equipment from the ROW when rain is forecasted or present, or prepare a Flood Contingency Plan to demonstrate the steps to be taken to prevent discharge from the construction area during a rain event.

Implementation of the SWPPP and BMPs in compliance with the NPDES permitting requirements would avoid or reduce all erosion and sedimentation impacts to below a level of significance.

Less than Significant Impact. Long-Term Operations-Related: Selenium is a pollutant of concern in San Diego Creek and Peters Canyon Channel. The primary source of selenium in San Diego Creek is believed to be groundwater seepage into surface waters, particularly in areas of shallow groundwater tables in lower Peters Canyon Channel. The region is located in an ~~historic~~ historical ephemeral lake and marsh area known as the "Swamp of the Frogs." The Swamp of Frogs is considered to be a likely source of ~~organic~~ nitrogen and ~~previously captured~~ naturally accumulated selenium. Selenium can be bioaccumulated, from water and aquatic sediments, through uptake by algae and benthic invertebrates. Elevated selenium levels in dietary items can cause reproductive toxicity to wildlife and especially to some species of birds and fish. The USEPA has set a TMDL target of ~~reducing~~ selenium concentrations in water ~~to less than~~ based on the

California Toxics Rule (CTR) chronic criterion of 5 parts per billion (μg/L) ~~as a long-term average in the watershed~~.

In 2003, when the RWQCB renewed the NPDES permit (Order No. R8-2003-0061) for de minimis dewatering projects, the Newport Bay Watershed was specifically excluded from its terms and conditions due to concerns that elevated levels of selenium and nitrogen in short-term groundwater-related discharges had the potential to adversely affect surface waters and would not comply with the adopted TMDLs in the Watershed. The RWQCB subsequently developed and issued a separate general NPDES permit specific to the Newport Bay Watershed - Order No. R8-2004-0021, which was amended by R8-2007-0041 and R8-2009-0045 (collectively Order); NPDES No. CAG998002, General Waste Discharge Requirements for Short-Term Groundwater-Related Discharges and de minimus Wastewater Discharges to Surface Waters within the San Diego Creek/Newport Bay Watershed (General Dewatering Permit). This order was necessitated by the TMDLs and the recognition that groundwater-related discharges had the potential to contribute selenium to the Watershed. The Order acknowledged that while current groundwater levels exceeded the CTR limit of 5 ug/L for selenium, a feasible treatment technology did not exist to lower the levels in the discharges to the CTR standard. Therefore, the Order incorporated an alternative compliance approach by authorizing the formation of a Nitrogen and Selenium Management Program (NSMP) Working Group and the implementation of a Work Plan to develop a comprehensive understanding of and management plan for groundwater-related selenium and nitrogen discharges in the Watershed. The NSMP Work Plan tasks included monitoring, testing and evaluation of BMPs, and development of a BMP Strategic Plan (December 2013), an offset and trading program, TMDLs and site-specific water quality objectives (SSOs), among others. The proposed project is included in the NSMP's BMP Strategic Plan.

Selenium-laden nuisance groundwater is currently discharged into either Peters Canyon Channel or into IRWD's sewer system under a temporary special discharge permit. High selenium nuisance groundwater and surface water flow currently discharging into Peters Canyon Channel is no longer allowed pursuant to the RWQCB NPDES Order No. R8-2004-0041. Discharges to IRWD's sewer system must be discontinued because the flow is recycled and the recycled treatment process is not designed to remove selenium.

IRWD and the partner agencies are proposing this project to implement a preferred solution to address these identified high priority discharges. By diverting high nitrate and selenium concentrations in nuisance groundwater and surface water flows to OCSD for treatment and reuse, water quality from dewatering discharges would be improved. Impacts would be considered less than significant.

b) ***Less than Significant Impact***. In general, groundwater in the main producing aquifers of the underlying groundwater basin is of good quality with an average concentration of total dissolved solids (TDS) in the basin of 441 mg/L. Ninety to 95 percent of basin pumping is from the main aquifers. A few localized areas of shallow contamination exist in the basin; however, very little water is pumped from the shallow aquifers (MWD, 2007). Groundwater is managed by the Orange County Water District (OCWD), who has implemented active projects and programs to remove contaminants from the shallow aquifers before they can migrate into the main producing aquifers. According to data from Well No. 336944N1177985W001, located near the corner of Culver Drive and Irvine Center Drive, groundwater levels were at approximately 67 feet below ground surface as of December 2010 (DWR, 2014).

The project would not interfere with or deplete groundwater supplies. The water sources for the project include existing dewatered groundwater from the Caltrans GWTF and existing dewatered or pumped groundwater diverted from Como Channel and Valencia Drain. The proposed project would not affect groundwater recharge or change existing groundwater pumping. Therefore, impacts to groundwater would be less than significant.

c) ***Less than Significant Impact***. The proposed project would divert a maximum of 1,130 gpm (2.6 cfs) of dry weather flow from Como Channel, Edinger Circular Drain, and Valencia Drain that currently discharges into Peters Canyon Channel. The proposed project would result in a decrease in flow downstream of the diversion points in Peters Canyon Channel and San Diego Creek. Both Peters Canyon Channel and San Diego Creek are lined flood control channels with soft bottoms. The proposed project would not affect flow during wet weather events, as diversions would be discontinued, and the amount of flow diverted during dry weather would not alter the existing drainage pattern of Peters Canyon Channel or San Diego Creek. In addition, the proposed facilities would primarily be installed underground, with disturbed areas restored to preconstruction conditions, and as such there would be no measureable change in runoff or drainage from the sites. Therefore, the proposed project would not result in substantial erosion or siltation onsite or offsite. Impacts would be less than significant.

d) ***No Impact***. As stated above in Response 3.9(c), the proposed project would not alter the existing drainage pattern of Peters Canyon Channel or San Diego Creek. The proposed project would divert a maximum of 1,130 gpm (2.6 cfs) of dry weather flow from Como Channel, Edinger Circular Drain, and Valencia Drain that currently discharges into Peters Canyon Channel. The proposed project would not affect flow during wet weather events, as diversions would be discontinued. Therefore the proposed project would decrease runoff discharged to Peters Canyon Channel and would reduce the potential for flooding to occur. There would be no impact.

e) ***No Impact***. The proposed project would divert a maximum of 1,130 gpm (2.6 cfs) of dry weather flow from Como Channel, Edinger Circular Drain, and Valencia Drain that currently discharges into Peters Canyon Channel. The flow in all three drains includes urban runoff. As a result, the project would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems. Rather, the project would reduce runoff water discharged to Peters Canyon Channel during dry weather. During wet weather, diversions would be discontinued and flows would continue to be discharged to Peters Canyon Channel similar to existing conditions. In addition, the flows being diverted for the project are characterized by high nitrate and selenium concentrations. Therefore, the proposed project would have a positive effect on water quality. There would be no adverse effects to runoff volume or water quality.

f) ***Less than Significant with Mitigation Incorporation***. Overall, the proposed project would improve water quality conditions in the San Diego Creek Watershed and comply with the requirements of the NPDES Permit and TMDLs for the Watershed, as described above under Item 3.9(a). A Reduced Discharge Technical Study (ESA, 2014) was prepared to evaluate more specifically the operational project impacts to flow and water quality downstream of the project diversion points. This Technical Study is included as **Appendix C** and forms the basis for the assessment provided herein. The area of potential effect (APE) for operational impacts includes the following:

- **Peters Canyon Channel** between Como Channel and the San Diego Creek confluence
- **San Diego Creek** between the confluence with Peters Canyon Channel and the mouth of the creek at Upper Newport Bay
- **IRWD's San Joaquin Marsh**, which is primarily supported by water diverted from San Diego Creek

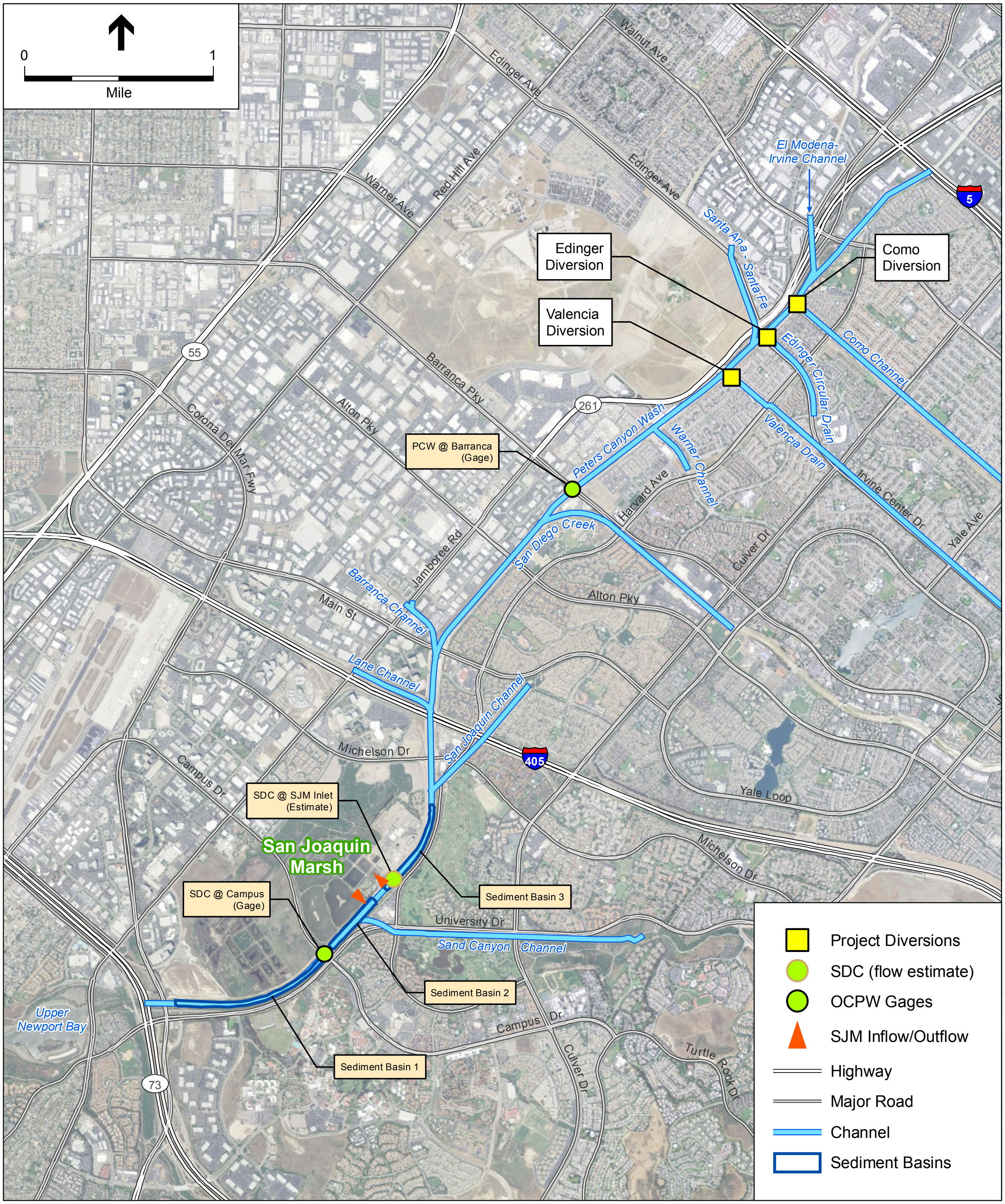
The APE does not include Upper Newport Bay. Upper Newport Bay is a tidal estuary with flows dominated by ocean tides, and as such there is little potential for the project diversions to affect the Bay.

Baseline Conditions

Peters Canyon Channel (PCC)

The three project diversions drain directly to PCC, an urbanized channel that flows in a southwesterly direction through the Tustin Plain. As shown in **Figure 9**, in the project vicinity, PCC receives surface flows from multiple tributary channels as well as inputs from shallow groundwater within the former Swamp of the Frogs. PCC is, for the most part, a trapezoidal flood control channel, comprised of a relatively wide, sandy bed (from 70 to 160 feet in width between the bank toes) and rip-rap or concrete banks, and generally lacking any notable riparian habitat. Within the APE, much of the channel is managed for multiple purposes.

PCC, from Barranca Parkway upstream to Interstate 5, is an OC Flood facility that is jointly used by IRWD for the purpose of building, operating, and maintaining facilities identified in the IRWD Natural Treatment System (NTS) Plan. The primary function of this reach is flood control, and vegetation and sediment within this section of the channel are periodically removed and/or maintained to provide adequate flood control and



SOURCE: NAIP (Aerial), 2012

Peters Canyon Channel Water Capture and Reuse Pipeline . 130993

Figure 9
Project Area and Drainage Channel Overview

conveyance. Based on information provided by Orange County Public Works (OCPW) (OCPW staff, pers. comm., 2014), sediment and/or vegetation removal has occurred several times since 2003.

San Diego Creek (SDC)

SDC is the primary surface water input to Upper Newport Bay, and receives surface flows from a 119-square mile watershed that includes the Santiago and San Joaquin Hills, as well as much of the Tustin Plain. Lower SDC, from downstream of the PCC confluence through the Sediment Basins (a series of three in-channel basins between the I-405 Freeway to Upper Newport Bay built for sediment control purposes), is part of the APE (Figure 9). The downstream end of the Sediment Basins (Basin 1) is tidally influenced.

Like PCC, lower SDC is an urbanized, trapezoidal channel that has developed into a multi-purpose OC Flood facility that provides flood control protection, sediment capture, and nutrient removal. Riparian and aquatic habitat within the Sediment Basins is generally of higher quality than the project area reaches upstream (in SDC and PCC) owing to more wetted and open water habitat, more emergent vegetation (e.g., cattails), and a riparian corridor/buffer (approximately 40 feet wide) that is maintained along the east bank area of the basins.

IRWD San Joaquin Marsh

Adjacent to lower SDC, the approximately 300-acre IRWD San Joaquin Marsh is one of the largest inland freshwater marsh systems in southern California (Figure 9. Impacted by years of urban runoff and the construction of SDC into a flood control channel, the Marsh was the epicenter of a major wetland restoration effort in the 1990s and early 2000s. The Marsh is owned and operated by IRWD and is split roughly equally between more natural riparian wetlands to the north and engineered surface water treatment wetlands to the south. Both the riparian and treatment wetlands were designed to provide habitats for a broad range of wildlife, but the treatment wetlands were also designed to reduce eutrophication in Newport Bay by removing pollutants – especially nitrogen – from SDC before they enter the Bay. Pollutant removal/transformation is achieved via a number of physical (e.g., sedimentation) and biogeochemical processes. Selenium and other trace metals are also monitored in the influent and effluent of San Joaquin Marsh, although the marsh was not designed with selenium reduction explicitly in mind.

The primary water supply to the San Joaquin Marsh is flow diverted from San Diego Creek. The inlet and outlet to the San Joaquin Marsh are located within Sediment Basins 3 and 2, respectively (see Figure 9). IRWD has a permit from the State Water Resources Control Board (SWRCB) to divert up to 5 cfs (max of 3,600 acre-feet annually) from SDC into the San Joaquin Marsh (Permit #20979). Available data indicate that, under existing conditions, approximately 5.7 cfs is currently pumped into the marsh from the creek and approximately 5.3 cfs is returned, on average and during normal operations, for a net diversion of approximately 0.4 cfs. The diversion rate from the creek into the marsh does not appear to be dependent upon flow conditions within the creek (e.g., generally, at least 5 cfs is diverted into the marsh regardless of the flow rate in SDC). Other flow inputs to the San Joaquin Marsh include storm runoff from the surrounding watersheds and the Michelson Water Recycling Plant (MWRP) dewatering wells. The MWRP dewatering wells began discharging directly to the San Joaquin Marsh (instead of to SDC) in 2006. The average flow rate from these dewatering wells is generally less than 0.5 cfs (IRWD, 2014c). Occasionally, the marsh returns more water than it diverts due to the influence of local groundwater interactions and surface water runoff (IRWD, 2011).

The management and movement of water through the San Joaquin Marsh and adjoining areas are relatively complex. Using the intake pumps, water is diverted from SDC and moved through the San Joaquin Marsh over approximately 10 to 14 days, generally flowing through eight ponds (Ponds A, B, and 1-6) before being discharged back into the creek. However, a portion of the effluent from Pond 6 is recirculated through other parts of the marsh (see Appendix C, Figure 7). For a short period of time (approximately 15 to 20 days) each winter (typically anywhere from mid-December through February), water is diverted from the San Joaquin Marsh to the University of California (UC) San Joaquin Marsh Reserve to the south in order to help fill it to capacity. The amount of water transferred each year is variable and subject to availability as determined by IRWD. When this occurs, the rate at which water is recirculated through the marsh increases.

The San Joaquin Marsh provides major nutrient removal (approximately 60%) as well as other water quality improvement, including about 30 percent selenium removal (NSMP Working Group, 2013). An analysis of San Joaquin Marsh selenium dynamics (Geosyntec, 2003) indicated that selenium is removed through sequestration and volatilization within the San Joaquin Marsh. Since approximately 2002, IRWD has measured selenium concentrations in the San Joaquin Marsh influent and effluent. Since 2006, IRWD also periodically collects selenium and water quality data for the MWRP dewatering discharges.

Operational Impact Analysis

The analysis of operational impacts within the APE focuses on in-channel impacts within PCC and SDC and impacts to the adjacent off-channel San Joaquin Marsh. The impacts described below are explained in greater detail in the Reduced Discharge Technical Study provided in Appendix C. The proposed project would divert existing discharges from Como Channel, Edinger Circular Drain and Valencia Drain year round, during dry-weather conditions. Accordingly, the Technical Study evaluated the effects of the project during non-storm conditions, since diversions would be discontinued during wet weather events. To quantify the potential impact to flow and water quality, data from Water Years (WY) 2009 through 2013 were used to characterize and represent baseline conditions. Given the generally dry conditions during this study period, the analysis represents a conservative assessment of project effects during low-flow conditions, namely dry-weather conditions during a drought, with the majority of the years experiencing below-average rainfall.

Peters Canyon Channel and San Diego Creek

Based on actual historic flow in the Como Channel, Edinger Circular Drain, and Valencia Drain during WY 2009-2013, the proposed diversions would reduce downstream dry-weather flow by approximately 29 to 34 percent. The average annual daily flow in Peters Canyon Channel at Barranca Parkway, just upstream of the confluence with San Diego Creek, is estimated to be reduced from 6.4 cfs to 4.2 cfs (34.4%), which corresponds to a total flow reduction from 1,510 million gallons per year (MGY) to 991 MGY. The average annual daily flow in San Diego Creek at the IRWD San Joaquin Marsh inlet is estimated to be reduced from 7.5 cfs to 5.3 cfs (29.3%), which corresponds to a total flow reduction from 1,770 MGY to 1,251 MGY. The average annual daily flow in San Diego Creek at Campus Drive is estimated to be reduced from 7.2 cfs to 5.0 cfs (31.0%), which corresponds to a total flow reduction from 1,699 MGY to 1,251 MGY (see Appendix C, Table 7).

Along with reductions in flow, the proposed diversions would result in the removal of selenium and nitrogen and commensurate reductions in loading of both downstream. The proposed diversions would remove approximately 154 pounds of selenium per year and 63,940 pounds of nitrate per year. This represents approximately a 40 to 43 percent reduction of selenium for Peters Canyon Channel and San Diego Creek and a 70 percent reduction of nitrate for Peters Canyon Channel at Barranca Parkway (see Appendix C, Table 7). The reduction in selenium and nitrogen loading would result in beneficial impacts to water quality.

The reduction in flow in Peters Canyon Channel and San Diego Creek would also result in a reduction in flow velocity and average depth. The predicted changes in flow velocity (and thus residence time) would be generally insignificant, on the order of zero to 0.10 feet per second (Appendix C, Table 8). The predicted reduction in average flow depth would be generally small, with average reductions in depth of approximately 16 percent (Appendix C, Table 8). As a result of such minor changes to flow and depth, predicted changes in temperature would be considered insignificant. Further, based upon available data, the reach of San Diego Creek comprising the sediment basins is likely a gaining reach (i.e., on average there is a net inflow of groundwater) (Appendix C, pages 8-10, 23, 50), and thus groundwater input would likely exert much more influence upon average stream temperature than small, predicted changes in flow depth.

~~This~~ In addition, the negligible change in flow velocity would not be great enough to force the deposition of selenium or other pollutants that may be bound to silt and clay, and thus there is no expected change in the behavior of bound selenium under project conditions relative to baseline conditions. The process of selenium sequestration is not expected to change within the Peters Canyon Channel and San Diego Creek as a result of the proposed project.

To further clarify, the process of sequestering dissolved selenium within the channels appears to be controlled by flow depth (hydraulic head) and the subsequent forcing of hyporheic exchange (i.e., locally forcing surface water to flow into the upper portion of the channel bed sediments), a process that would not be enhanced by the proposed project. Also, in Sediment Basin 1 (see Figure 9), the deposition of selenium bound to clay-sized particles are controlled primarily by flocculation, which is driven by freshwater mixing with salt water near the downstream extent of the Sediment Basins, a process which would be unaffected by the proposed project. The project reductions in channel flows is not expected to significantly increase the upstream extent of tidal influence and salinity in the mouth of the San Diego Creek because the tidal extent is controlled by the channel elevation and weirs rather than mixing of freshwater channel flows and saline tidal flows.

Given the above conclusion regarding the insignificant effect of the proposed project on residence time, water depth, and flow velocity in Peters Canyon Channel and San Diego Creek, and contributions of groundwater to surface flow, the effect of the project on temperature, dissolved oxygen, and algal growth would also be insignificant, given the similarly close association between these parameters. For example, shallower flow depths may be associated with increased water temperatures and algal growth, and slower flow rates may be associated with increased temperatures and/or lower dissolved oxygen levels. Under existing conditions, the hydraulic characteristics of Peters Canyon Channel and San Diego Creek downstream of the project diversions are generally shallow and/or slow moving. As described above, the project's potential effect upon flow velocities (i.e., residence time) and depths in the channel areas downstream are considered small to essentially negligible. The proposed project is therefore not expected to increase cycling of selenium, nitrogen, or other pollutants within the channels and/or Sediment Basins. Impacts to water quality would be considered less than significant.

IRWD San Joaquin Marsh

As stated above, under existing conditions represented by WY 2009-2013, the average annual daily flow available in San Diego Creek at the IRWD San Joaquin Marsh inlet is 7.5 cfs; approximately 5.7 cfs is currently pumped into the marsh from the creek; and approximately 5.3 cfs is returned, on average, during normal operations. The net effect of San Joaquin Marsh diversions to flow in SDC is minimal given the distance between the San Joaquin Marsh inlet and outlet is only 700 feet.

The proposed project would reduce the average annual daily flow available at the IRWD San Joaquin Marsh inlet to 5.3 cfs and would reduce the San Joaquin Marsh influent to approximately 4.6 cfs, a 19 percent reduction. This would result in a reduction in annual influent to the marsh by approximately 260 MGY, from 1,345 MGY under existing conditions to 1,085 MGY under project conditions. This analysis represents a conservative assessment of project effects during low-flow conditions since the existing baseline includes drought conditions that exacerbate low flows during dry weather periods. During normal to wet climatic periods, operation of the proposed project may have no effect on inflow to the San Joaquin Marsh.

IRWD has determined that the minimum operational inflow rate to the marsh ranges between 5.3 cfs and 3.5 cfs. The upper end reflects the minimum inflow rate under contemporary operating conditions and the lower end represents the lowest monthly average inflow rate recorded for the San Joaquin Marsh in July of 2013. Operation of the proposed project would reduce inflow to the marsh but to a level that remains within this minimum operational range. However, the proposed project would reduce the number of days on average that diversions fall below the upper end of the range, relative to baseline conditions. During WY 1999-2013, under existing conditions, inflow rates at the San Joaquin Marsh inlet exceeded 5 cfs 97 percent of the time. The proposed project would reduce flows in SDC such that San Joaquin Marsh inflow rates at the inlet would exceed 5 cfs only 71 percent of the time.

The reduction in inflow would potentially affect pond water levels within the San Joaquin Marsh. However, this would only occur if the volume of water cycling through the marsh was less than the volume of water consumed within the marsh due to evaporation or other processes (e.g., transpiration). For WY 2009-2013, average dry season evaporative losses under baseline conditions represent only about 13 percent of total San Joaquin Marsh input. Therefore, since inflow to the marsh would still far exceed the estimated losses within the marsh, the water levels are unlikely to be affected by the proposed project, as is the extent of physical habitat. In addition, the reduction in inflow would not affect the water available for transfer to the UC San Joaquin Marsh Reserve. During project operation, the San Joaquin Marsh inflow rate would still be greater than the rate of flow transferred to the UC Marsh and thus such transfers ~~could still be maintained~~ would remain unchanged if the project is approved and implemented, similar to existing baseline conditions.

The reduction in inflow would potentially affect residence time for water flowing through San Joaquin Marsh. As stated above, it takes about 10 to 14 days for water to move through the marsh under baseline conditions. It is estimated that project operation would result in an increase in average residence time by approximately five days, from approximately 14 days to 19 days. This increase in residence time would not affect the selenium or nitrogen removal efficiency of the San Joaquin Marsh, based on an analysis showing no statistically signification correlation between Marsh inflow and either selenium or nitrogen removal efficiency given historical data (see Appendix C, Figures 14a and 14b). The increase in residence time, however, may induce undesirable conditions, such as increased water temperature, increased algae production, and a sustained reduction in dissolved oxygen (DO) levels during drought and summer dry conditions. These reduced water quality conditions if sustained may impact the benthic and fish community in the marsh in the absence of mitigation, either directly or indirectly by affecting selenium cycling, speciation, and bioaccumulation. These potential impacts are based upon recent observations during the current drought period that suggest there could be a causal link between reduced marsh inflow and increased algae growth. However, it is important to also note that an anticipated decrease in nutrient loading from the proposed project may likely reduce algae growth during these critical periods.

Nonetheless, in the event that algal mats develop and die off as a result of reduced circulation and increased retention time, diurnal fluctuations in dissolved oxygen may result in anoxic conditions (dissolved oxygen of 0-2). Sustained low oxygen conditions can impact benthic communities, potentially result in fish kills, and create odor problems. Sustained low oxygen can also affect selenium cycling and speciation, and thus could potentially increase and/or alter the form of selenium removed within the marsh. These potential effects ~~would~~ could significantly impact water quality and habitat conditions. **Mitigation Measure HYDRO-1** would require implementation of an Impact Avoidance Framework (IAF) to ensure that the effects of the proposed project on flow availability to the San Joaquin Marsh do not indirectly result in significant adverse effects to water quality due to increased residence time. The IAF would establish a range of acceptable water quality parameters (e.g., DO and algae/chlorophyll concentrations) developed from an existing water quality sampling program ; a trigger for management actions when water quality parameters are sustained beyond the acceptable range; a suite of corrective actions to implement to ensure water quality parameters return to, and are maintained within, the acceptable range. Impacts would be considered less than significant with mitigation.

Along with reductions in flow available at the San Joaquin Marsh inlet, the proposed diversions would result in the removal of selenium and nitrogen and commensurate reductions in loading of both to the marsh. Under existing conditions (WY 2009-2013), approximately 294 pounds per year of selenium are input to San Joaquin Marsh from SDC. Under the proposed project, selenium loading to San Joaquin Marsh would be reduced to approximately 202 pounds per year. Accordingly, the amount of selenium removed within San Joaquin Marsh would also be reduced as a result of project operation, dropping from approximately 107 to 74 pounds per year (Appendix C, Table 7). The reduction in selenium and loading would result in beneficial impacts to water quality in the San Joaquin Marsh.

Impact Avoidance Framework – Environmental Effects of Mitigation

According to CEQA Guidelines Section 15126.4(d), if a mitigation measure would cause significant effects in addition to those caused by the project then those effects are to be discussed although in less detail than the significant effects of the project. **Mitigation Measure HYDRO-1** would implement an IAF for purposes of mitigating project effects to residence time, water quality and habitat in the San Joaquin Marsh. A component of the IAF is the option to develop alternative water supplies for the San Joaquin Marsh to replace inflow lost due to project diversions; a supplemental water source would allow for the project to continue operating at a minimum diversion level without significant impacts to the marsh. These alternative water supplies include, but may not be limited to, the following as discussed in the Reduced Discharge Technical Study (Appendix C): (1) potable water from the existing 6-inch or 12-inch domestic water pipelines that run along the boundaries of the marsh; (2) surface water from Sand Canyon Channel, or other proximate channels such as the UCI box culvert, that discharge to San Diego Creek; and (3) groundwater pumped from existing or new shallow dewatering wells at the MWRP.

An assessment of potential impacts associated with each potential alternative water supply is provided below.

Potable Water

Two existing domestic water lines run adjacent to or within the San Joaquin Marsh area (Appendix C, Figure 25) and could provide a source of supplemental water to mitigate project impacts. The backbone infrastructure for this potential alternative supply is already in place and would likely require minor construction activities (e.g., shallow trenching) to establish a connection from the existing potable water pipelines to Pond A. The pipeline would be below-ground and routed in between the ponds within existing dirt roads or trails. Minor disturbances to vegetation and wildlife may occur during construction, but mitigation to avoid disturbance to any special-status species' habitat, nesting, or foraging activities would be implemented, in a similar fashion to the proposed project. Any vegetation disturbed would be replaced and restored after construction. Operation of the supplemental potable water pipeline would require energy to pump water to Pond A and potentially to operate dechlorination equipment to ensure water quality is appropriate. Operation of the supplemental potable water pipeline would be as-needed and therefore temporary and intermittent; any energy use would be minimal and would not result in significant impacts.

Shallow Groundwater

Thirteen permanent dewatering wells are currently located within the MWRP area (Appendix C, Figure 25). These dewatering wells are operated to control the shallow groundwater level and prevent hydrostatic pressure build-up within and/or groundwater seepage into areas of the MWRP. Under normal operations, the collective flow from these dewatering wells is routed and discharged to Pond 5 of the San Joaquin Marsh via the dewatering channel.

To provide an alternative water supply under the IAF, the dewatering wells' discharge would be rerouted and discharged to Pond A at the upstream end of the marsh to supplement inflow. The average, collective daily flow of the dewatering wells is approximately 0.3 cfs, and the average selenium concentration is much less than that of the Project diversion (Appendix C, Table 7).[2] Thus, the existing dewater wells' discharge could offset the minimum project diversion required by the City of Irvine (estimated range = 0.06 to 0.23 cfs). It may also be possible to operate the existing dewatering wells in a manner that would allow for temporary increases in production in order to provide a greater supplemental supply under the IAF. To implement this alternative supply, an additional pipe or channel would need to be constructed, extending from the existing dewatering channel to the Pond A inlet. The distance would be relatively short (likely less than 1,000 feet), and the alignment would likely follow existing roads and/or berms (or otherwise already developed areas). Therefore impacts due to construction of new infrastructure would be similar to those described above for installation of a potable

[2] Based on eleven MWRP dewatering wells; two wells have only very recently become active (summer of 2014) and these are not included in our analysis.

water pipeline to Pond A. Operational impacts would be no different than baseline operating conditions, as existing dewatered groundwater would continue to be pumped, just to a different location. Pond A is closer to the dewatering pump than Pond 5 and thus less energy may even be used relative to baseline conditions.

New dewatering wells also may be considered as part of this alternative supply scenario in order to increase the amount of supplemental shallow groundwater available and thus allow for project diversions to proceed at a level above the City or Irvine’s minimum. Implementation of this alternative would require additional feasibility assessment, including regulatory and environmental. Similar to existing wells, discharges from new wells would be regulated by the RWQCB either under IRWD’s existing NPDES permit for the MWRP or under Order No. R8-2007-0041, amended by R8-2009-0045, the general permit for discharges to surface water from groundwater dewatering operations within the San Diego Creek/Newport Bay Watershed. In addition, a groundwater assessment would be required to evaluate the local response of shallow groundwater and the ability to operate new wells without adversely affecting groundwater levels under the San Joaquin Marsh ponds, San Diego Creek, or the MWRP facilities. Feasible locations for new wells would be determined as a result of this study.

Surface Water

Sand Canyon Channel, which drains into San Diego Creek from the east at a point just upstream of Campus Drive, is another potential alternative water supply source for the San Joaquin Marsh (Appendix C, Figure 25). Sand Canyon Channel is an open channel that discharges to SDC through two pipe culverts under the SDC bike trail and through the SDC channel bank/sidewall. The USGS operates a stream gaging station on Sand Canyon channel just upstream of the mouth, at Culver Drive. The existing flow in Sand Canyon Channel is determined to be adequate to replace a reduction in inflow to San Joaquin Marsh after project diversions are reduced to a minimum.

The University of California at Irvine (UCI) Box Culvert drains into San Diego Creek from the south side of the channel, capturing runoff and drainage from the UCI campus (Appendix C, Figure 25). Measured flow data are not available for the UCI Box Culvert; however, observations suggest that the UCI Box Culvert flow may be greater than Sand Canyon Channel flow (IRWD, 2014).

To provide an alternative water supply under the IAF, flow from Sand Canyon Channel or the UCI Box Culvert would be pumped to Sediment Basin 3 via a new pipeline running parallel to and on the south side of the San Diego Creek trail, following the alignment of existing sewer lines. The tie-in point to Sand Canyon Channel or the UCI Box Culvert would occur near the point of discharge to San Diego Creek, where the existing sewer lines currently run, and the pipeline would discharge into Sediment Basin 3 just upstream of the San Joaquin Marsh inlet. Construction activities for this option would primarily be limited to trench excavation and backfilling, and possibly temporary dewatering of shallow groundwater from the trench (although shallow groundwater at this point is likely being discharged to SDC anyway). Impacts would be similar in nature to those described for the proposed project, which similarly involves installation of a diversion structure and pipeline routed along a bike path alongside the creek. Impacts to vegetation, habitat, special-status species, and bike path access would similarly be mitigated, and disturbed areas would be restored back to preconstruction conditions once all facilities are installed belowground. The diversion of storm drain flow may require permits from the RWQCB and SWRCB. The effects of the diversion would not be significant downstream as the only change is the point of discharge; total discharges to SDC would remain unchanged. There would be a benefit to water quality as the diverted flow passes through the treatment system of the San Joaquin Marsh before flowing downstream. Operation of the diversion structure and its pumps would require energy to pump water up to Sediment Basin 3. Operation of this supplemental supply would be as-needed and therefore temporary and intermittent; any energy use would be minimal and would not result in significant impacts.

IRWD and the project sponsors may choose to implement one or more of the above-mentioned alternative supplies or may identify another alternative source that is equally as effective and feasible. Although potential impacts of the known potential alternative water supplies are described above, IRWD and the project sponsors will evaluate whether or not additional assessment pursuant to CEQA would be required prior to implementing any option. Any necessary approvals or permits would be acquired prior to implementation.

g /h) ***No Impact***. The proposed project does not include any elements that would result in housing construction and thus would not result in flood hazards associated with housing. San Diego Creek and Peters Canyon Channel are identified as Zone A on the FEMA Flood Insurance Rate Maps. Zone A represents the 100-year flood zone. The levees represent the boundary of this 100-year flood zone, such that a 100-year flood would be contained within the channels. The proposed pipeline alignment thus would be outside of the 100-year flood zone. In addition, the majority of the proposed facilities would be below ground and would not be considered structures that could impede or redirect flood flow. There would be no impact to hazards associated with flooding.

i) ***Less than Significant Impact***. A levee is located along the San Diego Creek and Peters Canyon Channel. San Diego Creek and Peters Canyon Channel are identified as Zone A on the FEMA Flood Insurance Rate Maps; Zone A represents the 100-year flood zone. The levees represent the boundary of this 100-year flood zone, such that a 100-year flood would be contained within the channels. The project does not propose to modify the existing levees. The project would not expose people or habitable structures to a significant risk of loss, injury, or death involving flooding as a result of the failure of a levee. The project would not result in an increase in water flows to San Diego Creek or Peters Canyon Channel that could result in the failure of the levee. Impacts would be less than significant.

j) *No Impact*. The project sites are located approximately six and a half miles inland from the Pacific Ocean. Therefore the project would not be susceptible to tsunami or seiche hazards. In addition, the project area is relatively flat and not susceptible to mudflows. There would be no impact related to seiche, tsunami, or mudflows.

Mitigation Measures

HYDRO-1: Impact Avoidance Framework (IAF). IRWD and the project sponsors shall develop and implement an IAF for the San Joaquin Marsh to avoid changes in water quality that result from reduced inflow and increased residence time. The conceptual framework and approach for developing the IAF is described in greater detail in the Reduced Discharge Technical Study prepared for the project (ESA, 2014; see Appendix C**)**. The development of the IAF shall include the following steps:

A. Utilize the existing water quality sampling program data to develop baseline water quality conditions and a target range for DO and algae or chlorophyll concentrations.

B. Establish triggers for corrective action when water quality parameters are sustained beyond the target range.

C. Establish a suite of management actions that may be implemented when triggers are reached. Ongoing evaluation of the effectiveness of such management actions through water quality sampling would inform any decisions to alter or discontinue management actions.

The` IAF management actions may include, but not be limited to, those listed below. The IAF shall be flexible and adaptable to allow triggers and management actions to be revised based on actual results and outcomes while still allowing for goals and performance criteria to be achieved. The following management actions may or may not be implemented in the order presented below:

1. **Recirculation**: To maintain the existing flow-through rate, water will be recirculated through the San Joaquin Marsh ponds (Ponds A, B and 1 through 6) using the existing pump station and pipe system. The goal shall be to compensate for the reduced inflow available from the San Diego Creek and maintain water quality conditions similar to baseline conditions.

2. **Reduce Project Diversions**: Project diversions shall be reduced to increase the available inflow to the San Joaquin Marsh to increase residence time and maintain water quality. A target minimum project diversion rate shall be established such that the portion of the diversion required by the City of Irvine's NPDES permit would be met (R8-2005-0079 extended by Time Schedule Order R8-2009-0069).

3. **Modified Pond Management**: Modify pond management as allowed by existing operations and maintenance protocols for the San Joaquin Marsh to correct for any increases in residence time and resulting impacts to water quality. For example, water levels in the San Joaquin Marsh ponds may be temporarily reduced, or one or more ponds may be temporarily removed from the flow-through water quality treatment system, in order to increase residence time when inflow to the marsh is reduced.

4. **Alternative Water Supply**: The reduction in San Joaquin Marsh inflow shall be compensated for and replaced with a supplemental water source, such as potable water, water from another surface channel, or water from existing or new shallow groundwater dewatering wells at the Michelson Water Recycling Plant. This management option results in no reduction in inflow to the San Joaquin Marsh and maintains existing marsh operations, residence time, and water quality. At a minimum, the supplemental water source offsets the minimum project diversion established as part of #2 above; on an annual basis this represents replacement of approximately 14 to 54 million gallons per year. In the event that supplemental water is not available and no other management actions are available to mitigate for residence time and water quality, project diversions may be temporarily discontinued.

3.10 Land Use and Land Use Planning

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
10. LAND USE AND LAND USE PLANNING — Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Discussion

a) ***No Impact.*** The proposed project involves construction of a linear underground pipeline alongside the existing Peters Canyon Channel and San Diego Creek that would be installed primarily within the ROW of the channel. The pipelines would be entirely underground with the exception of pipelines suspended from two bridges. As a result, the proposed pipeline would not result in any aboveground linear features that would physically divide an established community. Operation of the project would not alter the physical path of Peters Canyon Channel or San Diego Creek, and would maintain existing community boundaries. Implementation of the project would not physically divide an established community; no impact would occur.

b) ***Less than Significant Impact.*** The proposed project would maintain the existing land uses in the project area, including flood control and storm water drainage (Peters Canyon Channel; Edinger storm drain, Valencia storm Drain and Como Channel). Land use in the project area located in the City of Irvine is designated as Recreation in the General Plan Land Use Element and also zoned for recreation (City of Irvine, 2012).The project area located in the City of Tustin is zoned for a regional riding and hiking trail under the Marine Corps Air Station (MCAS) Specific Plan (City of Tustin, 2003). During project construction, the existing hiking trail/bike lane that runs alongside Peters Canyon Channel would be rerouted around the project construction site to Harvard Avenue and back to Peters Canyon Channel**.** Upon installation of the project facilities, access would be restored to the original hiking trail/bike lane path. No long-term conflicts with land use would occur. The proposed project would not conflict with any applicable land use plans, policies or regulations. Impacts would be less than significant.

c) ***No Impact.*** The proposed project facilities do not fall within the boundaries of the Orange County Natural Community Conservation Plan (CDFW, 1996). No other habitat conservation plan applies to the area. There would be no impact.

3.11 Mineral Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
11. MINERAL RESOURCES — Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Discussion

a/b) ***No Impact.*** There are no County-identified mineral resources near the project area (Orange County, 2005). The only mineral resource identified in Tustin is the Mercury-Barite deposit in Red Hill (City of Tustin, 2008). The neighborhood of Red Hill is located in North Tustin, in which some mining operations occurred in the late 19th and early 20th century. However, the area is currently unutilized (Tustin Area Historical Society, 2014) and is not located near the project area. Implementation of the proposed project would not result in the loss of availability of an important mineral resource or mineral resource recovery site. There would be no impact.

3.12 Noise

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
12. NOISE — Would the project:				
a) Result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Result in exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
d) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e) For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	☐	☐	☐	☒
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion

Noise is generally defined as unwanted sound. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) that is measured in decibels (dB), which is the standard unit of sound amplitude measurement. The dB scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound, with 0 dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain. Pressure waves traveling through air exert a force registered by the human ear as sound.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude. When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequency spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to extremely low and extremely high frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). A-weighting follows an international standard methodology of frequency deemphasis and is typically applied to community noise measurements.

An individual's noise exposure is a measure of noise over a period of time. While a noise level is a measure of noise at a given instant in time, community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic. What makes community noise variable throughout a day, besides the slowly changing background noise, is the addition of short-duration, single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.

These successive additions of sound to the community noise environment change the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

L_{eq}: The L_{eq}, or equivalent sound level, is used to describe noise over a specified period of time in terms of a single numerical value; the L_{eq} of a time-varying signal and that of a steady signal are the same if they deliver the same acoustic energy over a given time. The L_{eq} may also be referred to as the average sound level.

L_{max}: The maximum, instantaneous noise level experienced during a given period of time.

L_{min}: The minimum, instantaneous noise level experienced during a given period of time.

L_{dn}: Also termed the DNL, the L_{dn} is the average A-weighted noise level during a 24-hour day, obtained after an addition of 10 dBA to measured noise levels between the hours of 10:00 P.M. to 7:00 A.M. to account nighttime noise sensitivity.

CNEL: CNEL, or Community Noise Equivalent Level, is the average A-weighted noise level during a 24-hour day that is obtained after an addition of 5 dBA to measured noise levels between the hours of 7:00 P.M. to 10:00 P.M. and after an addition of 10 dBA to noise levels between the hours of 10:00 P.M. to 7:00 A.M. to account for noise sensitivity in the evening and nighttime, respectively.

An important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted (i.e., comparison to the ambient noise environment). In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships generally occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;

- Outside of the laboratory, a 3 dBA change in noise levels is considered to be a barely perceivable difference;
- A change in noise levels of 5 dBA is considered to be a readily perceivable difference; and
- A change in noise levels of 10 dBA is subjectively heard as doubling of the perceived loudness.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a non-linear fashion; hence the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Noise levels from a particular source generally decline as distance to the receptor increases. Other factors, such as the weather and reflecting or barriers, also help intensify or reduce the noise level at any given location. A commonly used rule of thumb for roadway noise is that for every doubling of distance from the source, the noise level is reduced by about 3 dBA at acoustically “hard” locations (i.e., the area between the noise source and the receptor is nearly complete asphalt, concrete, hard-packed soil, or other solid materials) and 4.5 dBA at acoustically “soft” locations (i.e., the area between the source and receptor is normal earth or has vegetation, including grass). Noise from stationary or point sources is reduced by about 6 to 7.5 dBA for every doubling of distance at acoustically hard and soft locations, respectively. Noise levels may also be reduced by intervening structures – generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA.

a/d) ***Less Than Significant with Mitigation Incorporation.*** A significant impact may occur if the proposed project would generate excessive noise that exceeds the noise level standards set forth in the respective General Plan Noise Elements and Noise Ordinances of the cities of Tustin and Irvine. As the proposed project consists of the installation of water conveyance infrastructure to be located primarily below ground, potential noise impacts associated with the project on nearby noise-sensitive land uses would primarily occur during the construction phase. Once construction activities have been completed, the newly installed water conveyance system would operate underground and no audible noise levels affecting noise-sensitive uses located along the proposed pipeline alignment would occur during project operations. Thus, this analysis focuses on the potential noise impacts that could result from construction of the proposed project. The exception is potential noise associated with operation of proposed transformers and electrical facilities to be co-located with the proposed diversion structures.

Construction Noise

Construction of the proposed project’s pipeline conveyance system would occur in multiple pipeline segments spanning a length of approximately 17,300 lineal feet.

Construction of the pipeline would mostly involve the open-trench method, while one location would require use of the jack and bore construction methods. The process for both construction methods would generally consist of the following phases: 1) site preparation, 2) excavation and shoring (of the open-trench and jack and bore pits), 3) pipe installation and backfilling, 4) removal of jacking and receiving pits (for jack and bore site only), and 4) work site restoration. Construction activities occurring under each of these phases would require the use of heavy equipment (e.g., excavators, backhoes, loaders, tractors, etc.) along with the use of smaller power tools, generators, and other sources of noise. During each construction phase there would be a different mix of equipment operating and noise levels would vary based on the amount of equipment in operation and the location of each activity. As such, construction activity noise levels at and near each open-trench or jack and bore site would fluctuate depending on the particular type, number, and duration of use of the various pieces of construction equipment.

Table 3-4 shows the hourly noise levels (L_{max}) produced by various types of construction equipment based on a distance of 50 feet between the equipment and noise receptor. It should be noted that L_{max} noise levels associated with the construction equipment would only be generated when the equipment are operated at full power. Typically, the operating cycle for a piece of construction equipment would involve one or two minutes of full power operation followed by three or four minutes at lower power settings. As such, the L_{max} noise levels shown in Table 3-4 would only occur occasionally throughout the construction day.

TABLE 3-4
MAXIMUM NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Level at 50 Feet (dBA, L_{max})
Air Compressor	78
Auger Drill	84
Backhoe	78
Concrete Saw	90
Crane	81
Dozer	82
Dump Truck	77
Excavator	81
Front End Loader	79
Generator	81
Grader	85
Paver	77
Roller	80
Welder	74

Source: FHWA, 2006.

During the project's construction activities within the proposed pipeline alignment, the nearest and most notable off-site sensitive receptors to the open-trench and jack and bore sites would be the existing residential uses located adjacent to and along the Peters Canyon Channel and San Diego Creek. In particular, along certain stretches of the proposed pipeline alignment, the construction zone would be located approximately four feet to seven feet from the existing residential walls of the residences that are located along the east side of Peters Canyon Channel. Due to the use of construction equipment during the construction phases at each open-trench and jack and bore site, the project would expose these sensitive receptors to increased exterior noise levels. Over the course of a construction day, the highest noise levels would be generated when multiple pieces of construction equipment are being operated concurrently.

With regards to construction-related activities, both the City of Tustin and City of Irvine have elected to regulate the noise levels generated from these activities via restricting their hours of operation. Section 4616 (Specific Disturbing Noises Prohibited) of the City of Tustin Noise Ordinance stipulates that all construction-related activities are prohibited between the hours of 6:00 P.M. and 7:00 A.M., Monday through Friday, between the hours of 5:00 P.M. and 9:00 A.M. on Saturdays, and during all hours on Sundays and City-observed federal holidays. Additionally, Section 4617 (Exemptions) of the City of Tustin Noise Ordinance exempts all construction-related activities from the provisions of the City's Noise Ordinance as long as these activities occur within the aforementioned permitted hours. The City of Irvine Noise Ordinance also treats construction activities as a special provision that is allowed as long as the activities occur within permitted hours throughout the week. Specifically, Section 6-8-205 (Special Provisions) of the City of Irvine Noise Ordinance stipulates that construction activities may occur between 7:00 A.M. and 7:00 P.M. Mondays through Fridays and between 9:00 A.M. and 6:00 P.M. on Saturdays, but are not allowed on Sundays and federal holidays unless a temporary waiver has been granted by the Chief Building Official or his or her authorized representative. Thus, the construction activities associated with the proposed project would be required to adhere to the applicable permitted hours of operation established under both the City of Tustin and City of Irvine Noise Ordinances.

However, although the proposed project's construction activities would only occur under the permitted hours allowed under both the City of Tustin's and City of Irvine's respective Noise Ordinances, the proposed project would still expose the existing sensitive receptors located in proximity to the proposed pipeline alignment to increased exterior noise levels above existing ambient noise levels. It should be noted, however, that any increase in noise levels at the off-site sensitive receptors during project construction would be temporary in nature, and would not generate continuously high noise levels, although occasional single-event disturbances from excavation and pipe installation activities are possible. In addition, once the construction activities at an open-trench or jack and bore site are completed, the construction activities would move to another location along the approximately 3-mile proposed pipeline alignment. Due to the localized nature of noise impacts, the duration of exposure to the project's construction-related noise levels at any existing sensitive receptor would only be limited to the time when an open-trench or jack and bore work site is located on a pipeline segment that is in proximity to that receptor. Nonetheless, because the temporary noise nuisance generated by the project's construction activities would constitute a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project, this noise impact is considered to be potentially significant.

Implementation of **Mitigation Measures NOISE-1 through NOISE-5**, which would require the implementation of noise reduction devices and techniques during construction at the project site, would reduce the noise levels associated with construction of the proposed project to the maximum extent that is technically feasible. Therefore, with implementation of **Mitigation Measures NOISE-1 through NOISE-5**, the temporary noise impacts associated with project construction would be reduced to a less-than-significant level.

Operational Noise

As discussed previously, because the project would only consist of the installation of water conveyance infrastructure, potential noise impacts associated with the project on nearby noise-sensitive land uses would primarily occur during the construction phase. Once construction activities have been completed, the newly installed pipeline and diversion structures would operate underground and no audible noise levels affecting noise-sensitive uses located along the proposed pipeline alignment would occur during project operations. The operation of the SCE transformer, to be co-located with project diversion facilities, could have a slight mechanical hum. However, the transformers would all be located adjacent to existing masonry walls that would reduce potential noise at neighboring residential property boundaries. In addition, in accordance with **Mitigation Measure NOISE-1**, the proposed project would be required to comply with all noise ordinances for the cities of Irvine and Tustin, including noise standards for residential property boundaries. Compliance with the ordinances would ensure impacts related to operational noise would be less than significant.

b) ***Less Than Significant with Mitigation Incorporation.*** Vibration can be interpreted as energy transmitted in waves through the ground or man-made structures. These energy waves generally dissipate with distance from the vibration source. Because energy is lost during the transfer of energy from one particle to another, vibration becomes less perceptible with increasing distance from the source.

As described in the Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment (FTA, 2006), ground-borne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard. In contrast to airborne noise, ground-borne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of ground-borne vibration are trains, buses on rough roads, and construction activities such as blasting, pile-driving, and operation of heavy earth-moving equipment.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure RMS. The relationship of PPV to RMS velocity is expressed in terms of the "crest factor," defined as the ratio of the PPV amplitude to the RMS amplitude. Peak particle velocity is typically a factor of 1.7 to 6 times greater than RMS vibration velocity (FTA, 2006). The decibel notation acts to compress the range of numbers required to describe vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration sensitive equipment.

The effects of ground-borne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction. Annoyance from vibration often occurs when the vibration levels exceed the threshold of perception by only a small margin. A vibration level that causes annoyance will be well below the damage threshold for normal buildings. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 0.2 inches per second (in/sec) PPV (FTA, 2006).

With regards to the proposed project, groundborne vibration would be generated from the operation of heavy construction equipment, such as shoring equipment, at the open-trench and jack and bore sites along the proposed pipeline alignment, which could potentially affect the existing sensitive land uses located along the alignment. The proposed project, which consists of the installation of water conveyance infrastructure, would not include any operational sources of groundborne vibration.

Construction

The state *CEQA Guidelines* do not define the levels at which groundborne vibration or groundborne noises are considered "excessive." Numerous public and private organizations and governing bodies have provided guidelines to assist in the analysis of vibration; however, the federal, state, and local governments have yet to establish specific vibration requirements. Additionally, there are no federal, state, or local vibration regulations or guidelines directly applicable to the proposed project. However, publications of the Federal Transit Authority (FTA) and California Department of Transportation (Caltrans) are two of the seminal works for the analysis of vibration relating to transportation and construction-induced vibration. The proposed project is not subject to FTA or Caltrans regulations; nonetheless, these guidelines serve as a useful tool to evaluate vibration impacts.

For the purpose of this analysis, the vibration criteria for structural damage and human annoyance established in the most recent Caltrans' *Transportation and Construction Vibration Guidance Manual* (2013), which are shown in **Table 3-5** and **Table 3-6**, respectively, are used to evaluate the potential vibration impacts of the project on nearby sensitive receptors.

TABLE 3-5
CALTRANS VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA

	Maximum PPV (in/sec)	
Structure and Condition	**Transient Sources**	**Continuous/Frequent Intermittent Sources**
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

NOTE: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: Caltrans, 2013.

TABLE 3-6
CALTRANS VIBRATION ANNOYANCE POTENTIAL CRITERIA

	Maximum PPV (in/sec)	
Structure and Condition	**Transient Sources**	**Continuous/Frequent Intermittent Sources**
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

NOTE: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: Caltrans, 2013.

The project's construction activities along the proposed pipeline alignment have the potential to generate low levels of groundborne vibration as the operation of heavy construction equipment (i.e., loaders, excavators, haul trucks, etc.) generates vibrations that propagate though the ground and diminishes in intensity with distance from the source. As such, the existing sensitive uses (i.e., residential uses) located along the pipeline alignment could be exposed to the generation of excessive groundborne vibration or groundborne noise levels during the project's construction activities. Site ground vibrations from construction activities very rarely reach the levels that can damage structures, but they may be perceived in buildings very close to a construction site. No pile-driving or blasting activities would be required for construction of the proposed project components, although shoring equipment may be used.

The various PPV vibration velocities for several types of construction equipment, along with their corresponding RMS velocities (in VdB), that can generate perceptible vibration levels are identified in **Table 3-7**. Based on the information presented in Table 3-7, vibration velocities could reach as high as approximately 0.089 inch-per-second PPV at 25 feet from the source activity, depending on the type of construction equipment in use. This corresponds to a RMS velocity level of 87 VdB at 25 feet from the source activity.

Although the off-road construction equipment used for the project would generally consist of loaders, excavators, and backhoes that would be smaller in scale than a large bulldozer, the vibration levels for a large bulldozer (as shown in Table 3-7) are used to analyze the project's vibration-related impacts during construction for the purpose of conducting a conservative analysis.

TABLE 3-7
VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

	Approximate PPV (in/sec)					Approximate RMS (VdB)				
Equipment	**25 Feet**	**50 Feet**	**60 Feet**	**75 Feet**	**100 Feet**	**25 Feet**	**50 Feet**	**60 Feet**	**75 Feet**	**100 Feet**
Large Bulldozer	0.089	0.031	0.024	0.017	0.011	87	78	76	73	69
Caisson Drilling	0.089	0.031	0.024	0.017	0.011	87	78	76	73	69
Loaded Trucks	0.076	0.027	0.020	0.015	0.010	86	77	75	72	68
Jackhammer	0.035	0.012	0.009	0.007	0.004	79	70	68	65	61
Small Bulldozer	0.003	0.001	0.0008	0.0006	0.0004	58	49	47	44	40

SOURCE: FTA, 2006.

Table 3-8 shows the estimated construction-related groundborne vibration levels that could occur at the identified off-site sensitive uses located along the proposed pipeline alignment during project construction. As shown in Table 3-8, the vibration velocities forecasted to occur at the off-site sensitive receptors would be 0.003 in/sec PPV at the residences located along the San Diego Creek, between Main Street and Alton Parkway, to 0.35 in/sec PPV at the residences located along Peters Canyon Channel, between Edinger Avenue and Como Channel. None of the building structures at the identified off-site sensitive use locations are considered to be historic or fragile structures that are extremely susceptible to vibration damage. For the purpose of this analysis, the identified off-site residential structures are considered to be “older residential structures,” based on the structure descriptions provided under Caltrans vibration criteria (refer to Table 3-6). Based on the information shown in Table 3-8, with the exception of the residences located between Edinger Avenue to Como Channel, none of the other remaining existing off-site residential structures would be exposed to PPV groundborne vibration levels that exceed the 0.3 inches per second criteria for continuous/frequent intermittent sources. However, because the residences located between Edinger Avenue to Como Channel could be exposed to PPV vibration levels that exceed 0.3 inches per second, this impact would be potentially significant.

TABLE 3-8
GROUNDBORNE VIBRATION LEVELS AT OFF-SITE SENSITIVE USES

Off-site Sensitive Land Use	Approximate Distance to Construction Area (ft.)[a]	Estimated PPV (in/sec)
Residences located along San Diego Creek from Main Street to Alton Parkway.	250	0.003
Residences located along Peters Canyon Channel from Barranca Parkway to Warner Avenue.	20	0.12
Residences located along Peters Canyon Channel from Warner Avenue to Moffett Drive.	23	0.10
Residences located along Peters Canyon Road from Moffett Drive to Edinger Avenue.	23	0.10
Residences located along Peters Canyon Channel from Edinger Avenue to Como Channel.	10	0.35
Residences located along Peters Canyon Channel from Como Channel to Walnut Avenue	60	0.02

ft. = feet
in/sec = inches per second.

[a] For the groundborne vibration analysis, approximate distances are measured from the nearest project site boundary to the nearest sensitive-receptor structure located offsite.

In addition, the vibration levels at four of the identified off-site sensitive receptor locations would also be at 0.10 in/sec PPV or greater, which is considered to be strongly perceptible for continuous/frequent intermittent sources with respect to Caltrans vibration annoyance potential criteria (refer to Table 3-6). Thus, vibration impacts associated with human annoyance would also be potentially significant at these identified sensitive receptors.

Given that the proposed project would result in the installation of a pipeline that would be installed at a rate of 100 to 250 feet per day, the acute effects of vibration at any particular residence would last for only a day or two. Implementation of **Mitigation Measures NOISE-6** would require notification of existing residents adjacent to construction areas of the construction schedule and location. In addition, **Mitigation Measure NOISE-7** would require IRWD to establish a public liaison to receive and address noise complaints during project construction. Impacts would be considered less than significant with mitigation.

Operation

Once construction activities have been completed, the newly installed pipeline and diversion structure would operate underground and no other vibration-generating sources associated with project operation would occur. Thus, no impact with respect to groundborne vibration during project operations would occur.

c) ***Less Than Significant with Mitigation Incorporation.*** The proposed project, which consists of the installation of an underground water conveyance system along segments of the Peters Canyon Channel and San Diego Creek, would not introduce any new sources of operational noise in the project area other than the new SCE transformers to be co-located with project diversion facilities. As described previously, the SCE transformer could have a slight mechanical hum. However, the transformers would all be located adjacent to existing masonry walls that would reduce potential noise at neighboring residential property boundaries. In addition, in accordance with Mitigation Measure NOISE-1, the proposed project would be required to comply with all noise ordinances for the cities of Irvine and Tustin, including noise standards for residential property boundaries. Compliance with the ordinances would ensure impacts related to increases in ambient noise would be less than significant.

e) ***No Impact.*** A section of the project site is located adjacent to the Marine Corps Air Station (MCAS) Tustin; however MCAS Tustin was officially closed down in July of 1999 (City of Tustin, 2008). The project site is located slightly less than 1.5 miles west of the John Wayne Airport. However, the project site is not within the airport's Impact Zones, as specified by the Airport Environs Land Use Plan (AELUP) for John Wayne Airport (ALUC, 2008). Further, the project consists of water conveyance infrastructure and would not increase the amount of people living or working in the area, and would therefore not expose people residing or working in the area to excessive noise levels.

f) ***No Impact.*** There are no private airstrips in the vicinity of the proposed project. Further, the project consists of water conveyance infrastructure and would not increase the amount of people living or working in the area, and would therefore not expose people residing or working in the area to excessive noise levels.

Mitigation Measures

NOISE-1: Project construction activities shall comply with the noise ordinances of the City of Tustin and City of Irvine, including any daily restrictions on construction hours.

NOISE-2: The construction contractor shall ensure proper maintenance and working order of equipment and vehicles and that all construction equipment is equipped with manufacturers approved mufflers and baffles.

NOISE-3: The construction contractor(s) shall endeavor to use quieter equipment as opposed to noisier equipment (such as rubber-tired equipment rather than track equipment), when feasible. Noisy equipment shall be switched off when not in use.

NOISE-4: Construction activities shall be scheduled so as to avoid operating several pieces of equipment simultaneously, which causes high noise levels, to the extent feasible.

NOISE-5: The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.

NOISE-6: In conjunction with Mitigation Measure TR-3, prior to any construction activities, the existing residents located directly adjacent to the construction work area shall be notified of the project location and dates of construction.

NOISE-7: IRWD shall designate a public liaison for the proposed project that will be responsible for addressing public concerns about construction activities, including excessive noise. The contact information for the public liaison shall be included in all notices and project signage.

3.13 Population and Housing

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
13. POPULATION AND HOUSING — Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

a) ***No Impact.*** The proposed project includes implementation of a water conveyance system along sections of existing flood control channels. The proposed project would not directly induce population growth in the region because the project does not involve construction of new homes or businesses. The proposed project would not require additional full-time employees for operation and maintenance of the new facilities. Therefore, no direct net increase in personnel is anticipated with implementation of the proposed project. Thus, the proposed project would not directly induce population growth.

The proposed project would not remove an obstacle to growth, such as constraint on a required public service, such as water supply or wastewater treatment capacity. The proposed infrastructure would be designed to divert and convey nuisance groundwater and surface water flows from existing storm drain channels to a wastewater treatment plant. The proposed project is not a water supply project and would not provide any resources to support or accommodate population growth. The proposed project would not indirectly induce population growth.

b/c) ***No Impact.*** The proposed project would not directly affect housing and thus would not displace housing or people. Construction of replacement housing would not be necessary. There would be no impact.

3.14 Public Services

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
14. PUBLIC SERVICES — Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
i) Fire protection?	☐	☐	☒	☐
ii) Police protection?	☐	☐	☐	☒
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

Discussion

a.i) ***Less Than Significant Impact.*** The cities of Irvine and Tustin are provided regional fire protection and emergency services from the Orange County Fire Authority (OCFA) (City of Irvine, 2012a). OCFA Division IV, Battalions 2 and 3 services the cities of Irvine and Tustin. Fire Station No. 6 is located at 3180 Barranca Parkway (OCFA, 2009a) and is located less than 200 feet from the project site (OCFA, 2009b) and has six captains, six engineers and 12 firefighters (OCFA, 2009c). The OCFA has a goal five-minute response time for fire and basic life safety incidents, and an eight-minute response time for advanced life support incidents (City of Irvine, 2012a). The project would involve the construction of a water conveyance system and would be designed to comply with the CBC and Fire Codes to reduce the risks associated with fire. While the project would involve the construction of new structures on-site that could be exposed to fire, the proposed structures are not habitable and would be designed to current fire code standards. The proposed project would not require additional public services, such as fire protection, beyond that expected by the municipalities within IRWD's service area due to planned future growth. Impacts with regard to fire protection services would be less than significant.

a.ii) ***No Impact.*** The City of Irvine is provided police services by the City of Irvine Public Safety Department (City of Irvine, 2012a). The Irvine Police Department is located at 1 Civic Center Plaza, located adjacent to the project site near San Diego Creek Trail and Alton Parkway. In 2000, the City staffing goal was 1.14 officers per 1,000 people (City of Irvine, 2012a). The City planned to hire five new personnel in the fiscal year 2013-2014 (City of Irvine, 2012b). The City of Tustin provides police services by the City of Tustin Police Department. The Tustin Police Department is located at 300 Centennial

Way in Tustin. The project would result in the construction of a water conveyance system and would not increase the amount of persons on-site or compromise the security of the site. The proposed project would not require additional public services, such as police protection, beyond that expected by the municipalities within IRWD's service area due to planned future growth. There would be no impact to police services.

a.iii) ***No Impact.*** As determined in Response 3.13(a) above, the proposed project would not result in direct or indirect population growth. Therefore, the proposed project would not affect population-based school enrollment within the surrounding Irvine or Tustin areas. There would be no need for additional school facilities. There would be no impact.

a.iv) ***No Impact.*** The proposed project would not include park facilities. Harvard Park is adjacent to the proposed pipeline segment located near Walnut Avenue. Sweet Shade Park is located approximately 0.2 mile southeast of the Peters Canyon Channel. Bill Barber Community Park is located adjacent to the confluence of San Diego Creek and Peters Canyon Channel. A small section of San Marco Community Park is located adjacent to a section of the Peters Canyon Channel near Main Street. However, construction of the proposed facilities would not limit the existing uses at these parks or access to these parks. The project would install a water conveyance system and would not directly contribute to an increased amount of people living or working in the area that would necessitate construction of additional park facilities. There would be no impact related to parks.

a.v) ***No Impact.*** The proposed project is not expected to cause significant environmental impacts to the service levels of any other public service providers. The proposed project would not generate an increase in population and, therefore, would not cause an increased demand in public services. There would be no impact.

3.15 Recreation

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
15.	**RECREATION — Would the project:**				
a)	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	☐	☐	☐	☒
b)	Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☒	☐

Discussion

a) ***No Impact***. As determined in Response 3.13(a), the proposed project would not result in direct or indirect population growth. Therefore, the proposed project would not generate an increased demand for parks or other recreational facilities. Existing parks would not experience increased use or physical deterioration due to the proposed project. There would be no impact.

b) ***Less Than Significant Impact.*** The proposed project would not directly include or affect park facilities. Harvard Park is adjacent to the proposed pipeline segment located near Walnut Avenue. Sweet Shade Park is located approximately 0.2 mile southeast of the Peters Canyon Channel. Bill Barber Community Park is located adjacent to the confluence of San Diego Creek and Peters Canyon Channel. A small section of San Marco Community Park is located adjacent to a section of the Peters Canyon Channel near Main Street. Construction of the proposed facilities would not limit the existing uses at these parks or access to these parks.

The proposed project does include recreational facilities. The pipeline segment to be located between Como Channel and Walnut Avenue is part of the Peters Canyon Wash Trail, which includes a bike path. This bike path would be detoured to Harvard Avenue during construction. After construction, the bike path would be restored to preexisting conditions. The proposed project would not require construction of new, or expansion of existing, recreational facilities such as bikeways and trails. There would be no resulting long-term impact on the environment. Impacts would be less than significant.

3.16 Transportation and Traffic

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
16. TRANSPORTATION AND TRAFFIC — Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☒	☐	☐
b) Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☒	☐	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☒	☐	☐

Discussion

a) ***Less than Significant with Mitigation Incorporation***. During project construction, construction vehicles could result in short-term, intermittent lessening of roadway capacities due to slower moving vehicles, the larger turning radii of the trucks (as compared to passenger vehicles), and lane closures during installation of the proposed pipelines within roadway ROWs. Construction of the proposed project would result in temporary lane closures on Main Street in Irvine and street crossings using open trench construction methods for pipeline installation at Warner Avenue, Barranca Parkway, Alton Parkway, Edinger Avenue and Moffett Drive. Traffic-generating construction activities would consist of the daily arrival and departure of construction workers, trucks hauling equipment and materials to and from the construction site, and the hauling of imported fill. Implementation of **Mitigation Measure TR-1 and TR-2** would reduce impacts associated with construction traffic to a less than significant level.

Operation of the proposed facilities would require regular operational and maintenance inspections and repairs. The frequency and number of trucks for scheduled maintenance would not be great enough to result in degradation of traffic conditions or levels of service on local roadways. Impacts would be less than significant.

b) ***Less than Significant Impact***. The Orange County Transportation Authority (OCTA) is the designated Congestion Management Agency for Orange County. The OCTA prepares the Orange County Congestion Management Program (CMP), the goals of which are to reduce traffic congestion and provide a mechanism for coordinating land use and development decisions. The CMP identifies cost-effective improvements and strategies for mitigation of performance problems within the CMP. The CMP is defined as a network of state highways and arterials, level of service (LOS) standards and related procedures, and provides technical justification for the approach. LOS standards for roadways that are part of the Orange County CMP network are intended to regulate long-term traffic increases resulting from the operation of new development, and do not apply to temporary construction projects. Short-term limited construction-related traffic would not create a substantial impact on traffic volumes nor change traffic patterns in such a way as to affect the LOS or vehicle to congestion ratios on study area roadways. Therefore, for the proposed project, temporary construction-generated traffic would not result in any long-term degradation in operating conditions or LOS on any nearby roadways. The proposed project would not introduce any new facilities to the project area that would otherwise generate long-term changes in traffic. Following installation of the proposed water conveyance system, disturbed areas would be restored to preexisting conditions and roadways would be repaved. Impacts would be less than significant.

c/d) ***No Impact***. The construction and operation of the proposed project would not affect air traffic patterns, levels, or locations. The proposed project would not alter current roadway designs or result in increased hazards due to design features. All project components would be belowground and areas of disturbance would be restored to preexisting conditions, including repaving of roadways where affected. There would be no impact.

e) ***Less than Significant with Mitigation Incorporation***. The closest fire station to the project components is Fire Station No. 6, located at 3180 Barranca Parkway (OCFA, 2009a), less than 200 feet from the project area (OCFA, 2009b). The Irvine Police Department is located at 1 Civic Center Plaza, located adjacent to the proposed pipeline segment near San Diego Creek Trail and Alton Parkway. Construction of the proposed project would result in temporary lane closures on Main Street in Irvine and street crossings using open trench construction methods for pipeline installation at Warner Avenue, Barranca Parkway, Alton Parkway, Edinger Avenue and Moffett Drive. Traffic along these streets may be slowed by the transport and delivery of construction equipment, materials, excavated soils, and backfill to and from the site and the construction within the streets. Implementation of **Mitigation Measure TR-1** would ensure the Traffic Control Plan prepared by the project contractor would incorporate specific measures to avoid interference with emergency access and reduce potential impacts to less than significant levels.

f) ***Less than Significant with Mitigation Incorporation.*** The proposed project could affect traffic circulation on city streets that support alternative transportation routes, such as Orange County Transit Authority public bus routes on Walnut Avenue, Edinger Avenue, Alton Parkway, and Main Street (OCTA, 2014). Implementation **of Mitigation Measure TR-1 and TR-3** would require advanced notification and communication with public transit agencies regarding the location and duration of construction activities and lane closures to allow for relocation of transit routes or stops if necessary. Impacts would be temporary during project construction and would be considered less than significant with mitigation.

The existing asphalt bike path and walking trail within the project area is on the east side of Peters Canyon Channel from Barranca Parkway to Warner Avenue and from Como Channel to Walnut Avenue and is maintained by the City of Irvine. Construction within these two pipeline segments would be considered a short-term temporary impact. The existing bike paths between Barranca Parkway and Walnut Avenue would be detoured to Harvard Avenue during construction of the proposed project. Once the pipeline is installed, the bike paths would be restored to preexisting conditions and access would resume. Impacts would be less than significant.

For the Como Channel diversion structure, maintenance may require temporary detour of the bike path along Como Avenue and Peters Canyon Channel to Harvard Avenue.

The proposed pipelines also would cross the AT&SF train tracks. However, jack and bore construction methods would be utilized to install the proposed pipeline under the train tracks and avoid disruption to train services. The proposed project would otherwise not conflict with adopted plans and policies supporting alternative transportation. Implementation of **Mitigation Measure TR-1**, requiring implementation of a Traffic Control/Traffic Management Plan, would reduce impacts associated with alternative transportation to a less than significant level.

Mitigation Measures

TR-1: The construction contractors shall prepare and implement a Traffic Control/Traffic Management Plan subject to approval by the cities prior to construction. The plan shall:

- Identify hours of construction and hours for deliveries;
- Include a discussion of haul routes, limits on the length of open trench, work area delineation, traffic control and flagging;
- Identify all access and parking restrictions, pavement markings and signage requirements (e.g., speed limit, temporary loading zones);
- Include a plan to coordinate all construction activities with emergency service providers in the area at least one month in advance. Emergency service providers shall be notified of the timing, location, and duration of construction activities. All roads shall remain passable to emergency service vehicles at all times.
- Include a plan to coordinate with public transit agencies regarding the location and duration of construction activities and lane closures to allow for relocation of transit routes or stops if necessary.

TR-2: IRWD shall layout a plan to maintain access to residences and businesses, public facilities, and recreational resources at all times to the extent feasible.

TR-3: IRWD shall layout a plan for notifications and a process for communication with affected residents, businesses, and public transit agencies prior to the start of construction. Advance public notification shall include posting of notices and appropriate signage of construction activities. The written notification shall include the construction schedule, the exact location and duration of activities within each street (i.e., which lanes and access point/driveways would be blocked on which days and for how long), and a toll-free telephone number for receiving questions or complaints;

3.17 Utilities and Service Systems

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
17. UTILITIES AND SERVICE SYSTEMS — Would the project:				
a) Conflict with wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c) Require or result in the construction of new storm water drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) Result in a determination by the wastewater treatment provider that would serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Discussion

a) ***Less Than Significant Impact.*** The proposed project would install infrastructure for the collection and transport of nuisance groundwater and surface water flows with high nitrate and selenium concentrations to OCSD for treatment. The project would connect to a 60-inch sewer line that conveys flows to OCSD WRP Plant 1 for treatment. OCSD is required to comply and is in compliance with all RWQCB wastewater treatment requirements. In order to discharge into the OCSD sewer system, two permits issued by OCSD may be required to be obtained: a Dry Weather Urban Runoff Discharge Permit and a Special Purpose Discharge Permit. IRWD has contacted and consulted with OCSD regarding these permits and connection to the sewer system at Main Street. OCSD would assess the various flows tributary to the proposed diversion system, and flows that are determined to be urban runoff can be discharged to the OCSD sewer system without charge per OCSD Resolution 13-09 once a Dry Weather Urban Runoff Discharge Permit has been issued. Flows that are determined to be pumped groundwater can be discharged to the sewer system, subject to applicable fees and charges, likely in accordance with an OCSD Special Purpose Discharge Permit. Impacts would be less than significant.

b) ***Less Than Significant Impact.*** The proposed project itself involves a water conveyance system with a proposed discharge point into the OCSD Main Street sewer. In order to discharge into the OCSD sewer system, two permits issued by OCSD may be required: a Dry Weather Urban Runoff Discharge Permit and a Special Purpose Discharge Permit. IRWD has contacted and consulted with OCSD regarding these permits and proposed discharge to the sewer system at Main Street. In doing so, the capacity of the Main Street pump station would be confirmed by OCSD to ensure sufficient capacity to accept the maximum dry weather flow and reduced wet weather flow proposed under the project. OCSD would verify it has adequate capacity for conveyance (including pumping) and treatment of project flows, considering the source of waters and capacity of existing OCSD facilities, prior to issuing the permits. Impacts related to the wastewater treatment facilities would be less than significant.

c) ***Less than Significant Impact.*** The proposed project would result in the diversion of flows from existing storm water drainage infrastructure into a sewer system. Therefore, the project is expected to reduce the overall flows in the affected drainage infrastructure, and would not require the expansion of existing storm drain infrastructure. Impacts would be less than significant.

d) ***Less than Significant Impact.*** Water needs of the proposed project during construction would be relatively minor and temporary (e.g., for dust control purposes, etc.). During operation, the proposed project structures would divert nuisance groundwater and surface water flows with high nitrate and selenium concentrations from existing stormwater drainage facilities flows to OCSD for treatment. The proposed facilities would not require water entitlements to operate. The diversions would be permitted under the Regional Board NPDES permit. Impacts would be less than significant.

The primary water supply to the San Joaquin Marsh is flow diverted from SDC. IRWD has a permit from the SWRCB to divert up to 5 cfs (max of 3,600 acre-feet annually) from SDC into the San Joaquin Marsh for purposes of wildlife enhancement (Permit #20979). Under existing conditions, approximately 5.7 cfs is currently pumped into the marsh from the creek and approximately 5.3 cfs is returned on average during normal operations, resulting in an actual net diversion or "use" of less than one half of a cubic foot per second. IRWD discharges and returns flow from the San Joaquin Marsh to SDC as a non-consumptive use with only minor losses due to evaporation and other possible sinks within the marsh.

Implementation of the proposed project would reduce the amount of time that the permitted diversion rate would be achieved. The proposed project would reduce the percentage of the time that 5 cfs is exceeded at the San Joaquin Marsh inlet from 97 percent under existing conditions to 71 percent under project conditions (ESA, 2014; Appendix C). In terms of annual volume, 5 cfs equates to 1,180 MGY. The proposed project would reduce the average annual San Joaquin Marsh influent to approximately 4.6 cfs, or 1,085 MGY. Therefore, the project may take up to approximately 95 MGY of water that has been appropriated to IRWD for diversion into the San Joaquin Marsh for wildlife enhancement. This effect would be temporary and occur intermittently, and thus the impact to IRWD's water entitlements is considered less than significant

e) ***Less Than Significant Impact.*** Refer to Response 3.17(a) and (b). As stated previously, the proposed project flows would be discharged to OCSD for treatment. Project flows would discharge into OCSD's 60-inch sewer line in Main Street in Irvine. Prior to issuance of a Dry Weather Urban Runoff Discharge Permit and/or Special Purpose Discharge Permit, available wastewater treatment capacity would be confirmed by OCSD. Impacts would be less than significant.

f) ***Less Than Significant Impact.*** Construction of the proposed project infrastructure would likely generate solid waste that could include concrete, pavement, packaging, rubble, plant debris, excavated soils, and worker-generated waste. Operation of the project would require the disposal of debris cleared from diversion structures during routine maintenance. The City of Irvine has a list of 23 authorized waste haulers for pick-up services (City of Irvine, 2014). CR&R Incorporated is the City of Tustin's designated waste hauler (City of Tustin, 2014). Waste generated by the project would be collected and disposed of at the nearest landfill. The proposed project waste is anticipated to be disposed of at the Frank R. Bowerman landfill, located north of Sand Canyon Avenue on Bee Canyon Access Road (City of Irvine, 2012). The Frank R. Bowerman landfill can accept up to 11,500 tons of waste per day and has an expected closure date of 2053 (CalRecycle, 2014). Waste disposal needs would be short-term during the construction period. Impacts would be less than significant.

g) ***Less Than Significant Impact.*** Construction of the proposed facilities would generate waste as described above in Response 3.17(f). The City of Irvine has adopted a Construction and Demolition Debris Recycling and Reuse Ordinance (07-18). The Ordinance requires the recycling of construction and demolition debris in a manner consistent with the Ordinance to meet or exceed the diversion requirements (City of Irvine, 2014). As the project is estimated to cost greater than $50,000 to implement, it would be subject to City of Tustin requirements to recycle a minimum of 50 percent of construction and demolition waste (City of Tustin, 2014). During project operation, the diversion structures would be routinely maintained and cleared of any debris; debris would be disposed of in accordance with local regulations and at certified landfills. The project would comply with all local, state and federal statutes regarding solid waste during construction and operation. Impacts would be less than significant.

3.18 Energy

	Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
	ENERGY — Would the project:				
a)	Result in a substantial increase in overall or per capita energy consumption?	☐	☐	☒	☐
b)	Result in wasteful or unnecessary consumption of energy?	☐	☐	☒	☐
c)	Require or result in the construction of new sources of energy supplies or additional energy infrastructure capacity the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d)	Conflict with applicable energy efficiency policies or standards?	☐	☐	☒	☐

Discussion

a/b) ***Less Than Significant Impact.*** The proposed project would require use of a variety of construction equipment. The primary energy demand during construction would be associated with use of gasoline- and diesel-powered mobile construction equipment and use of automobiles to transport workers to and from the construction site(s). Electricity would also be used for construction lighting and electrically driven construction devices such as air compressors, pumps and other equipment. Nevertheless, the proposed project is considered a relatively small construction project. Therefore, the amount of transportation fuel and electricity required for construction would be small relative to statewide consumption. Construction impacts would be less than significant.

The proposed project would result in electricity consumption to power the newly installed diversion pumps. The proposed project would require a maximum annual electricity use of 600 megawatt hours (MWh). Although the project would result in an increase in energy consumption, the new facilities would treat nuisance groundwater and surface water flows associated with urban runoff, with high selenium and nitrate concentrations, that are currently discharged into the watershed and impairing water quality. As a result, energy consumption would be neither wasteful nor unnecessary, as the proposed project would result in an improvement in regional water quality, an environmental benefit, and would not be considered a substantial increase in energy consumption when considered on a regional basis. Impacts would be less than significant.

The amount of energy required to treat the additional 1,621 gpm (3.7 cfs) of flow at OCSD Plant 1 is anticipated to be accommodated by the existing OCSD energy supplies. OCSD energy supplies are derived from various sources: digester gas, natural gas purchased from offsite suppliers, electricity purchased from Southern California Edison (SCE), and electricity produced by the onsite Central Generation (Cen Gen) facility. OCSD has converted its operating machinery to natural gas or electric power while emergency back-up generators are equipped to operate on diesel fuel. Many onsite vehicles also use electric power or compressed gas. Impacts would be less than significant.

c) ***Less than Significant Impact.*** Implementation of the proposed project is not anticipated to result in substantial increases in energy consumption, as described above in Response 3.18(a) and (b). The proposed project would receive electrical power through new electrical conduit to be installed by SCE, which would connect the proposed transformers to existing electrical facilities in Harvard Avenue. Installation of the conduit may require some trenching to install the lines below ground in places where there are no existing ducts or sleeves. It is possible that the bike path along Como Avenue and Como Channel would be disrupted for installation of conduit, as well as the ROW along Edinger Avenue and Moffett Drive, leading to Harvard Avenue. Environmental impacts associated with such installation, although the responsibility of SCE, would be no greater than those described in this IS/MND for trenching and installation of the proposed pipeline. Implementation of similar mitigation measures as described herein would ensure environmental impacts would be mitigated to less than significant levels.

d) ***Less Than Significant Impact.*** It is not anticipated that the proposed project would conflict with energy efficiency policies or standards. The pumps associated with the proposed diversion structures are very small, with little need or opportunity for considering special energy efficient models. Impacts would be less than significant.

3.19 Mandatory Findings of Significance

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
18. MANDATORY FINDINGS OF SIGNIFICANCE — Would the project:				
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion

a) ***Less than Significant with Mitigation Incorporation.*** As discussed in Sections 3.4 and 3.5 of this Initial Study, construction of the proposed project has the potential to adversely affect biological and cultural resources, including special-status plant and wildlife species. Implementation of **Mitigation Measures BIO-1 through BIO-6 and CUL-1 through CUL-5** would ensure any potential impacts are mitigated to a less than significant level. Operation of the proposed project also would have the potential to adversely affect special-status plant and wildlife species and natural communities due to resulting flow reductions in San Diego Creek and the reduction in available flow for diversion to IRWD's San Joaquin Marsh. Implementation of **Mitigation Measure HYDRO-1** would ensure any potential impacts are mitigated to a less than significant level. No additional mitigation is required.

b) ***Less than Significant with Mitigation Incorporation.*** As discussed in Sections 3.1 through 3.18 of this Initial Study, many of the potential environmental impacts of the proposed project would occur during construction, with few lasting operational effects. Because construction related impacts of the proposed project are temporary and localized, they would only have the potential to combine with similar impacts or other projects if they occur at the same time and in proximity to each other. There are two known projects in the project area: the Tustin Legacy – Barranca Storm Channel Improvements Project and the Moffett Drive Bridge Widening Project.

The Tustin Legacy Project will reroute traffic and could result in increased traffic volumes in streets which the proposed pipeline would cross. The Tustin Legacy Project also will result in the widening of Peters Canyon Channel in the vicinity of the proposed pipeline segment between Warner Avenue and Como Channel. The bike path associated with Peters Canyon Wash Trail will be completed and paved in this area, expected in 2016. The construction of the Barranca Storm Channel improvements anticipated to begin in 2016 or later. The City of Tustin anticipates the bridge widening of Moffett Drive bridge construction to start at the end of 2016 or later. The proposed pipeline would be constructed prior to bridge widening. The proposed pipeline would be installed approximately 25 feet east of (beyond) the proposed bridge deck, abutments, and wing walls

To minimize the potential for cumulative impacts to traffic and other construction-related effects, implementation of **Mitigation Measure CUM-1** would require IRWD to consult with local jurisdictions, such as Irvine and Tustin, to coordinate construction schedules and locations of other related projects in the vicinity, to minimize potential conflicts or compounding of effects, such as traffic congestion or circulation delays or increases in ambient noise levels. Impacts would be less than significant with mitigation.

In addition, IRWD's San Diego Creek Watershed Natural Treatment System (NTS) Plan is a related project that could combine with operation of the proposed project to have a cumulative effect on surface water flow and water quality. The NTS Plan consists of a list of existing and planned treatment wetlands within the San Diego Creek Watershed that would improve water quality to assist in meeting the Total Maximum Daily Loads (TMDLs) adopted by the Santa Ana RWQCB for various pollutants, including selenium. According to the NTS Plan Revised Draft EIR (BonTerra Consulting, 2004), the purpose of the NTS Plan is to improve the chemical, biological and physical integrity of drainages in the San Diego Creek Watershed by comprehensively planning, developing, and implementing a large-scale water quality treatment program. The NTS Plan includes treatment wetlands along both Peters Canyon Channel and San Diego Creek. Most of the NTS facilities would treat low flows and runoff from small storm events and as such water depth at NTS treatment wetlands would be relatively shallow with detention times between 36 and 48 hours. There are three types of treatment wetlands included in the Plan: off-line facilities where flow is diverted to an off-channel wetland; in-line facilities where treatment wetlands are within an existing flood control channel; and combination facilities where treatment wetlands are within flood control basins.

The NTS Plan Draft EIR acknowledged three ways that the NTS Plan could affect surface water flow in the watershed: flow diversions to off-line wetlands, increased evapotranspiration, and infiltration. Flow diversion to off-line facilities would only affect the segments of flood control channels between the point of diversion and point of return flow. Increased evapotranspiration would occur at all NTS wetland types due to evaporation and transpiration from new wetland vegetation. Evapotranspiration losses for all NTS facilities were estimated to reduce average low flows in the watershed by approximately seven percent in the dry season (BonTerra Consulting, 2004; Revised DEIR, p. 3.2-26). Infiltration could occur through the bottom of NTS sites into underlying groundwater systems. The NTS facility design requirements included soil liners at sites where soils properties would result in moderate to high infiltration capacity, in order to mitigate loss of surface water to groundwater.

The majority of NTS sites would be located upstream of the IRWD San Joaquin Marsh in the watershed (see Revised DEIR, NTS Reference Map). Approximately 25 NTS sites have yet to be implemented and are thus not reflected in the baseline hydrologic conditions against which effects of the proposed project have been assessed. As a result, the future implementation of additional NTS sites could result in additional flow reductions at the IRWD San Joaquin Marsh inflow during dry weather, relative to existing conditions, thereby exacerbating the effect of the proposed project on flow and the availability of water for diversion into the San Joaquin Marsh. However, the contribution to flow reductions would be associated with evapotranspiration only, estimated to be seven percent of average low flow in the dry season. An additional reduction of seven percent would not affect water levels in the San Joaquin Marsh. The implementation of Mitigation Measure HYDRO-1 would ensure water quality in the San Joaquin Marsh is maintained such that significant impacts to biological resources are minimized. Mitigation Measure HYDRO-1 would serve to mitigate any combined cumulative effect of the proposed project together with the NTS Plan as well. In addition, implementation of future NTS sites would only serve to improve water quality in the watershed, including reducing selenium load and concentration. Together with the proposed project, the NTS Plan would further improve water quality, having a beneficial cumulative environmental effect.

c) ***Less than Significant with Mitigation Incorporation.*** The proposed project would have the potential to result in environmental impacts; however, implementation of mitigation measures identified in this MND would reduce potential impacts that could cause adverse effects on human beings. Construction of the proposed project would generate limited temporary noise and produce air emissions. Air emissions associated with project construction and operation would not be significant and would not adversely affect human beings. With incorporation of Mitigation Measures NOISE-1 through NOISE-7, the temporary impacts associated with construction noise would be reduced to less than significant levels and would not adversely affect human sensitive receptors. Construction of the proposed project requires the use, handling, and transport of hazardous materials. Compliance with regulations pertaining to use, handling, and transport of hazardous materials would ensure that substantial adverse effects to human beings do not occur due to accidental upset of materials. The proposed project would be not cause substantial direct or indirect adverse effects to human beings. Impacts would be less than significant with mitigation

Mitigation Measures

CUM-1: The construction contractor shall consult with appropriate local agencies and jurisdictions prior to initiating ground-disturbing activities, to determine if other construction projects will occur coincidentally at the same time and in the vicinity of the proposed project, depending on project schedule and pipeline segment installation. Coordination of construction activities for coincident projects shall occur to ensure impacts to traffic, circulation, access, and noise do not compound to be cumulatively significant. Adjustments to construction schedules and plans, such as traffic control plans and bike path detours, shall be made accordingly as necessary.

CHAPTER 4
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CHAPTER 5
List of Preparers and Persons Consulted

5.1 List of Preparers

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City of Irvine

Amanda Carr – Water Quality Administrator

Caltrans

Tifini Tran – Caltrans District 12, Project Manager and A&E Manager

CHAPTER 6
Comment Letters

The Initial Study/Mitigated Negative Declaration (IS/MND) for the Peters Canyon Channel Water Capture and Reuse Pipeline Project (proposed project) was circulated for public review for 30 days (January 15, 2016, through February 13, 2015) in accordance with the requirements of CEQA Guidelines Section 15073(a). IRWD received six comment letters during the public review period from Orange County Sanitation District, the City of Tustin, the City of Irvine, California Department of Transportation, University of California Irvine, and the Santa Ana Regional Water Quality Control Board. A seventh letter was received from the Orange County Public Works after the public comment period closed. Although dated February 12, 2015, the letter from Orange County Public Works was postmarked February 24, 2015 and received at IRWD offices on February 26, 2015.

All seven comment letters are included in this chapter and presented in the order listed below. The letters have been marked with brackets that delineate comments pertaining to environmental issues and the information and analysis contained in the IS/MND. Responses to such comments are provided in Chapter 7.

COMMENT LETTERS RECEIVED

Comment No.	Commenting Agency	Date of Comment
1	Orange County Sanitation District	February 3, 2015
2	City of Tustin	February 4, 2015
3	City of Irvine	February 5, 2015
4	County of Orange Public Works	February 12, 2015
5	California Department of Transportation	February 13, 2015
6	UC Irvine	February 13, 2015
7	Santa Ana Regional Water Quality Control Board	February 13, 2015

Orange County Sanitation District

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County of Orange
Costa Mesa Sanitary District
Midway City Sanitary District
Irvine Ranch Water District

February 3, 2015

Jo Ann Corey
Irvine Ranch Water District
Water Resource & Environmental Compliance
15600 Sand Canyon Avenue
Irvine, CA 92618

SUBJECT: Notice of Intent to Adopt Mitigated Negative Declaration for the Peters Canyon Channel Water Capture and Reuse Pipeline

---

Thank you for the opportunity to review and comment on the Mitigated Negative Declaration (MND) for the Peters Canyon Channel Water Capture and Reuse Pipeline Project. (Project) The proposed Project is seeking to collect, transport and treat nuisance groundwater and surface water with high nitrate and selenium concentrations, which discharge into Peters Canyon Channel. The proposed Project would discharge captured water into the Orange County Sanitation District's (OCSD) 60-inch sewer located in Main Street in the City of Irvine.

As environmental stewards, OCSD supports recycling water for beneficial use. As mentioned in the Initial Study, IRWD has contacted OCSD and as noted Dry Weather Urban Runoff Discharge Permit and Special Purpose Discharge Permit will be required. OCSD looks forward to working with IRWD on this matter.

OCSD-1

Thank you for the opportunity to comment on the proposed project. If you have any questions regarding this specific project, please contact Merrill Seiler at 714-593-7436, for CEQA related issues, please contact me directly at (714) 593-7119.

Daisy Covarrubias

Daisy Covarrubias, MPA
Sr. Staff Analyst

DC:sa
http://project/sites/Planning/Shared Documents/IRWD/20150203_IRWD_PetersCanyonChannel_MND.doc

February 4, 2015

Irvine Ranch Water District
Attn: Jo Ann Corey
Water Resources & Environmental Compliance
15600 Sand Canyon Avenue
Irvine, CA 92618

SUBJECT: **REVIEW OF THE DRAFT MITIGATED NEGATIVE DECLARATION (MND) FOR PROPOSED PETERS CANYON CHANNEL WATER CAPTURE AND REUSE PIPELINE PROJECT**

Dear Ms. Corey:

Thank you for the opportunity to provide comments on the Initial Study (IS) and Draft MND for the proposed construction and operation of a water pipeline conveyance system and associated equipment that would collect and transport nuisance groundwater and surface water flows with high nitrate and selenium concentrations in the vicinity of the Peters Canyon Channel, south of Walnut Avenue, to the Orange County Sanitation District Main Street sewer for treatment.

The City of Tustin offers the following comments:

1. The IS/MND should identify the locations proposed for the storage of temporary equipment, including pipe, backfill material, construction equipment, etc. Temporary activities at these locations may have an impact on the environment. T-1

2. The aboveground equipment proposed directly adjacent to the northerly sides of Edinger Avenue and Moffett Drive would be highly visible from public view. To achieve consistency with the City's Design Guidelines for Aboveground Utility Facilities on Public Properties and in the Public Right-of-Way, which apply to facilities in the City's right-of-way, it is requested that the proposed equipment be completely screened from public view within decorative walled enclosures with access gates. The materials and finishes of the enclosures should match or be compatible with the adjacent residential community walls. T-2

3. It is incorrectly stated on page 3-4 of the IS/MND that "the site for the electrical cabinet, antenna, transformer, and service panel would be shielded from view and separated by an existing 6-foot masonry wall." The equipment site would not be shielded from public view, but would be highly visible from the adjacent sidewalk and T-3

road. The proposed masonry wall extensions (39 feet in length at Edinger Avenue and 8 feet in length at Moffett Drive) would partially shield the equipment from public view, but should be further extended to minimize the aesthetic impact of the proposed equipment. T-3

4. The proposed project may result in temporary noise impacts that need to be accurately identified to establish appropriate and effective mitigation measures. Although there is an exemption in the Tustin City Code for noise generated by construction activities during specified hours, the project could result in a substantial temporary increase in ambient noise levels in the project vicinity above levels existing without the project. Therefore, the project proponent should conduct a noise study for the proposed project that analyzes the noise-sensitive construction locations in detail and identifies on a location-specific basis all additional feasible noise mitigation measures which may include the installation of temporary noise attenuation walls around the construction site and regular noise monitoring during construction. Proposed Mitigation Measures NOISE-1 through NOISE-7 are too general and are not location-specific. T-4

5. Proposed Mitigation Measure NOISE-6 should be revised to require the IRWD or its contractors to notify existing residents located directly adjacent to the construction work area and their homeowners associations and property management companies of the proposed location and dates of construction a minimum of five (5) days prior to construction within the work area. T-5

6. Extensive public outreach is requested so that Tustin residents are aware of the project and may plan accordingly. The City of Tustin strongly encourages the project proponent to solicit input on the project from the residents of neighborhoods adjacent to the proposed project, including the homeowners associations of Tustin Field I, Tustin Field II, and Columbus Grove. Input should be considered to ensure that any concerns are mitigated. The homeowners associations of these neighborhoods may be desirous of hosting informational meetings with project representatives. T-6

7. It is indicated on pages 1-1, 2-1, and 2-3 of the IS/MND that the Caltrans Ground Water Treatment Facility (GWTF) is located in the City of Tustin. It is actually located in the City of Irvine. T-7

8. It is stated on page 2-16 that construction will begin in the Spring of 2015. However, IRWD staff has indicated that construction is scheduled to begin in August of 2015. T-8

9. The General Plan Designation for the City of Tustin should be indicated on page 3-1 of the IS/MND as "MCAS Tustin Specific Plan." T-9

Thank you again for the opportunity to provide comments on the Initial Study and Draft Mitigated Negative Declaration. The City of Tustin would appreciate receiving written responses to our comments when they become available and all future public notices regarding this project.

If you have any questions regarding the City's comments, please call Scott Reekstin, Principal Planner, at (714) 573-3016 or Ken Nishikawa, Assistant Director of Public Works, at (714) 573-3389.

Sincerely,

Elizabeth A Binsack

Elizabeth A. Binsack
Community Development Director

cc: Jeffrey C. Parker
Douglas S. Stack
Ken Nishikawa
Justina Willkom
Scott Reekstin
Alex Waite

SR:environmental etc\IRWD Peters Canyon Pipeline MND Comment Letter.doc

CITY OF IRVINE
1971

Community Development cityofirvine.org

City of Irvine, One Civic Center Plaza, P.O. Box 19575, Irvine, California 92623-9575 (949) 724-6000

February 5, 2015

Ms. Jo Ann Corey
Irvine Ranch Water District
Water Resources & Environmental Compliance
15600 Sand Canyon Avenue
Irvine, CA 92618

SUBJECT: Review of a Mitigated Negative Declaration for the Peters Canyon Channel Water Capture and Reuse Pipeline

Dear Ms. Corey:

The City of Irvine has reviewed the environmental document for the Peters Canyon Channel Water Capture and Reuse Pipeline. We understand that from a water quality perspective, this is an important and necessary project for the City of Irvine and other cities in the Newport Bay Watershed. The City is currently and will continue to work cooperatively with the Irvine Ranch Water District (IRWD) concerning the design and construction of this project.

CI-1

Thank you for the opportunity to review the proposed project. We do not have any comments at this time; however, if you have any questions, please contact me at (949) 724-6314 or at dlaw@ci.irvine.ca.us.

Sincerely,

David R. Law, AICP
Senior Planner

CC: Bill Jacobs, Principal Planner (Via email)
Amanda Carr, Water Quality Administrator (Via email)

February 12, 2015 NCL-15-001

Ms. Jo Ann Cory, Irvine Ranch Water District
Water Resources & Environmental Compliance
15600 Sand Canyon Avenue
Irvine, California 92618

Subject: Notice of Intent to Adopt a Mitigated Negative Declaration for the Peters Canyon Channel (F06) Water Capture and Reuse Pipeline Project

Dear Ms. Cory:

The County of Orange has reviewed the Notice of Intent to Adopt a Mitigated Negative Declaration for the Peters Canyon Channel (F06) Water Capture and Reuse Pipeline Project and offers the following comments:

Flood Programs:

1. All work (if any) within or adjacent to any Orange County Flood Control District right-of-way for regional flood control facilities should be conducted so as not to adversely impact channel's structural integrity, hydraulic flow conditions, access and maintainability. Furthermore, all work within OCFCD's right-of-way should be conducted only after an encroachment permit for the proposed work has been obtained from the County. In case of Peters Canyon Channel Water Capture and Reuse Pipeline project there will be no-fee permit. For information regarding the permit application process and other details please refer to the county Property Permit Section Link on OC Planning website: http://ocplanning.net. Technical reviews and approvals for the proposed work will be accomplished within the permit process. OCPW-1

If you have any questions or need clarification please do not hesitate to contact Hossein Ajideh at (714) 245-4503.

Sincerely,

Laree Brommer, Manager, Planning Division
OC Public Works Service Area/OC Development Services
300 North Flower Street
Santa Ana, California 92702-4048
Laree.brommer@ocpw.ocgov.com
cc: Mehdi Sobhani, Manager, OC Public Works/Flood Programs

DEPARTMENT OF TRANSPORTATION
DISTRICT 12
3347 MICHELSON DRIVE, SUITE 100
IRVINE, CA 92612-8894
PHONE (949) 724-2000
FAX (949) 724-2019
TTY 711
www.dot.ca.gov

Serious drought.
Help save water!

February 13, 2015

Ms. Jo Ann Corey
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, California 92618-3102

File: IGR/CEQA
SCH#: 2015011018
Log #: 4193
SR-261

Dear Ms. Corey:

Thank you for the opportunity to review and comment on the **Initial Study and Draft Mitigated Negative Declaration (IS/MND) for the Peters Canyon Channel Water Capture and Reuse Pipeline Project.** The proposed project would install infrastructure that would capture nuisance groundwater and surface water flows from the Caltrans' Ground Water Treatment Facility, (GWTF) Como Channel, and the Edinger and Valencia Storm drains, for discharge to OCSD's 60-inch sewer located in Main Street in Irvine. The project would install a water pipeline conveyance system with diversion structures and associated appurtenances in cities of Tustin, and Irvine. The nearest State route to the project sites are SR-261.

1. In the event of any activity in the Department's right-of-way an encroachment permit will be required. For specific details on Encroachment Permits procedure, please refer to Encroachment Permits Manual, Seventh Edition. All entities other than the Department working within State right of way must obtain an Encroachment Permit prior to commencement of work. A fee may apply. If the cost of work within the State right of way is below one Million Dollars, the Encroachment Permit process will be handled by our Permits Branch; otherwise the permit should be authorized through the Department's Project Development. Allow 2 to 4 weeks for a complete submittal to be reviewed and for a permit to be issued. When applying for Encroachment Permit, please incorporate Environmental Documentation, SWPPP/ WPCP, Hydraulic Calculations, Traffic Control Plans, Geotechnical Analysis, R/W certification and all relevant design details including design exception approvals. For specific details for Encroachment Permits procedure, please refer to the Department's Encroachment Permits Manual. The latest edition of the Manual is available on the web site: http://www.dot.ca.gov/hq/traffops/developserv/permits/ DOT-1

Please continue to keep us informed of this project and any future developments that could potentially impact State transportation facilities. If you have any questions or need to contact us, please do not hesitate to call Maryam Molavi at (949) 724-2267.

Sincerely,

Maureen El Harake

MAUREEN EL HARAKE
Branch Chief, Regional-Community-Transit Planning
District 12

C: Scott Morgan, Office of Planning and Research

UNIVERSITY OF CALIFORNIA

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO | SANTA BARBARA • SANTA CRUZ

OFFICE OF THE PROVOST AND EXECUTIVE VICE PRESIDENT
NATURAL RESERVE SYSTEM

OFFICE OF THE PRESIDENT
1111 Franklin Street, 6th Floor
Oakland, California 94607-5200

February 13, 2015

Irvine Ranch Water District
Attn.: Jo Ann Corey
Water Resources and Environmental Compliance
15600 Sand Canyon Avenue
Irvine, CA 92618

RE: Notice of Intent to Adopt a Mitigated Negative Declaration for the Peters Canyon Channel Water Capture and Reuse Pipeline

Dear Ms. Corey:

The University of California ("University"), on behalf of its Natural Reserve System ("UCNRS"), appreciates the opportunity to comment on the Irvine Ranch Water District's ("IRWD") Initial Study/Mitigated Negative Declaration ("IS/MND") for the Peters Canyon Channel Water Capture and Reuse Pipeline project ("Peters Canyon Project"). The University is a trustee agency under the California Environmental Quality Act ("CEQA") for this particular project because the project may affect natural resources under the jurisdiction of the UCNRS. Public Resources Code § 21070; CEQA Guidelines §15386(d). State law requires a lead agency to consult with the University regarding any project that affects a UCNRS reserve and to obtain the University's recommendation on whether an environmental impact report or a negative declaration should be prepared. CEQA Guidelines §15063(g); *see also*, Public Resources Code §21081.6(c).

The San Joaquin Marsh Reserve ("UC Marsh Reserve") is a UCNRS reserve managed by the University's Irvine campus. The IS/MND identifies that the Peters Canyon Project affects the UC Marsh Reserve (as discussed below). Therefore, the IRWD was statutorily obligated to consult with the University as a trustee agency. In fact, the notice of intent regarding the Peters Canyon Project was the University's first opportunity to identify, review and comment on the potential effects to the UC Marsh Reserve. UCI-1

The University's comments are provided to IRWD to inform the IS/MND for Peters Canyon Project. The University's comments should not be considered an endorsement of IRWD's decision to adopt a mitigated negative declaration. In fact, IRWD did not provide the University adequate time to consult prior to providing the notice to adopt the IS/MND. As the University continues to review the project's CEQA documentation in the context of the UC Marsh Reserve's natural resources, the University may submit further comments and proposed mitigation measures that address any significant effects on the lands and natural resources subject to the its statutory authority as a trustee agency. UCI-2

1. IS/MND Section 3.9 - Hydrology and Water Quality

a. Discussion – Subsection (f).

UC Marsh Reserve as an Area of Potential Effect. The IS/MND identifies areas of potential effect for operational impacts, including San Diego Creek and IRWD Marsh. IS/MND, p. 3-51. The Peters Canyon Project will result in reduced stream flows to San Diego Creek and subsequent effects to IRWD's Marsh that receives inflows from San Diego Creek. A critical water transfer occurs from IRWD's Marsh to the UC Marsh Reserve. Therefore, the University requests that the UC Marsh Reserve also be listed as an area of potential effect, which would require comprehensive identification of the effects on the UC Marsh Reserve that could result from the reduced stream flows in San Diego Creek. UCI-3

b. Baseline Conditions. (p. 3-51)/Operational Impact Analysis. (p. 3-54)

IRWD Water Transfers to UC Marsh Reserve Must Remain Unchanged by the Peters Canyon Project. The University is extremely concerned by equivocation in the IS/MND's discussion of the water transfers from the IRWD Marsh to the UC Marsh Reserve. The viability of the UC Marsh Reserve is reliant on these transfers, which form part of the baseline conditions that must be considered in the CEQA analysis. The University emphatically urges that the applicable baseline conditions in the IS/MND (i.e., the existing water transfers from the IRWD Marsh to the UC Marsh Reserve) must be continued in order to prevent any significant impact to the habitat under UC's jurisdiction. Without ensured continuance of the existing water transfers, which could be guaranteed through an appropriately crafted mitigation measure, the University believes that a significant, unmitigated impact may occur. UCI-4

Currently, the IS/MND claims, "[T]he reduction in inflow would not affect the water available for transfer to the UC San Joaquin Marsh Reserve. During project operation, the San Joaquin Marsh inflow rate would still be greater than the rate of flow transferred to the UC Marsh and thus such transfers ***could still be maintained***." (Emphasis added) IS/MND, p.3-56. The University requests that IRWD either insert an appropriate mitigation measure to ensure continuance of the water transfers or else, if the analysis indicates that no such mitigation measure is required because the water transfers are already guaranteed to continue, change the language from "*could still be maintained*" to "*would remain unchanged if the project is approved and implemented*." UCI-5

Moreover, IS/MND's Appendix C., states, "Water transfers from SJM to UCI Marsh, which occur only over approximately 15 to 20 days during the winter, ***are expected to be maintained***." (Emphasis added) IS/MND, App. C, p. 2. Again, the University believes that a mere "expectation" of continued transfers is insufficient to address a potentially significant environmental impact, and the University therefore requests the insertion of an appropriate mitigation measure or the replacement of the phrase "are expected to be maintained" with "*would remain unchanged if the project is approved and implemented*." UCI-6

2. IS/MND Appendix C – Reduced Discharge Technical Study

Appendix C addresses the water transfers (and the quality of the water transferred) from IRWD's Marsh to the UC Marsh Reserve. As stated earlier, the University, as a trustee agency, did not receive an appropriate amount of time to evaluate the Peters Canyon Project, specifically the findings presented in Appendix C., Sections 5.2-5.3. The University, as a trustee agency, may submit further comments and proposed mitigation UCI-7 measures that address the potentially significant effects addressed in these sections, as well as the IS/MND as a whole. UCI-7

Thank you for your consideration of these comments. The University looks forward to a comprehensive and complete investigation that includes the information and analyses requested, addresses the issues and concerns mentioned, and enables the University to propose substantive and meaningful suggestions for mitigations that might be adopted in the Peters Canyon Project to protect the UCNRS reserves and the Public Trust. The University would also welcome the opportunity to collaborate with IRWD in crafting appropriate mitigation measures, as discussed above, or in otherwise revising the CEQA documentation for the project to reflect concerns about the continued integrity of natural resources entrusted to the University. Please feel free to contact me with any questions.

Sincerely,

Peggy Fiedler, Ph.D., FLS
Director, Natural Reserve System
Office of the President

Santa Ana Regional Water Quality Control Board

February 13, 2015

Jo Ann Corey
Irvine Ranch Water District
Water Resources & Environmental Compliance
15600 Sand Canyon Avenue
Irvine, CA 92618
Email: corey@irwd.com

INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION FOR PETERS CANYON CHANNEL WATER CAPTURE AND REUSE PIPELINE – IRVINE RANCH WATER DISTRICT, TUSTIN AND IRVINE, ORANGE COUNTY

Dear Ms. Corey:

Staff of the Regional Water Quality Control Board, Santa Ana Region (Regional Board) has reviewed the Initial Study/Mitigated Negative Declaration (IS/MND) for the Peters Canyon Channel Water Capture and Reuse Pipeline Diversion ("Project"). Peters Canyon Channel is a freshwater tributary to San Diego Creek Reach 1, which discharges to Upper Newport Bay downstream of the Project at Jamboree Road in the City of Irvine.

The Irvine Ranch Water District (IRWD) is proposing to construct a 16-inch diameter pipeline between Walnut Avenue in Tustin and Main Street in Irvine, located parallel to Lower Peters Canyon Channel, in order to collect targeted dry weather surface flows with elevated selenium and nitrogen that would normally enter the channel. The new pipeline would divert these targeted flows to the Orange County Sanitation District (OCSD) Regional Wastewater Plant 1 (RP-1) for treatment and for subsequent infiltration and re-use in Orange County Water District's (OCWD) Groundwater Replenishment System (GWRS).

The proposed Project would divert flows from four sources: Caltrans Groundwater Treatment Facility (GWTF), Como Channel, Edinger Circular Drain, and Valencia Drain. The proposed Project would include installation of a pipeline conveyance system with diversion structures and ancillary support infrastructure in the cities of Irvine and Tustin. The proposed pipeline system would begin at the existing Caltrans' GWTF, located near the Walnut Avenue bridge crossing over Peters Canyon Channel in Tustin, then would connect to the three proposed storm drain diversion structures at Como Channel, Edinger Circular Drain, and Valencia Drain. The pipeline system would then connect to IRWD's existing gravity sewer line at a proposed new manhole west of San Diego Creek near Main Street in Irvine. The existing IRWD gravity sewer line discharges to OCSD's sewer in Main Street.

We understand that the OCSD Dry Weather Urban Runoff Program allows for acceptance of dry weather urban runoff throughout the year on days when it is not raining, including flows from stormwater pump stations and storm channels. During OCSD-defined wet weather conditions the pump stations at the Como Channel, Edinger Circular Drain, and Valencia Drain would be shut down, allowing flows to bypass diversion facilities and flow into the Peters Canyon Channel.

Diversions from the Caltrans GWTF would be sent to OCSD year round, regardless of weather conditions.

The proposed Project will result in a combined diversion of as much as 1,621 gallons per minute (gpm) to OCSD, with a resultant reduction in nitrogen and selenium loads in Peters Canyon Channel of 70 percent (%) and 40-43%, respectively, and provide offset of discharges of selenium and nitrogen by the City of Irvine, Caltrans, and IRWD.

Peters Canyon Channel is the largest tributary to the 119 square mile San Diego Creek subwatershed. San Diego Creek and its tributaries collectively drain into the northeastern end of Upper Newport Bay. The lower portion of San Diego Creek (Reach 1) downstream of its confluence with Peters Canyon Channel contains three in-stream sediment basins, located between the 405 Freeway and Upper Newport Bay, that provide riparian habitat along their eastern edge and deeper, slower moving waters that support a large number of bird and fish species. The 202-acre San Joaquin Marsh Freshwater Reserve, located adjacent to the University of California, Irvine (UCI) campus and owned by the University of California Natural Reserve System (UCI wetlands) and IRWD's 300-acre San Joaquin Marsh and Wildlife Sanctuary (San Joaquin Marsh) are located adjacent to and west of lower San Diego Creek. The San Joaquin Marsh contains multiple treatment ponds that are used to remove nutrients and other contaminants from San Diego Creek. Water is pumped from the uppermost sediment basin (Basin No. 3) in San Diego Creek, routed through a series of treatment ponds operated by IRWD and then discharged back to the creek to the middle sediment basin (Basin No. 2). The UCI wetlands operate as ephemeral wetlands, receiving storm water runoff in the winter, with some extra flow routed during wet weather from IRWD's San Joaquin Marsh. Both wetlands support a large variety of local and migratory bird species, forming a critical stopover for birds migrating along the Pacific Flyway.

The Draft IS/MND evaluates the potential effects on the environment from constructing and operating the proposed Project. A MND may be prepared for a project subject to CEQA when the project could result in significant environmental impacts but those impacts can and will be mitigated by the project proponents to below a level of significance. IRWD identified some potentially significant effects and incorporated mitigation measures into the Project to ensure that these effects remain at less-than-significant.

Regional Board staff's review of the IS/MND focused in particular on two environmental factors germane to the Board's statutory authority and responsibility, i.e., Hydrology and Water Quality and Biological Resources. The analyses of these environmental factors in the IS/MND relies principally on two reports, appended to the IS/MND:

Appendix B: Biological Resources Technical Report (BRTR), Volumes 1 and 2, prepared by ESA and dated December 2014
Appendix C: Reduced Discharge Technical Study (RDTS) prepared by ESA and dated December 2014.

Detailed comments concerning the analyses and findings in these reports are appended to this letter. In brief, our overarching concern is that there has been insufficient consideration of the potential effects of operation of the Project and resultant increased hydraulic residence times in the San Joaquin Marsh on the potential for increased selenium bioaccumulation, which may result in adverse impacts on the biota in the marsh. We believe that this can be remedied by inclusion of the following in the Impact Avoidance Framework (Mitigation Measure HYDRO-1) to be developed by the project sponsors: (1) adequate and appropriate monitoring to assess the occurrence and magnitude of selenium bioaccumulation as the result of Project operation; (2) specific and appropriate corrective action triggers associated with selenium; and, (3) specific management actions that would be implemented in response to the triggers. RWQCB-1

We also believe that an Impact Avoidance Framework should be developed and implemented to address the potential adverse effects of water quality changes that may occur in the downstream channels and San Diego Creek sediment basins. The development of these Impact Avoidance Frameworks as a whole, and particularly as they relate to selenium, should be coordinated carefully with Regional Board staff to assure that no significant adverse impacts on water quality and beneficial uses result from project operation. Additional comments and recommendations concerning the technical analyses and proposed Impact Avoidance Framework are included in the Attachment.

RWQCB-2

RWQCB-3

Regional Board staff appreciate the opportunity to review and comment on the IS/MND for the Peters Canyon Channel Water Capture and Reuse Pipeline Diversion Project. We look forward to working with IRWD and the other Project sponsors to ensure that appropriate and effective mitigation measures and monitoring are implemented to assure successful operation of the Project.

If you have any questions, please contact Terri Reeder at (951) 782-4995/ Terri.Reeder@waterboards.ca.gov, or me at (951) 782-3287/ Joanne.Schneider@waterboards.ca.gov

Sincerely,

for

Joanne E. Schneider
Environmental Program Manager

Attachment:
Regional Board Staff Comments on the Reduced Discharge Technical Study and Biological Resources Technical Report, Appendices to the Initial Study/Mitigated Negative Declaration (IS/MND) for the Peters Canyon Channel Water Capture and Reuse Pipeline Diversion

cc:
U.S. Fish and Wildlife Service, Carlsbad Office – Jonathan Snyder
California Department of Fish and Wildlife, Los Alamitos – Mary Larson
Orange County Department of Public Works, Flood Control – Ron Gaut, Sr. Civil Engineer
City of Tustin Environmental Compliance Specialist – Alex Waite
City of Irvine Water Quality Administrator – Amanda Carr

Attachment: Regional Board Staff Comments on ESA's December 2014 Reduced Discharge Technical Study and Biological Resources Technical Report, Appendices to the Initial Study/Mitigated Negative Declaration (IS/MND) for the Peters Canyon Channel Water Capture and Reuse Pipeline Diversion

Reduced Discharge Technical Study (RDTS)

Based on ESA's RDTS (Section 4.2.2.1, pages 37-41), implementation of the Project would reduce non-storm or low flows within Peters Canyon Channel and San Diego Creek downstream of the Project by approximately 29% to 34% based on the average dry-season flows for water years (WY) 2009-2013. In the reaches of the Project area upstream of the sediment basins, this would reduce non-storm or low flow rates from 5.6 cfs to 3.5 cfs (based on the average dry-season flows for WY 2009-2013), dry-season flow depths from 0.05 to 0.43 feet (or an average reduction of approximately 16.5%), with a corresponding reduction in flow width of approximately 1.5 to 14.2 feet (or an average reduction of approximately 11%). The reduction in flow rates as the result of the Project in the San Diego Creek in-stream sediment basins is expected to range from 6.9 cfs to 4.8 cfs in Basin No. 3 and from 6.7 cfs to 4.5 cfs in Basin Nos. 1 and 2. This would result in reductions in dry-season flow depths in the basins on the order of 0.40 to 0.45 feet (or an average reduction of approximately 16%), with a corresponding reduction in flow width of 6.1 to 16.8 feet (or an average reduction of approximately 8%).

Section 4.2.3.1 of the RDTS addresses potential Project impacts on the intake rate from San Diego Creek to IRWD's San Joaquin Marsh (pages 44-47). Using data for WY 2009-2013, ESA calculated that on average, the Project would result in an approximately 19% reduction in the influent that the San Joaquin Marsh could pump from San Diego Creek (i.e., the average inflow rate would be reduced from approximately 5.7 cfs to 4.6 cfs). ESA's best estimate of a representative, minimum inflow rate under contemporary operating conditions is 5.3 cfs based upon water years 2009-2011 and 2013 (WY 2012 was excluded because the influent rate was notably higher for this particular year and was classified as an outlier by ESA). The San Joaquin Marsh has not exhibited any signs of decreased functionality over this period (IRWD 2014). The lowest monthly average inflow rate recorded for the marsh (3.5 cfs) occurred in July 2013. IRWD suggests, based on experience and judgment, that this value is consistent with a likely, minimum desirable inflow rate that is roughly equivalent to running the San Diego Creek pump station at 3,200 gallons per minute for about 12 hours, and a reduction in intake rate of 37.5%. RWQCB-4

The RDTS states that since the Project diversions will only occur during dry weather, no flow reductions to downstream areas are anticipated during wet weather. Flows routed during wet weather from the IRWD wetlands to the UCI wetlands are therefore, not expected to be affected by the Project. ESA's impact assessment indicates that San Joaquin Marsh water levels, habitat extents, and water quality treatment functions could likely be maintained with this reduced inflow. However, ESA's assessment also concluded that the proposed Project would increase the hydraulic residence time of water flowing through the marsh, which could increase the potential for reduced water quality conditions in the wetlands. ESA states in the RDTS that this increase in residence time may result in increased algal growth and potentially sustained low dissolved oxygen conditions that may impact the benthic and fish communities in the marsh. The report does not address how this increase in residence time may impact selenium cycling and sequestration in the marsh and the adjacent in-stream sediment basins in San Diego Creek.

Regional Board staff has the following comments on these sections of the RDTS:

1. The report does not address or provide any data on potential increases in residence time and temperature that may occur in the downstream channel areas in Peters Canyon Wash and San Diego Creek as a result of implementation of the Project, which is expected to reduce flows in these areas by 29-34%, to as low as 3.5 cfs. (Note: WY 2012 was included in ESA's estimates of reduction in flow rates for these areas, but excluded in their best estimate of a minimum inflow rate under contemporary operating conditions for the San Joaquin Marsh. Exclusion of the WY 2012 data may further reduce the estimated flows in these areas.) RWQCB-5
2. The report does not address or provide any data on potential increases in residence time and temperature that may occur in the San Diego Creek in-stream sediment basins as a result of implementation of the Project, which is expected to reduce flows in these areas by 30-33%, to as low as 4.5 cfs. (See note under comment 1 above.) RWQCB-6
3. ESA provides an estimate of the anticipated increase in residence time in the IRWD marsh ponds during operation of the proposed Project of approximately 5 days based on data collected from 2001 to 2013 (RDTS, Section 4.2.3.2, pages 47-49). This would result in an annual average increase in residence time to 19 days from 14 days. However, if only the last 5 years of data are used (2009-2013), which are the data used by ESA as indicative of contemporary baseline conditions and the period with the lowest non-storm flows on record for which potential impacts of the Project would be greatest, the average annual residence time in the marsh is already almost 19 days (18.8 days Regional Board staff recommend recalculating the potential increase in residence time that may occur in the marsh during implementation of the Project based on the current baseline conditions (i.e., 2009-2013). RWQCB-7
4. Increasing the residence time in the treatment ponds may increase formation of more bioaccumulative forms of selenium, such as selenite and organic selenium as well as particulate fractions of selenium, which has the potential to increase selenium bioaccumulation in these areas and in San Diego Creek Basin No. 2, where flows from the San Joaquin Marsh are discharged back to the creek. While approximately 30% of the selenium that enters the marsh is removed by the wetlands under current conditions, this removal not only includes sequestration of selenium in the sediments in the ponds and volatilization by aquatic vegetation but also removal through biotic uptake of selenium by the organisms that live in the ponds. Based on selenium speciation data collected by IRWD at the marsh inlet, outlet, and ponds during 2009, the marsh discharges approximately 13 – 29% more bioavailable selenite to San Diego Creek than it takes in at the marsh inlet. This indicates that while the water is flowing through the marsh ponds, selenium transformations and bioaccumulation are occurring, which account for a portion of the selenium that is "lost" to the marsh. The removal efficiency calculation ESA used to determine both the current and post Project selenium removal efficiency of the marsh does not account for this biotic uptake. RWQCB-8
5. The RDTS (Section 4.2.2.3, page 42) states that the reduction in downstream flows as a result of the Project "...is not expected to increase cycling of selenium, nitrogen, or other pollutants" in the downstream channels or in-stream sediment basins. However, this analysis is based on the assumption that sequestration and absorption of selenium to silt and clay particles in the channels and basins will not be affected by reductions in flows. This ignores the fact that speciation of selenium and its bioaccumulation in the aquatic food web is driven by factors other than sequestration and that reductions in flows are likely to increase hydraulic residence times, especially in the sediment basins, thereby increasing the potential for selenium transformations and biotic uptake in the water column and in the benthic community. This could result in an overall increase in selenium concentrations in fish and birds. RWQCB-9

6. The RDTS does not address potential increases in temperature, algal growth, selenium cycling and bioaccumulation, and decreases in dissolved oxygen that may occur due to reduced flows and increased residence times in the channels and sediment basins downstream of the Project during project operations. RWQCB-10
7. While the proposed Project is expected to decrease total selenium concentrations in downstream areas by approximately 5 µg/L, this decrease may be offset by the increase in residence time in the ponds and in-stream sediment basins. This could then result in no change or a possible increase in selenium concentrations in the fish and invertebrates that reside in these areas. RWQCB-11

Impact Avoidance Framework (IAF)

In the RDTS, ESA proposes an IAF (Mitigation Measure HYDRO-1 in the MND) to avoid potentially significant impacts to water quality in the San Joaquin Marsh, thereby avoiding potentially significant impacts to benthic and fish communities and maintaining current habitat conditions. A conceptual framework for the IAF is presented, which includes an existing water quality sampling program, two triggers for management action, and a description of potential management actions. The analytical data that will be used to trigger the proposed management actions for the San Joaquin Marsh are based on whether dissolved oxygen or chlorophyll concentrations decline or increase respectively, from the range in values that have been measured under the current water quality sampling performed in the marsh under normal, pre-Project operating conditions. No trigger is proposed for changes in selenium speciation or concentrations in biota collected from the marsh, though selenium is included in the current water quality sampling program for the marsh. Under current operating conditions, selenium concentrations in fish tissue are almost double the proposed numeric targets for fish in the selenium Total Maximum Daily Loads (TMDLs) that are under development for the Newport Bay watershed. In addition, based on samples collected by IRWD in 2010 and 2012 from the treatment ponds and Carlson Marsh, selenium concentrations in sediment can range from 1.5 to more than 5 times higher than natural background concentrations. While some of the selenium in the sediments may be sequestered, the amount of bioavailable selenium is likely still significant. The anticipated increase in residence times in the marsh may increase selenium bioaccumulation in the aquatic community above current concentrations. RWQCB-12

Neither the RDTS nor the proposed IAF address the potential for increased residence times and potential increases in selenium bioaccumulation (and other potential water quality impacts) that may occur as a result of the proposed Project in the downstream channels or in the San Diego Creek in-stream sediment basins. RWQCB-13

As described in Section 5.3 of the RDTS, the IAF's proposed management actions are:

1. **Recirculation** – Increased re-circulation of water through SJM to compensate for reduced intake. Re-circulation has the potential to maintain acceptable water quality conditions, but may require increased pumping within SJM.
2. **Reduce Project Diversions** – Reducing Project diversions would increase the available inflow for the SJM and help to maintain acceptable water quality conditions. In this case, a minimum Project diversion rate would be established such that the portion of the diversion required to offset the City of Irvine's dewatering discharges would still be provided.
3. **Modified Pond Management** – The existing operations and maintenance of the SJM allow for modifying pond management (see Section 3.3.1 above). Within the scope of the existing operations and maintenance program, SJM pond management could be modified by reducing water levels or temporarily removing one or more SJM ponds from the flow through water

quality treatment system in order to maintain the existing conditions residence time with the reduced Project conditions inflow.
4. **Alternative Water Supply** – The Project's reduction in SJM inflow could be compensated for by using a supplemental water source such as water from another surface channel or potable water, to replace the reduction in inflow. In this mitigation scenario, inflow to SJM would not be reduced and existing SJM operations and water quality would likely be maintained.

Regional Board staff have the following comments and recommendations on the proposed IAF (MND Mitigation Measure HYDRO-1):

1. The current water quality sampling program for the marsh as shown in Table 1 on page 15 of the RDTS should include annual sediment collection and analysis that is timed to coincide with the annual biota sampling that is conducted in the marsh by the Nitrogen and Selenium Management Program (NSMP). One of the 9 sediment samples should be collected from Pond 2, from which most of the tissue samples are collected. RWQCB-14
2. The IAF Conceptual Framework for the San Joaquin Marsh as shown in Figure 21 needs to include triggers for management actions based on changes in selenium species or fish tissue concentrations that may occur as a result of the Project and the increased residence times in the marsh ponds. Regional Board staff suggest that the selenium trigger be based on the range in values in selenite concentrations measured in water at the marsh inlet and outlet and/or significant changes in the range in selenium concentrations measured in fish tissue that have been collected over the last 5 years (e.g., 2009-2013). RWQCB-15
3. An IAF should be developed for the in-stream sediment basins that includes similar water quality monitoring, triggers, and a set of management measures similar to those proposed for the San Joaquin Marsh that can be implemented to avoid potentially significant impacts from the proposed Project to the benthic and fish communities in the sediment basins, and that maintains, to the extent practicable, current habitat conditions. RWQCB-16
4. Management Measure No. 1, Recirculation, has the potential to also increase selenium cycling and bioaccumulation. If the dissolved oxygen and chlorophyll trigger indicate that this management measure should be implemented, then additional selenium monitoring (e.g., timely collection and analysis of water samples for changes in selenium speciation or of composite fish tissue samples for increases in selenium bioaccumulation) should be implemented to ensure that recirculation does not result in selenium concentrations that exceed the specified triggers. RWQCB-17
5. Management Measure No. 3, Modified Pond Management. This action, if implemented, also has the potential to increase selenium cycling and bioaccumulation in any ponds that are taken offline but allowed to continue to function as wetland ponds. In addition, eutrophication and resulting increased algal growth and low dissolved oxygen could detrimentally impact the aquatic community in these offline ponds. These ponds should be closely monitored for these potential changes while they remain offline. In addition, IRWD should include measures that will address how these offline ponds will be monitored and maintained such that beneficial uses are not negatively affected. IRWD should also develop a plan for actions that will be taken to restore flows to these ponds so that the poor water quality conditions that may have developed in the ponds does not impact the other ponds once flows are restored. RWQCB-18
6. Management Measure No. 4, Alternative Water Supply. This management measure proposes to divert water from either Sand Canyon Channel, which is tributary to San Diego Creek Basin No. 2, or the UCI box culvert that discharges into San Diego Creek Basin No. 1, or to provide supplemental water from the Michelson Water Recycling Plant dewatering well discharges and/or potable water. Given the current drought conditions, it is unlikely that potable water could be used as a supplemental water supply. Flows in Sand Canyon RWQCB-19

Channel and the UCI box culvert are predominantly urban runoff and are low in selenium. These flows likely have a diluent effect on selenium concentrations in the two in-stream sediment basins that they discharge to. Prior to moving forward with possible diversions of these flows to provide supplemental water to the San Joaquin Marsh, IRWD should assess what impacts to the aquatic food web might occur in the sediment basins as a result of the loss of these flows. RWQCB-19

7. The MND and the RDTS do not adequately address potential water quality impacts related to the reduction in flows in the downstream areas that are anticipated to occur as a result of operation of the Project (e.g., increased residence time, temperature and algal growth, and decreased dissolved oxygen in the downstream channels and sediment basins; potential increases in selenium bioaccumulation in these areas and in the San Joaquin Marsh). Therefore, potential impact 9(f) under Chapter 3.9 Hydrology and Water Quality in the MND should be listed as *potentially significant* unless additional documentation is provided to demonstrate that these potential changes in water quality are less than significant or will have no impact, or additional mitigation and/or management actions are incorporated into the IAF to reduce the potential impact to less than significant with mitigation incorporated. RWQCB-20

Biological Resources Technical Report (BRTR)

ESA prepared two volumes of their BRTR. Volume I focuses on potential impacts to biological resources located within or directly adjacent to the Project area. Volume 2 focuses on potential biological impacts that may occur in the downstream channels, sediment basins, and the San Joaquin Marsh from construction and operation of the Project. Regional Board staff has no comments on ESA's assessment of the potential biological impacts and proposed mitigation measures that have been identified for the area impacted directly by Project construction (e.g., impacts and mitigation as outlined in Volume 1 of the BRTR). Regional Board staff has some limited comments on Volume 2 of the BRTR, which addresses potential impacts to biological resources downstream of the proposed Project, as follows:

1. Page 15, Table 2, Special-Status Wildlife Species with Potential to Occur. This table lists occurrence of the California Least Tern (*Sternula antillarum browni)* as **Unlikely** due to the lack of suitable habitat for the species in the downstream area affected by the Project. While suitable <u>nesting</u> habitat does not occur in these areas, California Least Terns have been observed foraging along with Forester's Terns and Black Skimmers in the instream-sediment basins by Regional Board staff. RWQCB-21
2. Not included in this table, but discussed in the MND, Great Blue Herons, which are protected by the Migratory Bird Treaty Act (MTBA) as well as many other aquatic-dependent birds (e.g., Black-necked Stilts, Avocets, Mallards, Grebes, Coots, Ibis) that are also protected by the MTBA, frequently forage throughout the freshwater areas of the watershed, including areas that may be directly or indirectly impacted by the Project. RWQCB-22
3. The BRTR does not adequately address potential impacts to the aquatic community (e.g., invertebrates and fish) from Project construction or operation. The only fish ESA observed in the creeks was common carp; no survey or assessment of the benthic community was conducted. Monitoring by the Department of Fish and Wildlife and the Nitrogen and Selenium Management Program have demonstrated that multiple invertebrates (e.g., crayfish, clams, insect larvae, corixids) and an abundance of non-native fish species (e.g., carp, catfish, largemouth bass, sunfish, red shiners, minnows) reside in Peters Canyon Channel, San Diego Creek, and the San Joaquin Marsh. The IAF does address the potential for fish kills due to lower dissolved oxygen in the marsh ponds that could result from the Project, but the potential for negative impacts that may result in the aquatic community from the reduction in flows in the channels and sediment basins located RWQCB-23

downstream of the project—which may increase residence time, temperature, algal growth, selenium bioaccumulation, and decrease dissolved oxygen levels—were not addressed. RWQCB-23

4. As discussed previously, if the Project results in increased hydraulic residence times in the sediment basins or the San Joaquin Marsh such that selenium cycling and bioaccumulation increase, then the potential risk to birds feeding on fish and invertebrates in these areas may also increase. While mitigation measures for potential impacts resulting from increased residence times is addressed to some degree by the IAF for the San Joaquin Marsh (though potential impacts due to increased selenium cycling and bioaccumulation were not addressed), mitigation measures to address increased hydraulic residence time in the sediment basins that may occur during operation of the Project are not addressed by the IAF or the MND. Note: Any potential reductions in downstream concentrations of selenium (estimated to be around 5 µg/L) that may result from operation of the Project may be offset by the increase in hydraulic residence times resulting in no net change to or an increase in selenium concentrations in biota in these areas. RWQCB-24
5. We believe that an IAF should be developed and implemented to address the potential adverse impacts to the aquatic community from changes in water quality (e.g., increase in temperature, algal growth, selenium bioaccumulation, decrease in dissolved oxygen) that may result in the downstream channels and the San Diego Creek sediment basins due to the operation of the Project. The development and implementation of this IAF should be coordinated with Regional Board staff. RWQCB-25

CHAPTER 7
Responses to Comments

The comment letters received during the public review period for the IS/MND are included in Chapter 6. In this Chapter 7, IRWD provides individual responses to the bracketed comments in each letter. In some instances, in response to the comment, IRWD has made additions or deletions to the text of IS/MND; additions are included as underlined text, and deletions as ~~stricken text~~.

Letter 1: Orange County Sanitation District

Comment OCSD-1

The comment states that OCSD supports recycling water for beneficial use and looks forward to working with IRWD regarding the procurement of the Dry Weather Urban Runoff Discharge Permit and Special Purpose Discharge Permit, which will be required for the proposed project to move forward.

Response OCSD-1

Thank you for your comments. IRWD will work with OCSD to procure the Dry Weather Urban Runoff Discharge Permit and Special Purpose Discharge Permit prior to commencement of work.

Letter 2: City of Tustin

Comment T-1

The comment states that the IS/MND should identify locations for storage of temporary equipment such as pipe, backfill material, and construction equipment, as these temporary locations may have an impact on the environment.

Response T-1

On page 2-16 of the IS/MND, the discussion about construction schedule includes access and staging, specifically the following:

> Construction access would be provided through the existing OC Flood access points along the channel; all staging and stockpiling would occur in the area between the top of the channel and the existing fence or walls along the outer boundary, between access points.

These staging areas are included in the area of potential effect that is analyzed in the IS/MND. No additional impacts need to be evaluated.

Comment T-2

The comment requests that the proposed aboveground equipment at Edinger Avenue and Moffett Drive be completely screened from public view within decorative walled enclosures with access gates, as required by the City's Design Guidelines for Aboveground Utility Facilities on Public Properties and in the Public Right-of-Way. The comment requests that such enclosures be built with materials and finishes consistent or compatible with the adjacent residential community walls.

Response T-2

The aboveground equipment at Edinger Avenue and Moffet Drive are shown in Figures 6 and 7, respectively. As stated in the IS/MND on page 3-4 and 3-5, the existing aesthetic conditions surrounding these two project sites include a built environment dominated by roadways, the hardscaped flood control channel, chain link fence enclosures for the bike path, and a freeway bridge overpass. The proposed facilities would not substantially alter the visual character of the site and surroundings as stated on pages 3-4 and 3-5 of the IS/MND. As such, decorative walled enclosures are not required for mitigation. Although not required for mitigation, as stated in Comment T-3 below and per previous discussions with the City of Tustin, IRWD plans to erect masonry wall extensions to shield the electrical cabinet, antenna, transformer, and service panel from view to the greatest extent practicable according to the constraints of the site.

Comment T-3

The comment states that the existing six-foot masonry wall identified in the IS/MND would not block the public's view of the equipment. The comment suggests that masonry walls should be extended further than the proposed 39 feet at Edinger Avenue and eight feet at Moffett Drive to minimize aesthetic impact of the proposed equipment.

Response T-3

The existing 6-foot masonry wall would shield the proposed equipment at Edinger Avenue from view from adjacent residences. In response to the comment, the text of the IS/MND has been revised on page 3-4 as follows:

> The Edinger Circular Drain diversion structure would be located near the Peters Canyon Channel and Edinger Avenue intersection, generally within Edinger Avenue and part of an adjacent roadside landscaped area, adjacent to the entrance to the bike path. Multi- and single-family residential units are located adjacent to the proposed work area on both sides of Edinger Avenue. The site for the electrical cabinet, antenna, transformer, and service panel would be shielded from view and separated <u>from neighboring residences</u> by an existing 6-foot masonry wall. Given the surroundings include the adjacent roadway, flood control channel, chainlink fence enclosure for the bike path, and bridge overpass, the proposed facilities would not substantially alter the visual character of the site and surroundings. Impacts would be less than significant.

Regarding the masonry wall extensions, the IS/MND concludes on page 3-4 and 3-5 that the proposed facilities would not substantially alter the visual character of the site and surroundings. No additional mitigation is required.

Comment T-4

The comment states that the proposed project could result in substantial temporary increases in ambient noise levels during construction. The City suggests that a noise study be performed to analyze the noise-sensitive construction locations in detail and identify, on a location-specific basis, all additional feasible noise mitigation measures which may include construction of temporary noise attenuation walls around the construction site and regular noise monitoring during construction. The comment states that proposed Mitigation Measures NOISE-1 through NOISE-7 are too general and are not location-specific.

Response T-4

As identified in Section 3.12 of the IS/MND, construction activities associated with the proposed project will adhere to the time restrictions set forth in the City of Tustin's Noise Ordinance. As such, construction noise would be exempt from the provisions of the City's Noise Ordinance, and a noise study would not be required. In addition, the IS/MND identifies on pages 3-69 and 3-70 that the proposed project would expose existing sensitive receptors located in proximity to the proposed pipeline alignment to substantial temporary or periodic increases in ambient noise levels during construction. As such, Mitigation Measures Noise-1 through NOISE-5 would require implementation of noise reduction devices and techniques during construction that would reduce the noise levels associated with construction to the maximum extent that is technically feasible. No additional mitigation is required.

Comment T-5

The comment requests that Mitigation Measure NOISE-6 be revised to require IRWD or its contractors to notify existing residents located directly adjacent to the construction work area and their homeowners associations and property management companies of the proposed location and dates of construction a minimum of five days prior to construction within the work area.

Response T-5

In implementing the public outreach described in Mitigation Measure NOISE-6, it is standard procedure for IRWD to contact existing residents as well as homeowners associations and property management companies. No revisions to Mitigation Measure NOISE-6 are necessary.

Comment T-6

The comment suggests that the project proponent conduct extensive public outreach to residents of the City of Tustin. In particular, the comment requests soliciting input from residents in adjacent neighborhoods, including Tustin Field I, Tustin Field II, and Columbus Grove, including holding informational meetings with homeowners associations for these neighborhoods.

Response T-6

During the public review period for the Draft IS/MND, IRWD appropriately noticed the availability of the document by placing a public notice in the local newspaper of general circulation (i.e., Orange County Register), in accordance with CEQA Guidelines, Section 15072(b)(1). As stated in the public notice, the document was made available in hard copy at the Heritage Park Library and on the IRWD web site. At that point, the public had the opportunity to comment on the Draft IS/MND or request additional information. Mitigation Measure NOISE-6 requires residents adjacent to the construction work area to be notified of the location and dates of construction prior to commencement.

Additionally, NOISE-7 requires IRWD to designate a public liaison for the project that will be responsible for addressing public concerns about construction, including excessive noise. Therefore the public, particularly those in adjacent neighborhoods, will have an immediate resource for information about the project and to express any concerns they may have. Additional public meetings are not required by CEQA.

Comment T-7

The comment points out that the IS/MND states the Caltrans Ground Water Treatment Facility (GWTF) is located in the City of Tustin, when it is actually located in the City of Irvine.

Response T-7

In response to the comment, the text of the IS/MND has been revised on pages 1-1, 2-1, and 2-3 as follows:

<u>Page 1-1</u>:

> The proposed pipeline system begins at the existing Caltrans GWTF in ~~Tustin~~ <u>Irvine</u>, collects flow from three proposed diversion structures located at Como Channel, Edinger Circular Drain, and Valencia Drain, and discharges into a proposed IRWD manhole that discharges to OCSD's Main Street sewer for treatment (refer to **Figure 2**, Aerial Project Limits Map).

<u>Page 2-1</u>:

> The proposed pipeline system would begin at the existing Caltrans' GWTF, located near the Walnut Avenue bridge crossing over Peters Canyon Channel in ~~Tustin~~ <u>Irvine</u>, then would connect to the three proposed storm drain diversion structures at Como Channel, Edinger Circular Drain, and Valencia Drain, then would connect to IRWD's existing gravity sewer line at a proposed new manhole west of San Diego Creek near Main Street in Irvine.

<u>Page 2-3</u>:

> The proposed project area is located adjacent to and alongside Peters Canyon Channel and San Diego Creek. The proposed project area includes the section of Peters Canyon

> Channel running from the channel's intersection with Walnut Ave in ~~Tustin~~ Irvine to the channel's intersection with Main Street in Irvine.

Comment T-8

The comment states that IRWD staff have indicated that construction is scheduled to begin in August of 2015, instead of the Spring of 2015 as is stated on page 2-16 of the IS/MND.

Response T-8

In response to the comment, the text of the IS/MND has been revised on page 2-16 as follows:

Page 2-16:

> The estimated construction start date is ~~Spring~~ Summer of 2015.

Comment T-9

The comment states that the General Plan Designation for the City of Tustin should be indicated as "MCAS Tustin Specific Plan" on page 3-1 of the IS/MND.

Response T-9

In response to the comment, the text of the IS/MND has been revised on page 3-1 as follows:

Page 3-1:

6. General Plan Designation(s):	Recreation (City of Irvine); MCAS Tustin ~~Planned Community~~ Specific Plan (City of Tustin)

Letter 3: City of Irvine

Comment CI-1

The comment states that the City of Irvine will continue to work cooperatively with IRWD concerning the design and construction of the project, and supports the idea that this is an important and necessary project to improve water quality in the region.

Response CI-1

Thank you for your comment. IRWD appreciates the City of Irvine's continued support.

Letter 4: County of Orange Public Works

Comment OCPW-1

The comment states that any work within or adjacent to any Orange County Flood Control District (OCFCD) right-of-way should be conducted to not adversely impact the channel's structural integrity, hydraulic flow conditions, access and maintainability. The comment states that an encroachment permit from the County must be obtained prior to starting work within OCFCD's right of way. The comment provides the location for permit application and process materials and states that technical reviews and approvals will be accomplished within the permit process.

Response OCPW-1

IRWD will work with the County of Orange to obtain the necessary encroachment permits prior to commencement of work and will conduct associated activities in accordance with any permit conditions in order to protect OCFCD's channel integrity, flow conditions, access and maintainability. Acknowledgment of the need for such a permit is provided on page 2-17 of the IS/MND.

Letter 5: California Department of Transportation

Comment DOT-1

The comment explains that the project proponent must obtain an encroachment permit for any work that is to be done within the State right-of-way prior to commencement of work. The comment also details procedures to be followed when obtaining an encroachment permit, and includes a link to the Department of Transportation's Encroachment Permits Manual.

Response DOT-1

IRWD will work with DOT to obtain the necessary encroachment permits prior to commencement of work. In response to the comment, the encroachment permit has been added to the list of project approvals provided in the IS/MND on page 2-17.

<u>Page 2-17</u>:

- <u>**California Department of Transportation**: Encroachment permit</u>

Letter 6: UC Irvine

Comment UCI-1

The comment states that the San Joaquin Marsh Reserve (UC Marsh Reserve) is a University of California Natural Reserve System (UCNRS) reserve managed by the University of California's Irvine campus. The comment states that the proposed project affects the UC Marsh Reserve, and therefore IRWD was obligated to consult with the University as a trustee agency under CEQA. The comment states that per CEQA Guidelines Section 15063(g), consultation with the University is required for any project that affects a UCNRS reserve, to obtain the University's recommendation on whether an environmental impact report or a negative declaration should be prepared. The comment states that the Notice of Intent to adopt the MND was the University's first opportunity to identify, review, and comment on the potential effects to the UC Marsh Reserve.

Response UCI-1

CEQA Guidelines Section 15063(g) requires a lead agency to consult with "Trustee Agencies responsible for resources affected by the project." When IRWD initiated preparation of the Initial Study for the proposed project, it was determined that no resources under the jurisdiction of the UCNRS would be affected by the project. The results of the Initial Study verify this determination; on page 3-56 of the IS/MND, the analysis concludes that during project operation the water transfers to the UC Marsh Reserve could still be maintained similar to existing baseline conditions, which are described on page 3-54 of the IS/MND.

In the past, IRWD has transferred water annually from the SJM to the UC Marsh Reserve during the wet or winter season, based on availability. As stated on page 3-54 of the IS/MND: "[f]or a short period of time (approximately 15 to 20 days) each winter (typically anywhere from mid-December through February), water is diverted from the San Joaquin Marsh to the University of California (UC) San Joaquin Marsh Reserve to the south in order to help fill it to capacity." There is no minimum requirement for the amount of water to be transferred, and during some years, the amount of water transferred has been zero. The UC Marsh Reserve is designed to receive storm water runoff as its primary source of surface water and has no diversion directly from SDC. These baseline conditions for water transfers will not be affected by the proposed project, which primarily affects low-flow and/or dry-season conditions and will have little to no effect on flow during wet weather or the wet season when the transfers occur. For clarity, in response to the comment, the text of the IS/MND has been modified on pages 3-54 and 3-56 as follows:

<u>Page 3-54</u>:

> For a short period of time (approximately 15 to 20 days) each winter (typically anywhere from mid-December through February), water is diverted from the San Joaquin Marsh to the University of California (UC) San Joaquin Marsh Reserve to the south in order to help fill it to capacity. <u>The amount of water transferred each year is variable and subject to availability as determined by IRWD.</u> When this occurs, the rate at which water is recirculated through the marsh increases.

<u>Page 3-56</u>:

> In addition, the reduction in inflow would not affect the water available for transfer to the UC San Joaquin Marsh Reserve. During project operation, the San Joaquin Marsh inflow rate would still be greater than the rate of flow transferred to the UC Marsh and thus such transfers could still be maintained<u>, similar to existing baseline conditions</u>.

Comment UCI-2

The comment states that IRWD did not provide the University adequate time to consult prior to providing the Notice of Intent to adopt the IS/MND. The comment also states that the University may submit further comments and proposed mitigation measures that address any significant effects on the lands and natural resources subject to its authority as a Trustee Agency.

Response UCI-2

CEQA Guidelines Section 15063(g) does not provide minimum time requirements for consultation with, or review by, Trustee Agencies. The University was given adequate time to review the Notice of Intent to adopt the MND and Initial Study per CEQA Guidelines Section 15073, which require a 30-day review period for a proposed MND submitted to the State Clearinghouse. In accordance with CEQA Guidelines Section 150739(a), the University will receive written notice regarding the date of the public hearing to be held for the proposed project.

Comment UCI-3

The comment requests that the UC Marsh Reserve be listed as an area of potential effect due to the reduced stream flows to San Diego Creek and subsequent reduced flows into both IRWD's SJM and the UC Marsh Reserve. This would require a comprehensive analysis of the effects on the UC Marsh Reserve that could result from reduced flows in San Diego Creek.

Response UCI-3

The amount and timing of water transferred from the SJM to the UC Marsh Reserve is variable from year to year, as mentioned in Response UCI-1. There is no minimum volume of water required; the amount of water transferred is based on availability as determined by IRWD, which means during some years the amount of water transferred has been and may be zero. On page 3-56 of the IS/MND, the analysis associated with the SJM concludes that during project operation the water transfers to the UC Marsh Reserve could still be maintained similar to existing baseline conditions. These baseline conditions for water transfers will not be affected by the proposed project, which primarily affects low-flow and/or dry-season conditions and will have little to no effect on flow during wet weather or the wet season when the transfers occur. Given this conclusion, there would be no effect to the UC Marsh Reserve and the analysis of impact is appropriately described within the SJM area of potential effect. Therefore, the UC Marsh Reserve will not be listed as an area of potential effect.

Comment UCI-4

The comment states that the viability of the UC Marsh Reserve is reliant on the water transfers that are part of the baseline conditions that must be considered in the CEQA analysis. The comment states that this baseline condition must be continued to prevent significant impact to the habitat in the UC Marsh Reserve. The comment states that a mitigation measure is required to guarantee the water transfers would continue.

Response UCI-4

The existing water transfers are mentioned in the IS/MND on page 3-54 as part of the baseline conditions. For clarity, modifications to the text of the IS/MND have been made on page 3-54 and 3-56 as mentioned above in Response UCI-1. The IS/MND concludes that the proposed project would not alter this baseline condition. As a result, no impact would occur, and no mitigation measure is required.

Comment UCI-5

The comment requests that IRWD either include mitigation measures that will ensure continuance of the water transfers, or change the language on page 3-56 of the IS/MND from “could still be maintained” to “would remain unchanged if the project is approved and implemented”.

Response UCI-5

In response to the comment, the text of the IS/MND has been modified on page 3-56 as follows:

<u>Page 3-56</u>:

> During project operation, the San Joaquin Marsh inflow rate would still be greater than the rate of flow transferred to the UC Marsh and thus such transfers ~~could still be maintained~~ <u>would remain unchanged if the project is approved and implemented</u>.

Comment UCI-6

The comment addresses the language in Appendix C of the IS/MND, stating that the mere expectation of continued water transfers is not sufficient. The University requests additional mitigation measures or the replacement of the phrase “are expected to be maintained” (p. 2 of Appendix C) with “would remain unchanged if the project is approved and implemented”.

Response UCI-6

In response to the comment, the text of Appendix C to the IS/MND has been modified on page 2 as follows:

<u>Appendix C, Page 2</u>:

> Finally, potential impacts to the UC Irvine (UCI) Marsh adjacent to SJM and Upper Newport Bay are expected to be less than significant. Water transfers from SJM to UCI Marsh, which occur <u>at IRWD’s discretion</u> over approximately 15 to 20 days during the winter, ~~are expected to be maintained~~ <u>would remain unchanged if the project is approved and implemented</u>.

Comment UCI-7

The comment states that Appendix C of the IS/MND addresses the water transfers from the SJM to the UC Marsh Reserve. The comment states that the University did not receive an appropriate amount of time to evaluate the proposed project, specifically the findings presented in Appendix C, Sections 5.2-5-3. The comment states that the University, as a Trustee Agency, may submit further comments and proposed mitigation.

Response UCI-7

The findings in Appendix C support the analyses presented in the IS/MND. The baseline conditions for water transfers will not be affected by the proposed project, which primarily affects low-flow and/or dry-season conditions and will have little to no effect on flow during wet weather or the wet season when the transfers occur. Please also refer to Response UCI-2.

Letter 7: Santa Ana Regional Water Quality Control Board

The Santa Ana Regional Water Quality Control Board letter includes statements that (1) summarize the information and findings found in the IS/MND and appended Reduced Discharge Technical Study (RDTS; (2) present data that characterize existing baseline conditions; and (3) comment on the analyses, conclusions, and mitigation measures presented in the IS/MND and RDTS. The responses provided below pertain to the third category of comments. The responses provide clarification where necessary about the impact analysis methodology, which first establishes the environmental setting and baseline conditions in the vicinity of the project (CEQA Guidelines Section 15063(d)(2)) and then assesses the project impacts to determine where changes to baseline conditions are significant (CEQA Guidelines Section 15063(d)(3)).

Comment RWQCB-1

The comment states that the RWQCB's overarching concern is regarding the consideration of potential operational effects and resulting increased hydraulic residence time in the San Joaquin Marsh (SJM) and the potential for increased selenium bioaccumulation, which may result in adverse impacts in the marsh. The comment suggests inclusion of measures to be added to the Impact Avoidance Framework (IAF) (Mitigation Measure HYDRO-1).

Response RWQCB-1

As explained below in Responses RWQCB-4, RWQCB-7, RWQCB-8, RWQCB-11, RWQCB-12, RWQCB-15, and RWQCB-17, the effects of project operation on residence time within the SJM are adequately assessed. The IAF currently includes mitigation that would maintain the key water quality parameters that affect selenium cycling, in particular dissolved oxygen. Maintenance of such parameters would avoid any significant adverse changes to existing baseline conditions for selenium cycling, speciation, or bioaccumulation. Therefore, the additional measures requested by the comment do not need to be added to the IAF.

Comment RWQCB-2

The comment states that an IAF should be developed and implemented to address the potential adverse effects of water quality changes that may occur in the downstream channels and San Diego Creek (SDC) Sediment Basins.

Response RWQCB-2

As explained below in Responses RWQCB-4, RWQCB-5, RWQCB-6, RWQCB-9, RWQCB-10, RWQCB-11, RWQCB-13, and RWQCB-16, the proposed project would not have adverse effects to water quality within Peters Canyon Wash (PCW), SDC, or the Sediment Basins. As such, no mitigation or IAF is required.

Comment RWQCB-3

The comment states that the IAFs should be coordinated with the Regional Board staff.

Response RWQCB-3

IRWD will coordinate as necessary with the RWQCB in accordance with its jurisdiction over the project and as a Responsible Agency.

Comment RWQCB-4

The comment provides an overview of some results from the Reduced Discharge Technical Study (RDTS), provided as Appendix C to the IS/MND. The comment states that although the RDTS concluded that the hydraulic residence time of water flowing through the IRWD SJM would increase, the report does not address how this increase in residence time may impact selenium cycling and sequestration in the SJM and the adjacent in-stream Sediment Basins in the San Diego Creek.

Response RWQCB-4

The project's effect on residence time and selenium cycling and sequestration in the SJM are addressed in the RDTS in Section 4.2.3.2 (pages 47 through 50), Section 5.2.4 (page 53), and Section 5.3 (pages 54-69).

There are two primary ways in which the project could potentially impact selenium sequestration within the SJM: 1) the project could alter the amount of selenium actually input to the SJM from SDC, and/or 2) the project could alter what happens to selenium while it's in the SJM (i.e., cycling, speciation, etc.).

Concerning the first way, the project would reduce the mass of selenium input to the SJM from SDC. Further, assuming the SJM's total selenium removal efficiency would remain the same as for existing conditions, the project would subsequently reduce the mass of selenium lost within the SJM. The basis for assuming the total selenium removal efficiency of the SJM would not change is provided in Section 4.1.4.2 of the RDTS. This section provides an empirical analysis of whether total selenium removal efficiency is related to the SJM inflow rate under existing conditions (total selenium removal efficiency was calculated based on the difference in selenium concentrations in the inflow and outflow of the marsh). Using data collected by IRWD dating back to 2002, the RDTS demonstrates that no statistically-significant relationship exists between average SJM inflow and total selenium removal efficiency. Since this empirical analysis did not result in a predictive relationship between SJM inflow and total selenium removal rate, the existing removal efficiency (i.e., unadjusted) was used in the RDTS to estimate the mass of selenium lost within the marsh under the project condition SJM inflow rate. On page 50, the RDTS states the following:

> [U]nder existing conditions (WY2009-2013) approximately 294 pounds per year of selenium are input to SJM from SDC. Under project conditions, selenium loading to SJM would be reduced to approximately 202 pounds per year. Subsequently, the amount of

> selenium lost within the SJM (from SDC) would also be reduced as a result of project implementation, dropping from approximately 107 pounds to 74 pounds per year.

Thus, taking into account the reduction in selenium loading to the SJM, under project conditions there would be a reduction of 33 pounds per year of selenium removed within the SJM (i.e., the difference between 107 pounds and 74 pounds per year). These results are also shown in Table 7 on page 36 of the RDTS. Based upon the available data (discussed in Section 4.1.4.2), the SJM influent rate and subsequent residence time have no direct impact upon the mass of total selenium lost within the SJM.

Regarding the second way, the RDTS explicitly acknowledges that, through a potential increase in residence time, the project could have negative impacts upon SJM habitat and water quality conditions and, indirectly, upon selenium sequestration rates within the SJM (page 53). The IAF mitigation measure was developed and is required to specifically address these potential impacts (pages 54-69). Based upon the available data and empirical analysis (summarized above), no direct relationship between SJM inflow (i.e., residence time) and total selenium removal efficiency could be established. However, over time, the potential indirect effect of reduced SJM inflow upon selenium loss or sequestration within the SJM is uncertain, but this potential long-term effect is acknowledged (page 53) and mitigated for (pages 54-69). Selenium speciation, cycling, and sequestration is closely related to and driven by dissolved oxygen levels. For example, low dissolved oxygen levels (or anoxic conditions) promote the formation of less soluble and/or less mobile forms of selenium (i.e., forms that are more readily sequestered within SJM sediments). The IAF thus focuses on monitoring and adaptively managing dissolved oxygen concentrations (and chlorophyll, as a proxy for algae) so as to sustain existing levels.

In response to the comment, the text of the IS/MND on page 3-57 has been modified as follows to clarify the results of the analysis related to project impacts to water quality and selenium cycling within the SJM:

> The reduction in inflow would potentially affect residence time for water flowing through San Joaquin Marsh. As stated above, it takes about 10 to 14 days for water to move through the marsh under baseline conditions. It is estimated that project operation would result in an increase in average residence time by approximately five days, from approximately 14 days to 19 days. This increase in residence time would not affect the selenium or nitrogen removal efficiency of the San Joaquin Marsh, based on an analysis showing no statistically signification correlation between Marsh inflow and either selenium or nitrogen removal efficiency given historical data (see Appendix C, Figures 14a and 14b). The increase in residence time, however, may induce undesirable conditions, such as increased water temperature, increased algae production, and a sustained reduction in dissolved oxygen (DO) levels during drought and summer dry conditions. These reduced water quality conditions if sustained may impact the benthic and fish community in the marsh <u>in the absence of mitigation, either directly or indirectly by affecting selenium cycling, speciation, and bioaccumulation</u>. These potential impacts are based upon recent observations during the current drought period that suggest there

> could be a causal link between reduced marsh inflow and increased algae growth. However, it is important to also note that an anticipated decrease in nutrient loading from the proposed project may likely reduce algae growth during these critical periods. Nonetheless, in the event that algal mats develop and die off as a result of reduced circulation and increased retention time, diurnal fluctuations in dissolved oxygen may result in anoxic conditions (dissolved oxygen of 0-2). Sustained low oxygen conditions can impact benthic communities, potentially result in fish kills, and create odor problems. Sustained low oxygen can also affect selenium cycling and speciation, and thus could potentially increase and/or alter the form of selenium removed within the marsh. These potential effects could ~~would~~ significantly impact water quality and habitat conditions. **Mitigation Measure HYDRO-1** would require implementation of an Impact Avoidance Framework (IAF) to ensure that the effects of the proposed project on flow availability to the San Joaquin Marsh do not indirectly result in significant adverse effects to water quality due to increased residence time. The IAF would establish a range of acceptable water quality parameters (e.g., DO and algae/chlorophyll concentrations) developed from an existing water quality sampling program; a trigger for management actions when water quality parameters are sustained beyond the acceptable range; a suite of corrective actions to implement to ensure water quality parameters return to, and are maintained within, the acceptable range. Impacts would be considered less than significant with mitigation.

Furthermore, the project's effects on residence time and selenium cycling and sequestration in SDC also are addressed in the RDTS in Sections 4.2.2.2 and 4.2.2.3 (page 42) and Section 5.1.2 (page 51). The RDTS states that the project would reduce the mass loading of selenium to Peters Canyon Wash (PCW) and SDC by approximately 154 pounds per year on average, which represents about a 40 to 43 percent reduction. The RDTS further goes on to explain why, although flows within PCW and SDC would also be reduced, the changes in flow velocity are generally insignificant with respect to influencing residence time and selenium cycling within the channels and/or Sediment Basins. The RDTS states the following on page 42:

> With respect to potentially influencing residence time and selenium cycling within the channels and/or Sediment Basins, the predicted changes in flow velocity are generally insignificant (i.e., changes in velocity are on the order of 0 to 0.11 feet per second) (Table 8). The changes in dry season flow velocity within the project area would not be great enough to force the deposition of selenium (or nitrogen or other pollutants) that may be bound to silt and clay, and thus bound selenium would be expected to behave similarly under existing- and project-conditions. For example, the fall velocity of coarse silt is approximately 0.003 feet per second (Julien, 1998) (i.e., the velocity at which silt would settle out of the water column). This is well below the existing- and project-condition predicted velocities. Further, Hibbs et al. (2008) suggests that very little dissolved selenium or total nitrate is removed under existing conditions within the Sediment Basins, reasoning that even though conditions may favor reduction (and deposition of selenium and nitrate, there is not enough fluid exchange between surface water and the channel bed sediment (i.e., hyporheic water). The substantial reduction in selenium and

> nitrogen mass loading would be much greater in magnitude than any of the potential, though insignificant, effects project implementation may have upon residence time or selenium- or nitrogen-cycling within the PCW and SDC channels.
>
> Further, in Sediment Basin No. 1 (the downstream-most basins), deposition of pollutants bound to clay-sized particles are controlled primarily by flocculation, which is driven by freshwater mixing with salt water near the downstream extent of the Sediment Basins, a process which would be unaffected by the project. The project reductions in channel flows is not expected to significantly increase the upstream extent of tidal influence and salinity in the mouth of SDC because the tidal extent is controlled by the channel elevation and weirs rather than mixing of freshwater channel flows and saline tidal flows.

Comment RWQCB-5

The comment states that the Reduced Discharge Technical Study (RDTS) does not address or provide data on potential increases in residence time and temperature that may occur in the downstream channel areas in PCW and SDC as a result of project implementation. The comment also notes that exclusion of water year (WY) 2012 data could further reduce the estimated flows in PCW and SDC.

Response RWQCB-5

Potential impacts upon residence time and habitat quality in downstream areas of PCW and SDC are addressed in Section 4.2.2 (pages 37-44). Temperature was not addressed explicitly, but factors that affect temperature were addressed, namely flow velocity and depth. Potential project impacts to average flow velocities (i.e., residence time) were determined to be insignificant. As shown in Table 8 on page 37 and stated on page 42, the predicted changes in flow velocity within PCW and SDC are generally insignificant, with changes ranging between 0 and 0.11 feet per second. Further, the project's additional potential impacts upon average flow depths in PCW and SDC were shown to be generally small (i.e., average reductions in depth were around 16 percent).

With respect to stream temperature as it relates to existing and/or potential aquatic habitat, other factors should also be considered. PCW within the project area is generally devoid of any quality habitat, and the RDTS states the following on page 37:

> However, in these upper reaches there is little-to-no quality in-stream vegetation or aquatic habitat under existing conditions. As described in Section 3.1, these reaches serve primarily as a managed flood control channel, the bed is periodically cleared through either planned maintenance activity and/or scouring floods, and the banks are comprised of rip-rap or concrete and generally devoid of riparian vegetation.

Further, based upon available data, the reach of SDC comprising the sediment basins is likely a gaining reach (i.e., on average there is a net inflow of groundwater) (see RDTS pages 8-10, 23, and 50), and thus groundwater input would likely exert much more influence upon average stream temperature than small, predicted changes in flow depth.

Exclusion of WY 2012 in estimating existing- or project-condition flows in PCW and SDC would not reduce the average flow estimates in these areas, as suggested by the comment. Average flow in SDC was not notably different in WY 2012 as illustrated in Figures 12 and 17 of the RDTS. Thus, there is no basis or rationale for excluding WY 2012 from the calculation of average channel flows (or from the calculation of any descriptive statistics). In the RDTS, WY 2012 is excluded when assessing the minimum, average SJM influent rate under which the SJM can function, as we consider this particular year an outlier with respect to *SJM operations* and not with respect to *flow conditions within PCW and/or SDC*. For example, even though the average flow in SDC was not notably different in WY 2012, the proportion of SDC flow diverted into the SJM was notably higher and the reason for this is not clear (see the “Dry-Season San Joaquin Marsh Influent Flow (WY 1999-2006, 2009-2103)” chart in Appendix B of the RDTS).

Comment RWQCB-6

The comment states that the RDTS does not address or provide data on potential increases in residence time and temperature that may occur in the San Diego Creek in-stream Sediment Basins as a result of project implementation.

Response RWQCB-6

The in-stream Sediment Basins are part of the analysis provided in the RDTS for PCW and SDC. Please refer also to Responses RWQCB-4 and RWQCB-5.

Comment RWQCB-7

The comment suggests that ESA recalculate the potential increase in average residence time that may occur in the SJM during implementation of the project based on current baseline conditions (2009-2013).

Response RWQCB-7

In Table 6 on page 34 of the RDTS, calculation of existing, dry-season residence times for SJM are provided for WY 2001 through 2013. The average, dry-season residence time is 14.2 days for both the WY 2001-2013 and WY 2009-2013 periods. In Table 10 on page 49 of the RDTS, calculation of residence times under project conditions at SJM are provided for the same time periods. The average, dry-season residence time increases to 17.0 days for WY 2001-2013 and to 18.8 days for WY 2009-2013. So, the estimated increase in residence time of approximately five days is based on the WY 2009-2013 time period as requested in the comment.

Comment RWQCB-8

The comment suggests that increasing the residence time in the SJM ponds may increase formation of more bioaccumulative forms of selenium, such as selenite, organic selenium, and particulate fractions of selenium, which could potentially accumulate in the ponds and in Sediment Basin No. 2 where the SJM discharges back to SDC. The comment also suggests that the removal efficiency calculation used by ESA to determine both current and post- project selenium removal efficiency of the marsh does not account for biotic uptake of selenium by the organisms that live in the ponds.

Response RWQCB-8

The RDTS gives an overview of selenium biogeochemistry on pages 16-17 and notes that "[m]ost of the selenium in local surface- and groundwater is in the form of selenate, while up to approximately 8 and 2 percent is in the form of selenite and organic selenium, respectively (Meixner at al. 2004)." The selenium removal efficiency analysis included in the RDTS (Section 4.1.4.2) is based on *total* selenium concentrations measured in the SJM influent and effluent. Selenium removal was calculated based on the difference in selenium concentration at the inflow and outflow to the marsh. Therefore, any loss of selenium attributable to cycling processes that occur within the marsh, including biotic uptake, would be reflected in the data and thus reflected in the removal efficiency calculation. The removal efficiency analysis shows no statistically-significant relationship between average SJM inflow and selenium removal efficiency (RDTS, Section 4.1.4.2). Thus, as already stated in Response RWQCB-4, it follows that there would be no statistically-significant relationship between residence time and selenium removal efficiency. Overall, Table 7 on page 36 of the RDTS shows there would be a reduction of 33 pounds per year of selenium removed within the SJM under project conditions, including increased residence time, and a reduction in the selenium load discharged to SDC and the Sediment Basins by 59 pounds per year.

As summarized in the RDTS (pages 16-17), selenate is the highest oxidation state of selenium and is the most common form found in project area surface water and groundwater. Selenite may form from selenate under reducing conditions (e.g., low dissolved oxygen content), and selenite, though still soluble in water, has a strong affinity to be adsorbed to soil particles, which greatly reduces its mobility. The proposed IAF provides mitigation to ensure existing water quality parameters that drive selenium speciation would not change significantly, and thus existing baseline conditions for selenium cycling within the SJM also would not change significantly. For example, a decrease in residence time and, more specifically, a subsequent decrease in dissolved oxygen levels within the SJM, could affect selenium cycling and sequestration processes within the marsh (consistent with what the commenter suggests); this is acknowledged in the RDTS on page 53. However, the IAF specifically focuses on monitoring and adaptively managing dissolved oxygen concentrations (and chlorophyll, as a proxy for algae) so as to sustain existing levels. Therefore, implementation of the IAF would fully mitigate for the potential increased loss of selenium through transformation to less soluble/mobile forms under project conditions.

Comment RWQCB-9

The comment suggests that the RDTS did not analyze the fact that reductions in downstream flows as a result of the project will likely increase hydraulic residence times, especially in the Sediment Basins, thereby increasing the potential for biotic uptake in the water column and in the benthic community. This could result in an overall increase in selenium concentrations in fish and birds.

Response RWQCB-9

As shown in Table 8 on page 37 and stated on page 42, the predicted changes in flow velocity within PCW and SDC (including the Sediment Basins) are generally insignificant, with changes ranging between 0 and 0.11 feet per second. As a result, the project would not result in any meaningful change in hydraulic residence time or selenium cycling within the channels or Sediment Basins. The project would notably reduce selenium loading to PCW and SDC downstream of the diversion points (i.e., by 40 to 43 percent, on average), and, as also stated on page 42, this would be much greater in magnitude than any of the potential, though insignificant, effects project implementation may have upon selenium cycling. As a result, the project would not increase (and may reduce) the potential for biotic uptake in the water column and in the benthic community, relative to existing baseline conditions.

Comment RWQCB-10

The comment suggests that the RDTS does not address potential increases in temperature, algal growth, selenium cycling and bioaccumulation, and decreases in dissolved oxygen that may occur due to reduced flows and increased residence times in the channels and Sediment Basins downstream of the project during operation.

Response RWQCB-10

Please refer to Response RWQCB-4, RWQCB-5 and RWQCB-9. Given the conclusion regarding the insignificant effect of the project on residence time, water depth, and flow velocity in PCW and SDC, and contributions of groundwater to surface flow, the effect of the project on temperature, dissolved oxygen, and algal growth would also be insignificant, given the similarly close association between these parameters. For example, shallower flow depths may be associated with increased water temperatures and algal growth, and slower flow rates may be associated with increased temperatures and/or lower dissolved oxygen levels. Under existing conditions, the hydraulic characteristics of PCW and SDC downstream of the project diversions are generally shallow and/or slow moving. As described above, the project's potential effect upon flow velocities (i.e., residence time) and depths in the channel areas downstream are considered small to essentially negligible.

Selenium cycling and sequestration processes are ultimately influenced to varying degrees by the parameters listed above (e.g., water temperature, algal growth, and dissolved oxygen levels). Because the project would not significantly affect any of these parameters within PCW, SDC, and the Sediment Basins, it would not be expected to alter existing baseline conditions related to selenium cycling and sequestration or bioaccumulation within the channels.

In response to the comment, the text of the IS/MND on page 3-55 has been modified as follows to clarify the results of the analysis related to project impacts to water quality within PCW, SDC, and the Sediment Basins:

> The reduction in flow in Peters Canyon Channel and San Diego Creek would also result in a reduction in flow velocity <u>and average depth. The predicted changes in flow velocity (and thus residence time) would be generally insignificant</u>, on the order of zero to 0.10 feet per second <u>(Appendix C, Table 8). The predicted reduction in average flow depth would be generally small, with average reductions in depth of approximately 16 percent (Appendix C, Table 8). As a result of such minor changes to flow and depth, predicted changes in temperature would be considered insignificant. Further, based upon available</u>

data, the reach of San Diego Creek comprising the sediment basins is likely a gaining reach (i.e., on average there is a net inflow of groundwater) (Appendix C, pages 8-10, 23, 50), and thus groundwater input would likely exert much more influence upon average stream temperature than small, predicted changes in flow depth.

In addition, the negligible ~~This~~ change in flow velocity would not be great enough to force the deposition of selenium or other pollutants that may be bound to silt and clay, and thus there is no expected change in the behavior of bound selenium under project conditions relative to baseline conditions. The process of selenium sequestration is not expected to change within the Peters Canyon Channel and San Diego Creek as a result of the proposed project.

To further clarify, the process of sequestering dissolved selenium within the channels appears to be controlled by flow depth (hydraulic head) and the subsequent forcing of hyporheic exchange (i.e., locally forcing surface water to flow into the upper portion of the channel bed sediments), a process that would not be enhanced by the proposed project. Also, in Sediment Basin 1 (see Figure 9), the deposition of selenium bound to clay-sized particles are controlled primarily by flocculation, which is driven by freshwater mixing with salt water near the downstream extent of the Sediment Basins, a process which would be unaffected by the proposed project. The project reductions in channel flows is not expected to significantly increase the upstream extent of tidal influence and salinity in the mouth of the San Diego Creek because the tidal extent is controlled by the channel elevation and weirs rather than mixing of freshwater channel flows and saline tidal flows.

Given the above conclusion regarding the insignificant effect of the proposed project on residence time, water depth, and flow velocity in Peters Canyon Channel and San Diego Creek, and contributions of groundwater to surface flow, the effect of the project on temperature, dissolved oxygen, and algal growth would also be insignificant, given the similarly close association between these parameters. For example, shallower flow depths may be associated with increased water temperatures and algal growth, and slower flow rates may be associated with increased temperatures and/or lower dissolved oxygen levels. Under existing conditions, the hydraulic characteristics of Peters Canyon Channel and San Diego Creek downstream of the project diversions are generally shallow and/or slow moving. As described above, the project's potential effect upon flow velocities (i.e., residence time) and depths in the channel areas downstream are considered small to essentially negligible. The proposed project is therefore not expected to increase cycling of selenium, nitrogen, or other pollutants within the channels and/or Sediment Basins. Impacts to water quality would be considered less than significant.

Comment RWQCB-11

The comment states that the expected decrease in total selenium concentrations in downstream areas may be offset by the increase in residence time in the ponds and in-stream Sediment Basins.

This could then result in no change or a possible increase in selenium concentrations in the fish and invertebrates that reside in these areas.

Response RWQCB-11

Please refer to Response RWQCB-4, RWQCB-5, RWQCB-9, and RWQCB-10. In addition, IRWD notes that the RDTS evaluates the effects of the proposed project during the dry-season and/or low-flow conditions. Such conditions are not persistent or sustained conditions.

Comment RWQCB-12

The comment provides an overview of the IAF included in the RDTS and Mitigation Measure HYDRO-1 in the IS/MND. The comment states that no trigger is proposed for changes in selenium speciation or concentrations in biota collected from the marsh. The comment provides existing baseline conditions for selenium concentrations in fish tissue in the SJM, which are greater than proposed numeric TMDLs for the Newport Bay watershed, and for selenium concentrations in sediment of the SJM, which are greater than natural background concentrations. The comment states that the anticipated increase in residence times in the SJM may increase selenium bioaccumulation in the aquatic community above current concentrations.

Response RWQCB-12

The comment describes existing baseline conditions for selenium concentrations in fish tissue and sediment in the SJM, which exceed proposed numeric targets in the selenium TMDLs and “natural background concentrations,” respectively. With implementation of the IAF, there would be no increase in the selenium available for bioaccumulation relative to existing conditions. As explained above in Response RWQCB-4, the RDTS analyzes the impact the project may have upon the amount of selenium lost within the SJM (including that amount stored within the SJM and potentially available for biotic uptake). The project would notably reduce the amount of selenium loading from SDC to the SJM, and there would be a consequent reduction in the amount of selenium removed by the SJM. This is due to the fact that selenium loading to the SJM influent would be reduced from 294 pounds per year to 202 pounds per year. Subsequently, the amount of selenium lost within the SJM would also be reduced as a result of project implementation, dropping from approximately 107 pounds to 74 pounds per year (based upon the observed SJM removal efficiency for total selenium). In addition, the amount of selenium discharged from the SJM back to the Sediment Basins also would be reduced from 190 pounds per year to 131 pounds per year. These results are shown in Table 7 on page 36 of the RDTS.

As explained above in Response RWQCB-4, over time, the potential indirect effect of reduced SJM inflow upon selenium loss (including through bioaccumulation) or sequestration within the SJM is uncertain, but this potential long-term effect is acknowledged (page 53) and mitigated for (pages 54-69). Selenium speciation, cycling, and sequestration is closely related to and driven by dissolved oxygen levels, and the IAF thus focuses on monitoring and adaptively managing dissolved oxygen concentrations (and chlorophyll, as a proxy for algae) so as to sustain existing levels. Thus, given the predicted reduction in selenium removal within the SJM, as well as the implementation of the IAF, there would be no increase in the selenium available for bioaccumulation relative to existing conditions.

Comment RWQCB-13

The comment states that neither the RDTS nor the proposed IAF address the potential for increases in residence times and increases in selenium bioaccumulation that may occur in PCW, SDC, or the Sediment Basins.

Response RWQCB-13

As stated in Response RWQCB-9, the predicted changes in flow velocity within PCW and SDC (including the Sediment Basins) are generally insignificant, with changes ranging between 0 and 0.11 feet per second. As a result, the project would not result in any meaningful change in hydraulic residence time or selenium cycling within the channels or Sediment Basins. The project would notably reduce selenium loading to PCW and SDC downstream of the diversion points (i.e., by 40 to 43 percent, on average), and, as also stated on page 42, this would be much greater in magnitude than any of the potential, though insignificant, effects project implementation may have upon selenium cycling. As a result, the project would not increase (and may reduce) the potential for biotic uptake and selenium bioaccumulation relative to existing baseline conditions. Thus, no mitigation is required for PCW, SDC, or the Sediment Basins as part of the IAF.

Comment RWQCB-14

The comment suggests that the water quality sampling program detailed in Table 1 of the RDTS should include annual sediment collection and analysis that is timed to coincide with the annual biota sampling that is conducted in the marsh by the Nitrogen and Selenium Management Program (NSMP).

Response RWQCB-14

The analysis of project operations provided in the RDTS and IS/MND find no significant impacts that would require changes in the frequency of sediment sampling in the SJM.

Comment RWQCB-15

The comment suggests that the IAF should include a trigger for management actions in the SJM based on changes in selenium species or fish tissue concentration that may occur due to increased residence time in the marsh ponds.

Response RWQCB-15

Please refer to Responses RWQCB-4, RWQCB-8, and RWQCB-12. Given the predicted reduction in selenium removal within the SJM due to project operations, and maintenance of water quality parameters that affect selenium speciation (i.e., dissolved oxygen) with implementation of the IAF, there would be no significant change in the selenium available for bioaccumulation relative to existing conditions. Therefore, no triggers for selenium speciation or fish tissue concentrations are required as part of the IAF.

Comment RWQCB-16

The comment suggests that an IAF be developed for the Sediment Basins that includes similar water quality monitoring, triggers, and a set of management measures similar to those proposed for the San Joaquin Marsh that can be implemented to avoid potentially significant impacts from the proposed project to the benthic and fish communities, and that maintains, to the extent practicable, current habitat conditions.

Response RWQCB-16

The analysis of project operations provided in the RDTS and IS/MND find no significant impacts related to water quality or habitat conditions in the Sediment Basins that would require an IAF as mitigation.

Comment RWQCB-17

The comment suggests that Management Measure No. 1, Recirculation, of the IAF has the potential to increase selenium cycling and bioaccumulation. The comment states that if this management measure is triggered by dissolved oxygen and chlorophyll levels, then additional selenium monitoring should be implemented.

Response RWQCB-17

In Section 5.3.4.1 of the RDTS, the management action of recirculating flow within the SJM is described and evaluated. On page 61 of the RDTS, the potential for recirculation to remove and possibly sequester more selenium within the SJM is acknowledged. Recirculating a portion of the SJM effluent would maintain the existing flow rate and water quality conditions within the SJM (i.e., Ponds A, B, and 1-6), and thus compensate for the reduced intake from SDC under project conditions. However, the overall residence time for the recirculated portion of the effluent would increase as it is cycled back through the SJM (RDTS, Figure 23). Thus, the recirculated portion of flow would be subject to additional selenium removal, though the average removal efficiency of the SJM treatment chain would remain unchanged. As such, the SJM effluent selenium concentration, removal efficiency, and mass of selenium lost for the project condition with recirculation of 1.1 cfs is calculated and compared to both the existing and project condition in Table 11. The analysis shows that the amount of selenium removed in the SJM increases with recirculation to 84 pounds per year from 74 pounds per year; however this is still less than the baseline condition of 107 pounds per year. Further, selenium cycling and speciation (i.e., the oxidation state of selenium) is controlled in large part by dissolved oxygen levels in the water. The IAF specifically focuses on monitoring and adaptively managing dissolved oxygen concentrations (and chlorophyll, as a proxy for algae) so as to sustain existing levels, using recirculation in conjunction with other management actions. As such, no selenium monitoring associated with recirculation is included in the IAF.

Comment RWQCB-18

The comment, addressing Management Measure No. 3, Modified Pond Management, requests that ponds that are taken offline but allowed to continue to function as wetland ponds be closely monitored for increased selenium and bioaccumulation. The comment states that IRWD should include measures that will address how these offline ponds will be monitored and maintained such that beneficial uses are not negatively affected, and should develop a plan for actions that will be taken to restore flows to these ponds so that the poor water quality conditions that may have developed in the ponds does not impact the other ponds once flows are restored.

Response RWQCB-18

The Modified Pond Management action in the IAF would allow for ponds to be taken offline and for water levels and flows to be managed within the range of historic operations, as currently allowed under the SJM operations and maintenance manual. Management of the SJM in accordance with this manual is described in the RDTS on page 14. Since this Modified Pond Management action would not change baseline conditions associated with SJM operations, no additional mitigation is required.

Comment RWQCB-19

The comment, addressing Management Measure No. 4, Alternative Water Supply, suggests that prior to moving forward with possible diversions of the flows from channels that discharge into SDC, such as Sand Canyon Channel and the UCI box culvert, IRWD should assess what impacts to the aquatic food web might occur in the Sediment Basins as a result of the loss of these flows.

Response RWQCB-19

According to CEQA Guidelines Section 15126.4(d), if a mitigation measure would cause significant effects in addition to those caused by the project then those effects are to be discussed although in less detail than the significant effects of the project. Thus, in accordance with CEQA, the IS/MND includes an assessment of potential environmental effects associated with each potential alternative water supply identified in the RDTS for the IAF. The analysis of the surface water supplies, including the Sand Canyon Channel and UCI box culvert, is included on pages 3-59 and 3-60 of the IS/MND. Both Sand Canyon Channel and the UCI box culvert discharge into SDC downstream of the SJM (see Figure 25 in the RDTS). Sand Canyon Channel discharges into Sediment Basin 2, and the UCI box culvert discharges into Sediment Basin 1. The SJM inlet is located in Sediment Basin 3, and the SJM outlet discharges at the top of Sediment Basin 2 upstream of Sand Canyon Channel. The conceptual design of these alternative water supplies would involve pumping flow from the channel and/or box culvert upstream to Sediment Basin 3, where water would be diverted to the SJM and discharged back into Sediment Basin 2, and ultimately flow downstream past the existing discharge points.. The analysis concludes that the effects of the diversion would not be significant downstream as the only change is the point of discharge; total discharges to SDC would remain unchanged, less minor losses due to evaporation and transpiration. There would be a benefit to water quality as the diverted flow passes through the treatment system of the SJM before flowing downstream. The IS/MND notes that although potential impacts of the alternative water supplies are described, IRWD and the project sponsors will evaluate whether or not additional assessment pursuant to CEQA would be required prior to implementing any option.

Comment RWQCB-20

The comment suggests that the MND and the RDTS do not adequately address potential water quality impacts related to the reduction in flows in the downstream areas that are anticipated to occur as a result of operation of the project (e.g., increased residence time, temperature and algal growth, and decreased dissolved oxygen in the PCW, SDC and the Sediment Basins; and potential increases in selenium bioaccumulation in PCW, SDC, Sediment Basins, and SJM). The comment requests that potential impact 9(f) under Chapter 3.9 in the MND be listed as potentially significant, unless additional documentation is provided to demonstrate that these potential changes in water quality are less than significant or will have no impact, or additional mitigation and/or management actions are incorporated.

Response RWQCB-20

As explained in Responses RWQCB-4 through RWQCB-21, there would be no additional impacts to water quality either in-channel within PCW, SDC, and the Sediment Basins or in the SJM due to project operations that would require additional mitigation.

Comment RWQCB-21

The comment states that the California Least Tern is listed as "Unlikely" to occur in the project area due to lack of suitable nesting habitat (BRTR Volume 2, page 15, Table 2); however, the comment states that the California Least Tern, along with Forester's Terns and Black Skimmers has been observed foraging in the in-stream Sediment Basins by Regional Board'; staff.

Response RWQCB-21

In response to the comment, Table 2 of the Biological Resources Technical Report (BRTR) will be modified to change the potential to occur for California least tern from "Unlikely" to "Present" as follows:

> **Present.** Suitable habitat for foraging for this species is present at the SDC sediment basins. ~~**Unlikely**. Suitable habitat for this species is not present onsite.~~

In addition, the text of the IS/MND on page 3-21 also has been modified as follows:

> More specifically, in Peters Canyon Channel downstream of the project diversion points, there is no habitat or natural communities that would support special-status wildlife species; thus project operation would have no effect on resources in this area. Similarly, there is no habitat or natural communities to support special-status wildlife in the portion of San Diego Creek between the confluence with Peters Canyon Channel and approximately the I-405 Freeway bridge crossing. Downstream of the I-405 bridge, there is riparian vegetation, freshwater marsh, and some open water that could potentially support special-status wildlife species as identified in Table 2 of the Biological Resources Technical Report (Appendix B). Such special-status wildlife species include, but may not be limited to, western pond turtle, great blue heron, southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), yellow breasted chat (*Icteria virens*), California least tern (*Sternula antillarum browni*) and California

black rail (*Laterallus jamaicensis coturniculus*). As described above, operation of the proposed project would reduce flow in this portion of San Diego Creek, which includes the three Sediment Basins. Even though flow may be temporarily reduced relative to historic baseline conditions, surface flow and groundwater would remain available to support in-channel vegetation, although the wetted perimeter of the channel and the extent of riparian vegetation may temporarily change. Therefore, operation of the project is not anticipated to impact habitat for special-status wildlife species that may be present within downstream portions of San Diego Creek.

Comment RWQCB-22

The comment suggests that Great Blue Herons, protected by the Migratory Bird Treaty Act, frequently forage throughout the freshwater areas of the watershed, including areas that may be directly or indirectly impacted by the project. This species is not included in Table 2 of the BRTR Volume 2, Special-Status Wildlife Species with Potential to Occur.

Response RWQCB-22

The Great Blue Heron is included in Table 2 of the BRTR Volume 2 on page 13. It is acknowledged in the table and in the BRTR text that this species is present in the project area.

Comment RWQCB-23

The comment suggests that the BRTR does not adequately address potential impacts to the aquatic community downstream of project diversions. The comment states that no benthic community assessment was conducted in the creeks and that the monitoring by the California Department of Fish and Wildlife and the Nitrogen and Selenium Management Program have demonstrated that invertebrates and non-native fish species are present in Peters Canyon Channel, San Diego Creek, and the San Joaquin Marsh. The comment states that the IAF does not address potential effects to the aquatic community in the channels and Sediment Basins due to project operation, including lower dissolved oxygen and increased residence time, temperature, algal growth, and selenium bioaccumulation.

Response RWQCB-23

As the comment suggests, there are only *non-native* fishes present in PCW, SDC, and SJM. The significance thresholds for biological resources applied to the proposed project from Appendix G of the CEQA Guidelines pertain to impacts to *native* resident and migratory species, including fishes. As such, there is no discussion of impacts to non-native fishes due to project operation in the BRTR.

In addition, with respect to the effects of project operation on the in-channel aquatic community, please refer to Response RWQCB-10. As previously explained, the proposed project would have an insignificant effect on residence time, water depth, and flow velocity in PCW, SDC, and the Sediment Basins. As a result, the effect of the project on water temperature, dissolved oxygen, and algal growth would also be insignificant. Selenium cycling and sequestration processes are ultimately influenced to varying degrees by these parameters. Because the project would not significantly affect any of these parameters within PCW, SDC, and the Sediment Basins, it would not be expected to alter existing baseline conditions related to selenium cycling and sequestration within the channels. As such the project would not adversely affect in-channel baseline conditions related to selenium bioaccumulation within the aquatic community.

Rather, as the BRTR Volume 2 concludes on page 24, operation of the proposed project has the potential to benefit biological resources due to improvements to water quality through removal of selenium and nitrogen in upstream diversions and reductions in the loading and concentrations of these constituents downstream. As stated in Response RWQCB-4, the project would reduce the mass loading of selenium to PCW and SDC by approximately 154 pounds per year on average, which represents about a 40 to 43 percent reduction. On page 3-21 of the IS/MND, the potential for selenium bioaccumulation is acknowledged, and the beneficial impact of reduced selenium loading due to project operation is explained:

> Generally, operation of the proposed project has the potential to benefit wildlife due to improvements to water quality through removal of selenium and nitrogen in upstream diversions and reductions in the concentrations of these constituents downstream. Selenium can be bioaccumulated, from water and aquatic sediments, through uptake by benthic invertebrates. Elevated selenium levels in dietary items can cause reproductive toxicity to wildlife and especially to some species of birds. The project would reduce the loading of selenium downstream in Peters Canyon Channel and San Diego Creek by 32 to 35 percent, and the San Joaquin Marsh by 22 percent, and thus reduce the potential for such negative effects to wildlife to occur.

Comment RWQCB-24

The comment states that increased hydraulic residence time in the Sediment Basins and SJM would affect selenium cycling and bioaccumulation, which increases potential risk to birds feeding and fish and invertebrates in these areas. These potential impacts were not addressed in the BRTR and require mitigation.

Response RWQCB-24

Response RWQCB-4 addresses the effect of the proposed project on residence time in the SJM and Sediment Basins. For the Sediment Basins, the effect of project operation on residence time is insignificant; thus, there would be no subsequent impact to baseline selenium cycling or bioaccumulation, and no impact analysis is required in the BRTR. For the SJM, potential adverse effects to water quality parameters due to increased residence time, which could in turn affect selenium cycling and speciation, are fully mitigated through the IAF (Mitigation Measure HYDRO-1). Thus, there would be no adverse impacts to baseline conditions related to selenium cycling, and as such, there would be no adverse impacts to baseline conditions related to bioaccumulation in birds, fish, or invertebrates. The BRTR Volume 2 acknowledges on page 24 that with implementation of the IAF, impacts to water quality within the SJM would be avoided or mitigated during critical dry weather periods.

Comment RWQCB-25

The comment states that an IAF should be developed and implemented to address the potential adverse impacts to the aquatic community from changes in water quality that may result in the downstream channels and Sediment Basins due to operation of the project. The comment states that this IAF should be coordinated with the Regional Board staff.

Response RWQCB-25

As explained in Responses RWQCB-4, RWQCB-5, RWQCB-6, RWQCB-9, RWQCB-10, RWQCB-11, RWQCB-13, and RWQCB-16, the proposed project would not have adverse effects to water quality within PCW, SDC, or the Sediment Basins. As such, there would be no associated adverse impacts to the aquatic community, and no mitigation or IAF is required. IRWD will coordinate as necessary with the RWQCB in accordance with its jurisdiction over the project and as a Responsible Agency.

CHAPTER 8
Corrections and Additions to the IS/MND

This chapter provides a summary of all revisions made to the IS/MND. Where the responses indicate additions or deletions to the text of IS/MND, additions are included as underlined text, and deletions as ~~stricken text~~. The revisions do not significantly alter the conclusions in the IS/MND.

Table of Contents

Page III:

DTSC	California Department of Toxic Substances Control
µg/L	micrograms per Liter

Page IV:

SOx	Sulfur ~~Di~~Oxide
VOCs	Volatile Organic ~~Chemicals~~Compounds

Chapter 1: Introduction

Page 1-1:

The Peters Canyon Channel Water Capture and Reuse Pipeline ("proposed project") would divert such flows to Orange County Sanitation District (OCSD) for treatment and reuse to protect and maintain local water quality and to augment local water supply.

Page 1-1:

The proposed pipeline system begins at the existing Caltrans GWTF in ~~Tustin~~ Irvine, collects flow from three proposed diversion structures located at Como Channel, Edinger Circular Drain, and Valencia Drain, and discharges into a proposed IRWD manhole that discharges to OCSD's Main Street sewer for treatment (refer to **Figure 2**, Aerial Project Limits Map).

Chapter 2: Project Description

Page 2-1:

The proposed pipeline system would begin at the existing Caltrans' GWTF, located near the Walnut Avenue bridge crossing over Peters Canyon Channel in ~~Tustin~~ Irvine, then would connect to the three proposed storm drain diversion structures at Como Channel, Edinger Circular Drain, and Valencia Drain, then would connect to IRWD's existing gravity sewer line at a proposed new manhole west of San Diego Creek near Main Street in Irvine.

Page 2-3:

The proposed project area includes the section of Peters Canyon Channel running from the channel's intersection with Walnut Ave in ~~Tustin~~ Irvine to the channel's intersection with Main Street in Irvine **(Figure 2)**.

Page 2-3:

The TMDL for selenium was based primarily on exceedances of the California Toxics Rule (CTR) chronic criterion for selenium in freshwater (5 µg/L).

Page 2-5:

The NSMP Work Plan tasks included monitoring, testing and evaluation of best management practices (BMP), and development of a BMP Strategic Plan (~~December~~RBF, 2013), an offset and trading program, TMDLs and site-specific water quality objectives (SSOs), among others.

Page 2-5:

The proposed project diverts nuisance discharges to Lower Peters Canyon Channel, within the historical Swamp of the Frogs, where nitrate- and selenium-laden shallow groundwater enters the storm drain and surface water system via seeps, weepholes, and through the bottom of the unlined channel.

Page 2-5:

It is anticipated that these discharges to Peters Canyon Channel would no longer be permitted by the RWQCB after December 10, ~~2016~~2019, and the City needs to find an alternate discharge solution.

Page 2-16:

The estimated construction start date is ~~Spring~~ Summer 2015.

Page 2-17:

- **City of Irvine**: Encroachment Permit (including Barranca Parkway Bridge crossing, and Walnut Avenue Bridge crossing)
- **City of Tustin**: Encroachment Permit ~~(including Walnut Avenue Bridge crossing)~~

Page 2-18:

- **California Department of Transportation**: Encroachment permit

Chapter 3: Initial Study Environmental Checklist

Page 3-1:

6. General Plan Designation(s): Recreation (City of Irvine); MCAS Tustin ~~Planned Community~~ Specific Plan (City of Tustin)

Page 3-2:

Unchecked Aesthetics, and added a box for Energy, for consistency.

Page 3-4:

The Edinger Circular Drain diversion structure would be located near the Peters Canyon Channel and Edinger Avenue intersection, generally within Edinger Avenue and part of an adjacent roadside landscaped area, adjacent to the entrance to the bike path. Multi- and single-family residential units are located adjacent to the proposed work area on both sides of Edinger Avenue. The site for the electrical cabinet, antenna, transformer, and service panel would be shielded from view and separated from neighboring residences by an existing 6-foot masonry wall. Given the surroundings include the adjacent roadway, flood control channel, chainlink fence enclosure for the bike path, and bridge overpass, the proposed facilities would not substantially alter the visual character of the site and surroundings. Impacts would be less than significant.

Page 3-12:

Furthermore, SCAQMD states that if an individual development project generates less than significant construction or operational emissions then the development project would not generate a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment (SCAQMD, 2003).

Page 3-21:

More specifically, in Peters Canyon Channel downstream of the project diversion points, there is no habitat or natural communities that would support special-status wildlife species; thus project operation would have no effect on resources in this area. Similarly, there is no habitat or natural communities to support special-status wildlife in the portion of San Diego Creek between the confluence with Peters Canyon Channel and approximately the I-405 Freeway bridge crossing. Downstream of the I-405 bridge, there is riparian vegetation, freshwater marsh, and some open water that could potentially support special-status wildlife species as identified in Table 2 of the Biological Resources Technical Report (Appendix B). Such special-status wildlife species include, but may not be limited to, western pond turtle, great blue heron, southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), yellow breasted chat (*Icteria virens*), California least tern (*Sternula antillarum browni*) and California black rail (*Laterallus jamaicensis coturniculus*). As described above, operation of the proposed project would reduce flow in this portion of San Diego Creek, which includes the three Sediment Basins. Even though flow may be temporarily reduced relative to historic baseline conditions, surface flow and groundwater would remain available to support in-channel vegetation, although the wetted perimeter of the channel and the extent of riparian vegetation may temporarily change. Therefore, operation of the project is not anticipated to impact habitat for special-status wildlife species that may be present within downstream portions of San Diego Creek.

Page 3-48 to 3-49:

Less than Significant Impact. Long-Term Operations-Related: Selenium is a pollutant of concern in San Diego Creek and Peters Canyon Channel. The primary source of selenium in San Diego Creek is believed to be groundwater seepage into surface waters, particularly in areas of shallow groundwater tables in lower Peters Canyon Channel. The region is located in an ~~historic~~ historical ephemeral lake and marsh area known as the "Swamp of the Frogs." The Swamp of Frogs is considered to be a likely source of ~~organic~~ nitrogen and ~~previously captured~~ naturally accumulated selenium. Selenium can be bioaccumulated, from water and aquatic sediments, through uptake by algae and benthic invertebrates. Elevated selenium levels in dietary items can cause reproductive toxicity to wildlife and especially to some species of birds and fish. The USEPA has set a TMDL target of ~~reducing~~ selenium concentrations in water ~~to less than~~ based on the California Toxics Rule (CTR) chronic criterion of 5 parts per billion (μg/L) ~~as a long-term average in the watershed~~.

Page 3-49:

In 2003, when the RWQCB renewed the NPDES permit (Order No. R8-2003-0061) for de minimis dewatering projects, the Newport Bay Watershed was specifically excluded from its terms and conditions due to concerns that elevated levels of selenium and nitrogen in short-term groundwater-related discharges had the potential to adversely affect surface waters and would not comply with the adopted TMDLs in the Watershed.

Page 3-54:

For a short period of time (approximately 15 to 20 days) each winter (typically anywhere from mid-December through February), water is diverted from the San Joaquin Marsh to the University of California (UC) San Joaquin Marsh Reserve to the south in order to help fill it to capacity. The amount of water transferred each year is variable and subject to availability as determined by IRWD. When this occurs, the rate at which water is recirculated through the marsh increases.

Page 3-55:

The reduction in flow in Peters Canyon Channel and San Diego Creek would also result in a reduction in flow velocity and average depth. The predicted changes in flow velocity (and thus residence time) would be generally insignificant, on the order of zero to 0.10 feet per second (Appendix C, Table 8). The predicted reduction in average flow depth would be generally small, with average reductions in depth of approximately 16 percent (Appendix C, Table 8). As a result of such minor changes to flow and depth, predicted changes in temperature would be considered insignificant. Further, based upon available data, the reach of San Diego Creek comprising the sediment basins is likely a gaining reach (i.e., on average there is a net inflow of groundwater) (Appendix C, pages 8-10, 23, 50), and thus groundwater input would likely exert much more influence upon average stream temperature than small, predicted changes in flow depth.

In addition, the negligible ~~This~~ change in flow velocity would not be great enough to force the deposition of selenium or other pollutants that may be bound to silt and clay, and thus there is no expected change in the behavior of bound selenium under project conditions relative to baseline conditions. The process of selenium sequestration is not expected to change within the Peters Canyon Channel and San Diego Creek as a result of the proposed project.

Page 3-56:

To further clarify, the process of sequestering dissolved selenium within the channels appears to be controlled by flow depth (hydraulic head) and the subsequent forcing of hyporheic exchange (i.e., locally forcing surface water to flow into the upper portion of the channel bed sediments), a process that would not be enhanced by the proposed project. Also, in Sediment Basin 1 (see Figure 9), the deposition of selenium bound to clay-sized particles are controlled primarily by flocculation, which is driven by freshwater mixing with salt water near the downstream extent of the Sediment Basins, a process which would be unaffected by the proposed project. The project reductions in channel flows is not expected to significantly increase the upstream extent of tidal influence and salinity in the mouth of the San Diego Creek because the tidal extent is controlled by the channel elevation and weirs rather than mixing of freshwater channel flows and saline tidal flows.

Given the above conclusion regarding the insignificant effect of the proposed project on residence time, water depth, and flow velocity in Peters Canyon Channel and San Diego Creek, and contributions of groundwater to surface flow, the effect of the project on temperature, dissolved oxygen, and algal growth would also be insignificant, given the similarly close association between these parameters. For example, shallower flow depths may be associated with increased water temperatures and algal growth, and slower flow rates may be associated with increased temperatures and/or lower dissolved oxygen levels. Under existing conditions, the hydraulic characteristics of Peters Canyon Channel and San Diego Creek downstream of the project diversions are generally shallow and/or slow moving. As described above, the project's potential effect upon flow velocities (i.e., residence time) and depths in the channel areas downstream are considered small to essentially negligible. The proposed project is therefore not expected to increase cycling of selenium, nitrogen, or other pollutants within the channels and/or Sediment Basins. Impacts to water quality would be considered less than significant.

Page 3-57:

During project operation, the San Joaquin Marsh inflow rate would still be greater than the rate of flow transferred to the UC Marsh and thus such transfers ~~could still be maintained~~ would remain unchanged if the project is approved and implemented, similar to existing baseline conditions.

Page 3-57 to 3-58:

The reduction in inflow would potentially affect residence time for water flowing through San Joaquin Marsh. As stated above, it takes about 10 to 14 days for water to move through the marsh under baseline conditions. It is estimated that project operation would result in an increase in average residence time by approximately five days, from approximately 14 days to 19 days. This increase in residence time would not affect the selenium or nitrogen removal efficiency of the San Joaquin Marsh, based on an analysis showing no statistically signification correlation between Marsh inflow and either selenium or nitrogen removal efficiency given historical data (see Appendix C, Figures 14a and 14b). The increase in residence time, however, may induce undesirable conditions, such as increased water temperature, increased algae production, and a sustained reduction in dissolved oxygen (DO) levels during drought and summer dry conditions. These reduced water quality conditions if sustained may impact the benthic and fish community in the marsh in the absence of mitigation, either directly or indirectly by affecting selenium cycling, speciation, and bioaccumulation. These potential impacts are based upon recent observations during the current drought period that suggest there could be a causal link between reduced marsh inflow and increased algae growth. However, it is important to also note that an anticipated decrease in nutrient loading from the proposed project may likely reduce algae growth during these critical periods. Nonetheless, in the event that algal mats develop and die off as a result of reduced circulation and increased retention time, diurnal fluctuations in dissolved oxygen may result in anoxic conditions (dissolved oxygen of 0-2). Sustained low oxygen conditions can impact benthic communities, potentially result in fish kills, and create odor problems. Sustained low oxygen can also affect selenium cycling and speciation, and thus could potentially increase and/or alter the form of selenium removed within the marsh. These potential effects could ~~would~~ significantly impact water quality and habitat conditions. **Mitigation Measure HYDRO-1** would require implementation of an Impact Avoidance Framework (IAF) to ensure that the effects of the proposed project on flow availability to the San Joaquin Marsh do not indirectly result in significant adverse effects to water quality due to increased residence time.

The IAF would establish a range of acceptable water quality parameters (e.g., DO and algae/chlorophyll concentrations) developed from an existing water quality sampling program; a trigger for management actions when water quality parameters are sustained beyond the acceptable range; a suite of corrective actions to implement to ensure water quality parameters return to, and are maintained within, the acceptable range. Impacts would be considered less than significant with mitigation.

Chapter 5: List of Preparers and Persons Consulted

Page 5-1:

Richard Mori – ~~Principle~~ Principal Engineer

Page 5-2:

Jian Peng, Ph.D. – ~~Environmental Resources Specialist~~ Environmental Engineering Specialist, OC Watersheds

Appendix B: Biological Resources Technical Report, Volume 2

Table 2:

Table 2 of the Biological Resources Technical Report (BRTR) has been modified to change the potential to occur for California least tern from "Unlikely" to "Present" as follows:

> **Present.** Suitable habitat for foraging for this species is present at the SDC sediment basins. ~~**Unlikely**. Suitable habitat for this species is not present onsite.~~

Appendix C: Reduced Discharge Technical Study

Page 2:

Finally, potential impacts to the UC Irvine (UCI) Marsh adjacent to SJM and Upper Newport Bay are expected to be less than significant. Water transfers from SJM to UCI Marsh, which occur at IRWD's discretion over approximately 15 to 20 days during the winter, ~~are expected to be maintained~~ would remain unchanged if the project is approved and implemented.

CHAPTER 9
Mitigation Monitoring and Reporting Program

CEQA Requirements for Mitigation Monitoring and Reporting Program

Section 15091(d) and Section 15097 of the CEQA Guidelines require a public agency to adopt a program for monitoring or reporting on the changes it has required in the project or conditions of approval to substantially lessen significant environmental effects. Accordingly, the Mitigation Monitoring and Reporting Program (MMRP) is hereby adopted for this project.

This MMRP summarizes the mitigation commitments identified in the Peters Canyon Channel Water Capture and Reuse Pipeline Project Initial Study/Mitigated Negative Declaration (State Clearinghouse No. 2015011018). Mitigation measures are presented in the same order as they occur in the Initial Study Checklist.

The columns in the MMRP table provide the following information:

- **Mitigation Measure(s):** The action(s) that will be taken to reduce the impact to a less-than-significant level.
- **Implementation, Monitoring, and Reporting Action:** The appropriate steps to implement and document compliance with the mitigation measures.
- **Responsibility:** The agency or private entity responsible for ensuring implementation of the mitigation measure. However, until the mitigation measures are completed, IRWD, as the CEQA Lead Agency, remains responsible for ensuring that implementation of the mitigation measures occur in accordance with the program (CEQA Guidelines, Section 15097(a)).
- **Monitoring Schedule:** The general schedule for conducting each task, either prior to construction, during construction and/or after construction.

MITIGATION MONITORING AND REPORTING PROGRAM
FOR THE PETERS CANYON CHANNEL WATER CAPTURE AND REUSE PIPELINE PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
Biological Resources			
BIO-1: The following Best Management Practices (BMPs) shall be implemented during construction: • Sediment and erosion control measures should be developed and implemented in accordance with Regional Water Quality Control Board (RWQCB) Construction General Permit requirements in order to reduce the potential for the project to result in increased siltation of, or release of pollutants into, Peters Canyon Channel, San Diego Creek, and their tributaries. • The footprint of disturbance should be limited to the maximum extent feasible, such as limiting access to the project area via pre-existing access routes to the greatest extent possible. Parking areas, staging, storage, excavation, and disposal site locations should be confined to the smallest areas possible and be positioned at previously disturbed areas to the greatest extent practical. • To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than two-feet deep should be covered with tarp, plywood or similar materials at the close of each working day to prevent animals from being trapped. Ramps may be constructed of earth fill or wooden planks within deep walled trenches to allow for animals to escape, if necessary. Before such holes or trenches are backfilled, they should be thoroughly inspected for trapped animals. If trapped animals are observed, escape ramps or structures should be installed immediately to allow escape. If the trapped animal is injured and cannot use escape ramps or structures, a qualified biologist should be contacted to identify the appropriate next steps. • All construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods should be thoroughly inspected for burrowing owls and nesting birds before the pipe is subsequently buried, capped, or otherwise used or moved. An option is to cap the ends of any stored pipes to prevent any animals from entering. If an animal is discovered inside a pipe, that section of pipe should not be moved until the project biologist or designated representative has been consulted and the animal has either moved from the structure on its own accord or until the animal has been captured and relocated out of harm's way by an approved biologist.	• Include mitigation measure in construction contractor specifications. • Perform construction site inspections to ensure BMPs are implemented properly. • Copies of inspection reports will be maintained in the project file.	IRWD; Construction Contractor	Before and During Construction
BIO-2: A pre-construction survey shall be conducted for burrowing owls 14 to 30 days prior to initiation of ground disturbance by a qualified biologist in accordance with the most recent CDFW protocol, currently the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). Surveys shall cover suitable burrowing owl habitat disturbed by construction including a 500-foot buffer. The survey would identify adult and juvenile burrowing owls and signs of burrowing owl occupation. If occupied burrowing owl habitat	• Include mitigation measure in construction contractor specifications. • A qualified biologist will conduct pre-construction surveys for burrowing owl as defined. • Prepare documentation to record results of the pre-construction survey.	IRWD; Construction Contractor	Before and During Construction

MITIGATION MONITORING AND REPORTING PROGRAM
FOR THE PETERS CANYON CHANNEL WATER CAPTURE AND REUSE PIPELINE PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
is detected on the proposed project site, measures to avoid, minimize, or mitigate impacts shall be incorporated into the proposed project and shall include, but not be limited to, the following: • Construction monitoring will occur throughout the duration of ground-disturbing construction activities to ensure no impacts occur to burrowing owl. The frequency of monitoring will be determined by IRWD through consultation with the qualified biologist. • Construction exclusion areas shall be established around the occupied burrows in which no disturbance shall be allowed to occur while the burrows are occupied. Buffer areas shall be determined by IRWD through consultation with a qualified biologist based on the recommendations outlined in the most recent *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). • If burrow avoidance is infeasible, a qualified biologist should implement a passive relocation program in accordance with the *Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans* of the CDFW 2012 Staff Report on Burrowing Owl Mitigation (CDFW, 2012).	• If occupied burrowing owl habitat is detected, then implement measures as appropriate. Perform construction site inspections to ensure measures are implemented properly. An inspection log will be maintained to document results of site inspections. • Retain copies of pre-construction survey documentation and construction site inspection logs in the project file.		
BIO-3: Prior to the commencement of construction activities, the following are recommended to minimize potential impacts to nesting birds. • If construction is scheduled to commence outside of the nesting season (i.e., generally September 1 to January 31), no preconstruction surveys or additional measures are required. Potential nesting habitat should be removed prior to the bird nesting season. • Otherwise, within 15 days of ground disturbing activities, a qualified biologist shall conduct a preconstruction migratory bird nesting survey. The biologist must be qualified to determine the status and stage of nesting by migratory birds and all locally breeding raptor species without causing intrusive disturbance. The survey shall include species protected under the Migratory Bird Treaty Act. The survey shall cover all reasonably potential nesting locations for the relevant species on or closely adjacent to the project area of disturbance. • If active nests are found during surveys then IRWD through consultation with a qualified biologist shall determine whether construction activities have the potential to disturb the nest(s) and determine appropriate construction limitations, which may include but are not limited to erection of sound barriers, full-time monitoring by a qualified biologist or establishment of no-construction buffers (usually 300 ft for nesting song birds and 500 ft for nesting raptors and special-status bird species). In addition, a qualified biologist shall serve as the construction monitor during those periods when construction activities will occur near the active nest areas to ensure that no inadvertent impacts to the nest occur. If necessary, limits of construction to avoid active nest shall be	• Include mitigation measure in construction contractor specifications. • If construction commences within the nesting season, then a qualified biologist will conduct preconstruction surveys as defined. • Prepare documentation to record results of the pre-construction survey. • If active nests are found, then implement construction limitations as defined. Perform construction site inspections to ensure measures are implemented properly and the construction contractor is complying with construction limitations. An inspection log will be maintained to document results of site inspections. • Retain copies of pre-construction survey documentation and construction site inspection logs in the project file.	IRWD; Construction Contractor	Before and During Construction

MITIGATION MONITORING AND REPORTING PROGRAM
FOR THE PETERS CANYON CHANNEL WATER CAPTURE AND REUSE PIPELINE PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
established in the field with flagging, fencing, or other appropriate barriers and construction personnel shall be instructed on the sensitivity of the nest areas.			
BIO-4: Any western pond turtles observed within the boundaries of construction impact areas should be collected and relocated outside of the project area by a qualified biologist with possession of a Memorandum of Understanding (MOU) and Scientific Collection Permit (SCP) from the CDFW Relocation procedures and communication responsibilities should be carried out in accordance with the requirements of both the MOU and SCP. Generally, western pond turtles should be relocated only if they do not move out of the construction area on their own accord within one-day following the observation.	• Include mitigation measure in construction contractor specifications. • If any western pond turtles require relocation, then document such activities in the project file.	IRWD; Construction Contractor	During Construction
BIO-5: Prior to the commencement of construction activities, the following are recommended to minimize impacts to special status plant species: • Where vegetation is present within the project area of disturbance, a qualified biologist shall conduct a preconstruction survey no more than 30 days prior to the commencement of ground-disturbing activities to identify any special-status or locally protected plant species. The biologist should have knowledge of the identification and life history of target species. • If a special-status plant species is observed within the project impact area, the qualified biologist should clearly delineate the individuals with flagging so that the area can be avoided. The flagging will retain a buffer of at least five feet around any herbaceous protected plant. If any protected trees are located, temporary fencing should be installed to delineate an appropriate buffer around the tree as determined by the biologist, typically five feet from the dripline or 15 feet from the trunk of the tree, whichever distance is greater. The biologist will notify construction crews of the buffer areas and educate them on the importance of avoiding these resources. • If a special-status plant species is identified within an area of impact and cannot be avoided, then the qualified biologist should notify IRWD. IRWD, in consultation with the qualified biologist, shall determine whether consultation with regulatory agencies (e.g., CDFW, U.S. Fish and Wildlife Service [USFWS], U.S. Army Corps of Engineers [USACE], City of Irvine, City of Tustin) is appropriate to determine mitigation requirements.	• Include mitigation measure in construction contractor specifications. • A qualified biologist will conduct pre-construction surveys for special status plants as defined. • Prepare documentation to record results of the pre-construction survey. • If special-status plant species are detected, then implement measures as appropriate. Perform construction site inspections to ensure measures are implemented properly. An inspection log will be maintained to document results of site inspections. • Retain copies of pre-construction survey documentation and construction site inspection logs in the project file.	IRWD; Construction Contractor	Before and During Construction
BIO-6: Prior to the commencement of construction activities, the following are recommended to minimize impacts to special-status bat species: • If construction is proposed outside of the bat roosting season (i.e., generally April 1 to July 31), no focused surveys for bats are recommended. If construction is proposed within the bat roosting season, a qualified biologist should conduct focused day and night emergence surveys of all suitable roosting habitat within the project area. Surveys should be conducted no more than 14 days prior to construction activities. If an active roost is found, a	• Include mitigation measure in construction contractor specifications. • If construction commences within the bat roosting season, then a qualified biologist will conduct preconstruction emergence surveys as defined. • Prepare documentation to record results of the pre-construction survey.	IRWD; Construction Contractor	Before and During Construction

MITIGATION MONITORING AND REPORTING PROGRAM
FOR THE PETERS CANYON CHANNEL WATER CAPTURE AND REUSE PIPELINE PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
suitable buffer should be established around active roosts as determined by IRWD through consultation with the qualified biologist. No construction or intrusion into the buffer should be allowed until a qualified biologist has determined that the roost is no longer active. Encroachment into the buffer may occur at the discretion of a qualified biologist. Moreover, nighttime lighting should be avoided to the greatest extent feasible if an active roost is found to avoid impacts to the roost, as well as, to avoid impacts to juvenile bats that may be foraging within the watercourses.	• If active roosts are found, then implement construction limitations as defined. Perform construction site inspections to ensure measures are implemented properly and the construction contractor is complying with construction limitations. An inspection log will be maintained to document results of site inspections. • Retain copies of preconstruction survey documentation and construction site inspection logs in the project file		
Cultural Resources			
CUL-1: Prior to earth moving activities, a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology shall conduct cultural resources sensitivity training for construction personnel. Construction personnel shall be informed of the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains.	• Include mitigation measure in construction contractor specifications. • Retain documentation of training in the project file. • Perform site inspections to ensure compliance with cultural sensitivity requirements.	IRWD	Before Construction
CUL-2: IRWD shall contract with a qualified professional archaeologist to be available "on-call" throughout the duration of the ground-disturbing activities. In the event that prehistoric or historic subsurface cultural resources are discovered during ground-disturbing activities, all work within 50 feet of the resources will be halted and IRWD will consult with the qualified archaeologist to assess the significance of the find according to *CEQA Guidelines* Section 15064.5. If any find is determined to be significant, IRWD and the archaeologist will meet to determine the appropriate avoidance measures or other appropriate mitigation. IRWD will make the final determination. All significant cultural materials recovered will be, as necessary and at the discretion of the consulting archaeologist, subject to scientific analysis, professional museum curation, and documentation according to current professional standards.	• Include mitigation measure in construction contractor specifications. • In the event that subsurface cultural resources are discovered, documentation of the assessment of the significance of the find will be prepared and retained in the project file. • Perform site inspections to ensure construction contractor is in compliance with any avoidance measures or other mitigation requirements. • Retain copies of construction site inspection logs in the project file.	IRWD; construction contractor	Before and During Construction
CUL-3: Prior to the commencement of construction activities, an Orange County Certified (OCC) Paleontologist shall be retained to review project design plans and geotechnical investigations in order to ascertain where excavation will exceed five (5) feet in depth, or the depth of documented artificial fill, and could impact highly sensitive sediments. Based on this information the OCC Paleontologist will determine, in consultation with IRWD, when and where paleontological monitoring is required during construction. Paleontological resource monitoring shall be performed by qualified paleontological monitors under the direction of the OCC Paleontologist. Based on observations of subsurface soil stratigraphy or other factors, monitoring may be reduced or discontinue if the OCC Paleontologist determines that the possibility of encountering fossiliferous deposits is low. When onsite, monitors shall prepare logs, and the OCC Paleontologist shall prepare a final monitoring report to be submitted to IRWD. The OCC Paleontologist shall also contribute to any construction worker cultural	• Include mitigation measure in construction contractor specifications. • Retain copies of project design reviews and geotechnical investigations in project file. • Paleontological monitoring reports and logs will be retained in project file. • Proof of participation in cultural resources sensitivity training sessions will be retained in project file.	IRWD	Before and During Construction

MITIGATION MONITORING AND REPORTING PROGRAM
FOR THE PETERS CANYON CHANNEL WATER CAPTURE AND REUSE PIPELINE PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
resources sensitivity training either in person or via a training module provided to the qualified archaeologist. The training session shall focus on the recognition of the types of paleontological resources that could be encountered within the project area and the procedures to be followed if they are found.			
CUL-4: In the event of the discovery of paleontological resources, the contractor shall immediately cease all work activities within 50 feet of the discovery, and IRWD shall be contacted immediately. The OCC Paleontologist shall evaluate the significance of the find and if it is determined that the discovery constitutes a significant resource under CEQA, the OCC Paleontologist in cooperation with IRWD shall determine appropriate procedures to follow before construction can resume at the location of the find. If the OCC Paleontologist determines that avoidance of the find is not feasible, then a Paleontological Resources Treatment Plan shall be prepared and submitted to IRWD for review and approval. The Treatment Plan shall be implemented by a qualified paleontologist	• Include mitigation measure in construction contractor specifications. • In the event that paleontological resources are discovered, documentation of the assessment of the significance of the find will be prepared and retained in the project file. • Perform site inspections to ensure contractor is following procedures determined by IRWD and the OCC Paleontologist. Retain copies of inspection logs in project files. • If a Treatment Plan is required, retain copies of the Plan and documentation related to its implementation in the project file.	IRWD; Construction Contractor	During Construction
CUL-5: In the unlikely event that human remains are encountered, CA Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to CA Public Resources Code Section 5097.98. The county coroner shall be notified immediately if any human remains are found. If the remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission, which will determine and notify the most likely descendant. With the permission of IRWD or an authorized representative, the most likely descendant may inspect the site of the discovery. IRWD will meet and confer with the most likely descendant regarding their recommendations prior to disturbing the site by further construction activity.	• Include mitigation measure in construction contractor specifications.	IRWD; Construction Contractor	During Construction
Geology, Soils, and Seismicity			
GEO-1: During the design phase of the proposed project, a geotechnical report shall be prepared that evaluates soils and seismic and geologic hazards in the project area, including the potential for expansive soils and liquefaction to occur. The geotechnical report shall make recommendations related to protecting the proposed facilities from structural damage due to seismic and geologic hazards, and such recommendations shall be incorporated into the project design.	• Retain copies of the geotechnical investigation in the project file. • Verify that recommendations have been incorporated into the project design prior to initiation of the project. • Perform site inspections to ensure contractor compliance with geotechnical report recommendations.	IRWD	Before and During Construction

MITIGATION MONITORING AND REPORTING PROGRAM
FOR THE PETERS CANYON CHANNEL WATER CAPTURE AND REUSE PIPELINE PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
Hydrology and Water Quality			
HYDRO-1: Impact Avoidance Framework (IAF). IRWD and the project sponsors shall develop and implement an IAF for the San Joaquin Marsh to avoid changes in water quality that result from reduced inflow and increased residence time. The conceptual framework and approach for developing the IAF is described in greater detail in the Reduced Discharge Technical Study prepared for the project (ESA, 2014; see Appendix C**)**. The development of the IAF shall include the following steps: A. Utilize the existing water quality sampling program data to develop baseline water quality conditions and a target range for DO and algae or chlorophyll concentrations. B. Establish triggers for corrective action when water quality parameters are sustained beyond the target range. C. Establish a suite of management actions that may be implemented when triggers are reached. Ongoing evaluation of the effectiveness of such management actions through water quality sampling would inform any decisions to alter or discontinue management actions. The\` IAF management actions may include, but not be limited to, those listed below. The IAF shall be flexible and adaptable to allow triggers and management actions to be revised based on actual results and outcomes while still allowing for goals and performance criteria to be achieved. The following management actions may or may not be implemented in the order presented below: 1. **Recirculation**: To maintain the existing flow-through rate, water will be recirculated through the San Joaquin Marsh ponds (Ponds A, B and 1 through 6) using the existing pump station and pipe system. The goal shall be to compensate for the reduced inflow available from the San Diego Creek and maintain water quality conditions similar to baseline conditions. 2. **Reduce Project Diversions**: Project diversions shall be reduced to increase the available inflow to the San Joaquin Marsh to increase residence time and maintain water quality. A target minimum project diversion rate shall be established such that the portion of the diversion required by the City of Irvine's NPDES permit would be met (R8-2005-0079 extended by Time Schedule Order R8-2009-0069). 3. **Modified Pond Management**: Modify pond management as allowed by existing operations and maintenance protocols for the San Joaquin Marsh to correct for any increases in residence time and resulting impacts to water quality. For example, water levels in the San Joaquin Marsh ponds may be temporarily reduced, or one or more ponds may be temporarily removed from the flow-through water quality treatment system, in order to increase residence time when inflow to the marsh is reduced. 4. **Alternative Water Supply**: The reduction in San Joaquin Marsh inflow shall	• Prepare the Impact Avoidance Framework prior to project implementation. • Retain copies of the IAF in the project file. • Retain copies of sampling and analyses conducted in accordance with the IAF in the project file.	IRWD	Before and After Construction

MITIGATION MONITORING AND REPORTING PROGRAM
FOR THE PETERS CANYON CHANNEL WATER CAPTURE AND REUSE PIPELINE PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
be compensated for and replaced with a supplemental water source, such as potable water, water from another surface channel, or water from existing or new shallow groundwater dewatering wells at the Michelson Water Recycling Plant. This management option results in no reduction in inflow to the San Joaquin Marsh and maintains existing marsh operations, residence time, and water quality. At a minimum, the supplemental water source offsets the minimum project diversion established as part of #2 above; on an annual basis this represents replacement of approximately 14 to 54 million gallons per year. In the event that supplemental water is not available and no other management actions are available to mitigate for residence time and water quality, project diversions may be temporarily discontinued.			
Noise			
NOISE-1: Project construction activities shall comply with the noise ordinances of the City of Tustin and City of Irvine, including any daily restrictions on construction hours.	• Include mitigation measure in construction contractor specifications. • Perform site inspections to ensure contractor is in compliance with noise mitigation measures. • Retain copies of inspection logs in the project file.	IRWD; Construction Contractor	During Construction
NOISE-2: The construction contractor shall ensure proper maintenance and working order of equipment and vehicles and that all construction equipment is equipped with manufacturers approved mufflers and baffles.	• Include mitigation measure in construction contractor specifications. • Perform site inspections to ensure contractor is in compliance with noise mitigation measures. • Retain copies of inspection logs in the project file.	IRWD; Construction Contractor	During Construction
NOISE-3: The construction contractor(s) shall endeavor to use quieter equipment as opposed to noisier equipment (such as rubber-tired equipment rather than track equipment), when feasible. Noisy equipment shall be switched off when not in use.	• Include mitigation measure in construction contractor specifications. • Perform site inspections to ensure contractor is in compliance with noise mitigation measures. • Retain copies of inspection logs in the project file.	IRWD; Construction Contractor	During Construction
NOISE-4: Construction activities shall be scheduled so as to avoid operating several pieces of equipment simultaneously, which causes high noise levels, to the extent feasible.	• Include mitigation measure in construction contractor specifications. • Perform site inspections to ensure contractor is in compliance with noise mitigation measures. • Retain copies of inspection logs in the project file.	Construction Contractor; IRWD	During Construction
NOISE-5: The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.	• Include mitigation measure in construction contractor specifications. • Perform site inspections to ensure contractor is in compliance with noise mitigation measures. • Retain copies of inspection logs in the project file.	Construction Contractor; IRWD	During Construction

MITIGATION MONITORING AND REPORTING PROGRAM
FOR THE PETERS CANYON CHANNEL WATER CAPTURE AND REUSE PIPELINE PROJECT

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
NOISE-6: In conjunction with Mitigation Measure TR-3, prior to any construction activities, the existing residents located directly adjacent to the construction work area shall be notified of the project location and dates of construction.	• Include mitigation measure in construction contractor specifications. • Retain copies of the notification in the project file.	IRWD	Before Construction
NOISE-7: IRWD shall designate a public liaison for the proposed project that will be responsible for addressing public concerns about construction activities, including excessive noise. The contact information for the public liaison shall be included in all notices and project signage.	• Include mitigation measure in construction contractor specifications. • Retain copies of the notification and complaint log in the project file.	IRWD	Before and During Construction
Traffic and Transportation			
TR-1: The construction contractors shall prepare and implement a Traffic Control/Traffic Management Plan subject to approval by the cities prior to construction. The plan shall: • Identify hours of construction and hours for deliveries; • Include a discussion of haul routes, limits on the length of open trench, work area delineation, traffic control and flagging; • Identify all access and parking restrictions, pavement markings and signage requirements (e.g., speed limit, temporary loading zones); • Include a plan to coordinate all construction activities with emergency service providers in the area at least one month in advance. Emergency service providers shall be notified of the timing, location, and duration of construction activities. All roads shall remain passable to emergency service vehicles at all times. • Include a plan to coordinate with public transit agencies regarding the location and duration of construction activities and lane closures to allow for relocation of transit routes or stops if necessary.	• Include mitigation measure in construction contractor specifications. • Verify that the Traffic Control/Traffic Management Plan has been prepared and approved by the applicable local jurisdiction(s). • Perform site inspections to routinely verify proper implementation of the approved Plan. • Retain copies of the Plan and inspection records in the project file.	Construction Contractor; IRWD	Before and During Construction
TR-2: IRWD shall layout a plan to maintain access to residences and businesses, public facilities, and recreational resources at all times to the extent feasible.	• Include mitigation measure in construction contractor specifications. • Perform site inspections to ensure contractor is in compliance with plan to maintain access. • Retain copies of inspection logs in the project file.	IRWD; Construction Contractor	Before and During Construction
TR-3: IRWD shall layout a plan for notifications and a process for communication with affected residents, businesses, and public transit agencies prior to the start of construction. Advance public notification shall include posting of notices and appropriate signage of construction activities. The written notification shall include the construction schedule, the exact location and duration of activities within each street (i.e., which lanes and access point/driveways would be blocked on which days and for how long), and a toll-free telephone number for receiving questions or complaints.	• Include mitigation measure in construction contractor specifications. • Retain a copy of the communication plan in the project file. • Retain copies of any notices or written notifications related to construction of the project in the project file. • Prepare complaint logs to document the receipt of questions or complaints during construction of the project.	IRWD; Construction Contractor	During Construction

**MITIGATION MONITORING AND REPORTING PROGRAM
FOR THE PETERS CANYON CHANNEL WATER CAPTURE AND REUSE PIPELINE PROJECT**

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
	• Retain copies of complaint logs in the project file.		
Mandatory Findings of Significance			
CUM-1: The construction contractor shall consult with appropriate local agencies and jurisdictions prior to initiating ground-disturbing activities, to determine if other construction projects will occur coincidentally at the same time and in the vicinity of the proposed project, depending on project schedule and pipeline segment installation. Coordination of construction activities for coincident projects shall occur to ensure impacts to traffic, circulation, access, and noise do not compound to be cumulatively significant. Adjustments to construction schedules and plans, such as traffic control plans and bike path detours, shall be made accordingly as necessary.	• Include mitigation measure in construction contractor specifications. • Retain copies of correspondence and coordination with other agencies and jurisdictions in the project file.	IRWD; Construction Contractor	Before Construction

APPENDIX A

Air Quality and Greenhouse Gas Calculations and Model Output

Air Quality Analysis

CalEEMod Output for Construction-Related Emissions

Peak Day

Peters Canyon Reuse Pipeline Project - Jack & Bore Construction Emissions

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 30

Climate Zone 8 **Operational Year** 2015

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 630.89 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Assumes 3-month construction period for a jack and bore site.

Off-road Equipment - Construction equipment during excavation and shoring activities.

Off-road Equipment - Construction equipment for pipe installation and backfilling activities.

Off-road Equipment - Construction equipment for site preparation activities.

Off-road Equipment - Construction equipment for work site restoration activities.

Trips and VMT - Anticipated truck trips for open trench construction.

Grading - Max. area disturbed = 0.9 acres for jack and bore site.

Construction Off-road Equipment Mitigation -

Off-road Equipment - Equipment for pipleline and casing installation.

Off-road Equipment - Equipment for removal of jacking and receiving pit.

Table Name	Column Name	Default Value	New Value
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tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	15.00
tblConstructionPhase	PhaseStartDate	3/7/2015	3/9/2015
tblConstructionPhase	PhaseStartDate	2/7/2015	2/9/2015
tblConstructionPhase	PhaseStartDate	4/25/2015	4/27/2015
tblConstructionPhase	PhaseStartDate	4/4/2015	4/6/2015
tblGrading	AcresOfGrading	0.00	0.90
tblGrading	AcresOfGrading	0.00	0.90
tblGrading	AcresOfGrading	0.00	0.90
tblGrading	MaterialImported	0.00	4,000.00
tblOffRoadEquipment	LoadFactor	0.46	0.46
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.50	0.50
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tblOffRoadEquipment	LoadFactor	0.38	0.38
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tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38

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tblOffRoadEquipment	LoadFactor	0.30	0.30
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tblOffRoadEquipment	LoadFactor	0.37	0.37
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tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators

tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
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tblOffRoadEquipment	OffRoadEquipmentType		Surfacing Equipment
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tblOffRoadEquipment	UsageHours	6.00	3.00
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tblOffRoadEquipment	UsageHours	8.00	2.00
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tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	WorkerTripNumber	0.00	20.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.0875	0.7855	0.5608	1.0800e-003	0.0142	0.0427	0.0569	3.5400e-003	0.0400	0.0436	0.0000	95.1144	95.1144	0.0188	0.0000	95.5096
Total	**0.0875**	**0.7855**	**0.5608**	**1.0800e-003**	**0.0142**	**0.0427**	**0.0569**	**3.5400e-003**	**0.0400**	**0.0436**	**0.0000**	**95.1144**	**95.1144**	**0.0188**	**0.0000**	**95.5096**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.0875	0.7855	0.5608	1.0800e-003	0.0131	0.0427	0.0559	3.4300e-003	0.0400	0.0435	0.0000	95.1143	95.1143	0.0188	0.0000	95.5095
Total	**0.0875**	**0.7855**	**0.5608**	**1.0800e-003**	**0.0131**	**0.0427**	**0.0559**	**3.4300e-003**	**0.0400**	**0.0435**	**0.0000**	**95.1143**	**95.1143**	**0.0188**	**0.0000**	**95.5095**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**7.14**	**0.00**	**1.78**	**3.11**	**0.00**	**0.25**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/2/2015	2/6/2015	5	5	
2	Excavation and Shoring	Grading	2/9/2015	3/6/2015	5	20	
3	Pipeline and Casing Installation	Building Construction	3/9/2015	4/3/2015	5	20	
4	Removing Jacking and Receiving Pit	Grading	4/6/2015	4/24/2015	5	15	
5	Work Site Restoration	Paving	4/27/2015	5/1/2015	5	5	

Acres of Grading (Site Preparation Phase): 0.9

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Removing Jacking and Receiving Pit	Concrete/Industrial Saws	0	8.00	81	0.73
Removing Jacking and Receiving Pit	Rubber Tired Dozers	0	1.00	255	0.40
Site Preparation	Graders	0	8.00	174	0.41
Removing Jacking and Receiving Pit	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Air Compressors	1	6.00	78	0.48
Site Preparation	Concrete/Industrial Saws	1	2.00	81	0.73
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Site Preparation	Signal Boards	2	24.00	6	0.82
Excavation and Shoring	Concrete/Industrial Saws	0	8.00	81	0.73
Site Preparation	Sweepers/Scrubbers	2	1.00	64	0.46
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Excavation and Shoring	Bore/Drill Rigs	1	8.00	205	0.50
Excavation and Shoring	Rubber Tired Dozers	0	1.00	255	0.40
Excavation and Shoring	Dumpers/Tenders	1	8.00	16	0.38
Excavation and Shoring	Excavators	1	6.00	162	0.38
Excavation and Shoring	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Excavation and Shoring	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Excavation and Shoring	Off-Highway Trucks	1	2.00	400	0.38
Excavation and Shoring	Signal Boards	2	24.00	6	0.82
Excavation and Shoring	Sweepers/Scrubbers	1	1.00	64	0.46
Pipeline and Casing Installation	Cranes	0	4.00	226	0.29
Excavation and Shoring	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Pipeline and Casing Installation	Forklifts	0	6.00	89	0.20
Pipeline and Casing Installation	Air Compressors	1	3.00	78	0.48
Pipeline and Casing Installation	Cement and Mortar Mixers	1	3.00	9	0.56
Pipeline and Casing Installation	Rollers	1	8.00	80	0.38
Pipeline and Casing Installation	Dumpers/Tenders	1	8.00	16	0.38
Pipeline and Casing Installation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Pipeline and Casing Installation	Tractors/Loaders/Backhoes	1	3.00	97	0.37

Pipeline and Casing Installation	Excavators	1	6.00	162	0.38
Pipeline and Casing Installation	Off-Highway Trucks	1	2.00	400	0.38
Work Site Restoration	Cement and Mortar Mixers	0	6.00	9	0.56
Pipeline and Casing Installation	Signal Boards	2	24.00	6	0.82
Pipeline and Casing Installation	Sweepers/Scrubbers	1	1.00	64	0.46
Work Site Restoration	Pavers	1	8.00	125	0.42
Pipeline and Casing Installation	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Work Site Restoration	Rollers	2	8.00	80	0.38
Pipeline and Casing Installation	Welders	2	6.00	46	0.45
Removing Jacking and Receiving Pit	Excavators	1	6.00	162	0.38
Removing Jacking and Receiving Pit	Off-Highway Trucks	1	2.00	400	0.38
Removing Jacking and Receiving Pit	Signal Boards	2	24.00	6	0.82
Work Site Restoration	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Work Site Restoration	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Removing Jacking and Receiving Pit	Sweepers/Scrubbers	1	1.00	64	0.46
Work Site Restoration	Air Compressors	1	8.00	78	0.48
Work Site Restoration	Concrete/Industrial Saws	1	6.00	81	0.73
Work Site Restoration	Paving Equipment	1	8.00	130	0.36
Work Site Restoration	Signal Boards	2	24.00	6	0.82
Work Site Restoration	Skid Steer Loaders	1	8.00	64	0.37
Work Site Restoration	Surfacing Equipment	1	8.00	253	0.30
Work Site Restoration	Sweepers/Scrubbers	1	1.00	64	0.46
Work Site Restoration	Tractors/Loaders/Backhoes	1	4.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	12	30.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation and Shoring	10	25.00	0.00	500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline and Casing Installation	14	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Work Site Restoration	14	35.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Removing Jacking and Receiving Pit	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.8000e-004	0.0000	4.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.9400e-003	0.0300	0.0220	3.0000e-005		2.2100e-003	2.2100e-003		2.1100e-003	2.1100e-003	0.0000	2.9062	2.9062	5.7000e-004	0.0000	2.9181
Total	**3.9400e-003**	**0.0300**	**0.0220**	**3.0000e-005**	**4.8000e-004**	**2.2100e-003**	**2.6900e-003**	**5.0000e-005**	**2.1100e-003**	**2.1600e-003**	**0.0000**	**2.9062**	**2.9062**	**5.7000e-004**	**0.0000**	**2.9181**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	4.2000e-004	4.3600e-003	1.0000e-005	8.2000e-004	1.0000e-005	8.3000e-004	2.2000e-004	1.0000e-005	2.2000e-004	0.0000	0.7691	0.7691	4.0000e-005	0.0000	0.7699
Total	**2.8000e-004**	**4.2000e-004**	**4.3600e-003**	**1.0000e-005**	**8.2000e-004**	**1.0000e-005**	**8.3000e-004**	**2.2000e-004**	**1.0000e-005**	**2.2000e-004**	**0.0000**	**0.7691**	**0.7691**	**4.0000e-005**	**0.0000**	**0.7699**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.9000e-004	0.0000	1.9000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.9400e-003	0.0300	0.0220	3.0000e-005		2.2100e-003	2.2100e-003		2.1100e-003	2.1100e-003	0.0000	2.9062	2.9062	5.7000e-004	0.0000	2.9181
Total	**3.9400e-003**	**0.0300**	**0.0220**	**3.0000e-005**	**1.9000e-004**	**2.2100e-003**	**2.4000e-003**	**2.0000e-005**	**2.1100e-003**	**2.1300e-003**	**0.0000**	**2.9062**	**2.9062**	**5.7000e-004**	**0.0000**	**2.9181**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	4.2000e-004	4.3600e-003	1.0000e-005	8.2000e-004	1.0000e-005	8.3000e-004	2.2000e-004	1.0000e-005	2.2000e-004	0.0000	0.7691	0.7691	4.0000e-005	0.0000	0.7699
Total	**2.8000e-004**	**4.2000e-004**	**4.3600e-003**	**1.0000e-005**	**8.2000e-004**	**1.0000e-005**	**8.3000e-004**	**2.2000e-004**	**1.0000e-005**	**2.2000e-004**	**0.0000**	**0.7691**	**0.7691**	**4.0000e-005**	**0.0000**	**0.7699**

3.3 Excavation and Shoring - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.0000e-004	0.0000	7.0000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0206	0.2183	0.1267	2.7000e-004		0.0109	0.0109		0.0101	0.0101	0.0000	24.0302	24.0302	6.5500e-003	0.0000	24.1677
Total	**0.0206**	**0.2183**	**0.1267**	**2.7000e-004**	**7.0000e-004**	**0.0109**	**0.0116**	**9.0000e-005**	**0.0101**	**0.0102**	**0.0000**	**24.0302**	**24.0302**	**6.5500e-003**	**0.0000**	**24.1677**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.2700e-003	0.0821	0.0589	1.8000e-004	4.2900e-003	1.3000e-003	5.5800e-003	1.1800e-003	1.1900e-003	2.3700e-003	0.0000	16.9832	16.9832	1.3000e-004	0.0000	16.9860
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4000e-004	1.4000e-003	0.0145	3.0000e-005	2.7400e-003	2.0000e-005	2.7600e-003	7.3000e-004	2.0000e-005	7.5000e-004	0.0000	2.5637	2.5637	1.3000e-004	0.0000	2.5665
Total	**6.2100e-003**	**0.0835**	**0.0734**	**2.1000e-004**	**7.0300e-003**	**1.3200e-003**	**8.3400e-003**	**1.9100e-003**	**1.2100e-003**	**3.1200e-003**	**0.0000**	**19.5469**	**19.5469**	**2.6000e-004**	**0.0000**	**19.5525**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	0.0206	0.2183	0.1267	2.7000e-004		0.0109	0.0109		0.0101	0.0101	0.0000	24.0302	24.0302	6.5500e-003	0.0000	24.1676
Total	**0.0206**	**0.2183**	**0.1267**	**2.7000e-004**	**2.7000e-004**	**0.0109**	**0.0112**	**3.0000e-005**	**0.0101**	**0.0102**	**0.0000**	**24.0302**	**24.0302**	**6.5500e-003**	**0.0000**	**24.1676**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.2700e-003	0.0821	0.0589	1.8000e-004	4.2900e-003	1.3000e-003	5.5800e-003	1.1800e-003	1.1900e-003	2.3700e-003	0.0000	16.9832	16.9832	1.3000e-004	0.0000	16.9860
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4000e-004	1.4000e-003	0.0145	3.0000e-005	2.7400e-003	2.0000e-005	2.7600e-003	7.3000e-004	2.0000e-005	7.5000e-004	0.0000	2.5637	2.5637	1.3000e-004	0.0000	2.5665
Total	**6.2100e-003**	**0.0835**	**0.0734**	**2.1000e-004**	**7.0300e-003**	**1.3200e-003**	**8.3400e-003**	**1.9100e-003**	**1.2100e-003**	**3.1200e-003**	**0.0000**	**19.5469**	**19.5469**	**2.6000e-004**	**0.0000**	**19.5525**

3.4 Pipeline and Casing Installation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0320	0.2333	0.1666	2.6000e-004		0.0151	0.0151		0.0143	0.0143	0.0000	22.4199	22.4199	5.7400e-003	0.0000	22.5405
Total	**0.0320**	**0.2333**	**0.1666**	**2.6000e-004**		**0.0151**	**0.0151**		**0.0143**	**0.0143**	**0.0000**	**22.4199**	**22.4199**	**5.7400e-003**	**0.0000**	**22.5405**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.5000e-004	1.1200e-003	0.0116	3.0000e-005	2.2000e-003	2.0000e-005	2.2100e-003	5.8000e-004	1.0000e-005	6.0000e-004	0.0000	2.0510	2.0510	1.0000e-004	0.0000	2.0532
Total	**7.5000e-004**	**1.1200e-003**	**0.0116**	**3.0000e-005**	**2.2000e-003**	**2.0000e-005**	**2.2100e-003**	**5.8000e-004**	**1.0000e-005**	**6.0000e-004**	**0.0000**	**2.0510**	**2.0510**	**1.0000e-004**	**0.0000**	**2.0532**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0320	0.2333	0.1666	2.6000e-004		0.0151	0.0151		0.0143	0.0143	0.0000	22.4199	22.4199	5.7400e-003	0.0000	22.5404
Total	**0.0320**	**0.2333**	**0.1666**	**2.6000e-004**		**0.0151**	**0.0151**		**0.0143**	**0.0143**	**0.0000**	**22.4199**	**22.4199**	**5.7400e-003**	**0.0000**	**22.5404**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.5000e-004	1.1200e-003	0.0116	3.0000e-005	2.2000e-003	2.0000e-005	2.2100e-003	5.8000e-004	1.0000e-005	6.0000e-004	0.0000	2.0510	2.0510	1.0000e-004	0.0000	2.0532
Total	**7.5000e-004**	**1.1200e-003**	**0.0116**	**3.0000e-005**	**2.2000e-003**	**2.0000e-005**	**2.2100e-003**	**5.8000e-004**	**1.0000e-005**	**6.0000e-004**	**0.0000**	**2.0510**	**2.0510**	**1.0000e-004**	**0.0000**	**2.0532**

3.5 Removing Jacking and Receiving Pit - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.8000e-004	0.0000	4.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1214	0.0816	1.4000e-004		7.1800e-003	7.1800e-003		6.6600e-003	6.6600e-003	0.0000	11.9073	11.9073	3.1600e-003	0.0000	11.9737
Total	**0.0127**	**0.1214**	**0.0816**	**1.4000e-004**	**4.8000e-004**	**7.1800e-003**	**7.6600e-003**	**5.0000e-005**	**6.6600e-003**	**6.7100e-003**	**0.0000**	**11.9073**	**11.9073**	**3.1600e-003**	**0.0000**	**11.9737**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1000e-004	7.6000e-004	7.8500e-003	2.0000e-005	1.4800e-003	1.0000e-005	1.4900e-003	3.9000e-004	1.0000e-005	4.0000e-004	0.0000	1.3844	1.3844	7.0000e-005	0.0000	1.3859
Total	**5.1000e-004**	**7.6000e-004**	**7.8500e-003**	**2.0000e-005**	**1.4800e-003**	**1.0000e-005**	**1.4900e-003**	**3.9000e-004**	**1.0000e-005**	**4.0000e-004**	**0.0000**	**1.3844**	**1.3844**	**7.0000e-005**	**0.0000**	**1.3859**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.9000e-004	0.0000	1.9000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1214	0.0816	1.4000e-004		7.1800e-003	7.1800e-003		6.6600e-003	6.6600e-003	0.0000	11.9073	11.9073	3.1600e-003	0.0000	11.9737
Total	**0.0127**	**0.1214**	**0.0816**	**1.4000e-004**	**1.9000e-004**	**7.1800e-003**	**7.3700e-003**	**2.0000e-005**	**6.6600e-003**	**6.6800e-003**	**0.0000**	**11.9073**	**11.9073**	**3.1600e-003**	**0.0000**	**11.9737**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1000e-004	7.6000e-004	7.8500e-003	2.0000e-005	1.4800e-003	1.0000e-005	1.4900e-003	3.9000e-004	1.0000e-005	4.0000e-004	0.0000	1.3844	1.3844	7.0000e-005	0.0000	1.3859
Total	**5.1000e-004**	**7.6000e-004**	**7.8500e-003**	**2.0000e-005**	**1.4800e-003**	**1.0000e-005**	**1.4900e-003**	**3.9000e-004**	**1.0000e-005**	**4.0000e-004**	**0.0000**	**1.3844**	**1.3844**	**7.0000e-005**	**0.0000**	**1.3859**

3.6 Work Site Restoration - 2015

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Off-Road	0.0102	0.0963	0.0615	1.0000e-004		5.9900e-003	5.9900e-003		5.6400e-003	5.6400e-003	0.0000	9.2021	9.2021	2.2800e-003	0.0000	9.2500
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0102**	**0.0963**	**0.0615**	**1.0000e-004**		**5.9900e-003**	**5.9900e-003**		**5.6400e-003**	**5.6400e-003**	**0.0000**	**9.2021**	**9.2021**	**2.2800e-003**	**0.0000**	**9.2500**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	4.9000e-004	5.0900e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.7000e-004	2.6000e-004	1.0000e-005	2.6000e-004	0.0000	0.8973	0.8973	5.0000e-005	0.0000	0.8983
Total	**3.3000e-004**	**4.9000e-004**	**5.0900e-003**	**1.0000e-005**	**9.6000e-004**	**1.0000e-005**	**9.7000e-004**	**2.6000e-004**	**1.0000e-005**	**2.6000e-004**	**0.0000**	**0.8973**	**0.8973**	**5.0000e-005**	**0.0000**	**0.8983**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Off-Road	0.0102	0.0963	0.0615	1.0000e-004		5.9900e-003	5.9900e-003		5.6400e-003	5.6400e-003	0.0000	9.2021	9.2021	2.2800e-003	0.0000	9.2499

Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0102**	**0.0963**	**0.0615**	**1.0000e-004**		**5.9900e-003**	**5.9900e-003**		**5.6400e-003**	**5.6400e-003**	**0.0000**	**9.2021**	**9.2021**	**2.2800e-003**	**0.0000**	**9.2499**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	4.9000e-004	5.0900e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.7000e-004	2.6000e-004	1.0000e-005	2.6000e-004	0.0000	0.8973	0.8973	5.0000e-005	0.0000	0.8983
Total	**3.3000e-004**	**4.9000e-004**	**5.0900e-003**	**1.0000e-005**	**9.6000e-004**	**1.0000e-005**	**9.7000e-004**	**2.6000e-004**	**1.0000e-005**	**2.6000e-004**	**0.0000**	**0.8973**	**0.8973**	**5.0000e-005**	**0.0000**	**0.8983**

Peters Canyon Reuse Pipeline Project - Jack & Bore Construction Emissions

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2015
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Assumes 3-month construction period for a jack and bore site.

Off-road Equipment - Construction equipment during excavation and shoring activities.

Off-road Equipment - Construction equipment for pipe installation and backfilling activities.

Off-road Equipment - Construction equipment for site preparation activities.

Off-road Equipment - Construction equipment for work site restoration activities.

Trips and VMT - Anticipated truck trips for open trench construction.

Grading - Max. area disturbed = 0.9 acres for jack and bore site.

Construction Off-road Equipment Mitigation -

Off-road Equipment - Equipment for pipleline and casing installation.

Off-road Equipment - Equipment for removal of jacking and receiving pit.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	15.00
tblConstructionPhase	PhaseStartDate	3/7/2015	3/9/2015
tblConstructionPhase	PhaseStartDate	2/7/2015	2/9/2015
tblConstructionPhase	PhaseStartDate	4/25/2015	4/27/2015
tblConstructionPhase	PhaseStartDate	4/4/2015	4/6/2015
tblGrading	AcresOfGrading	0.00	0.90
tblGrading	AcresOfGrading	0.00	0.90
tblGrading	AcresOfGrading	0.00	0.90
tblGrading	MaterialImported	0.00	4,000.00
tblOffRoadEquipment	LoadFactor	0.46	0.46
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.46	0.46
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.46	0.46
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38

tblOffRoadEquipment	LoadFactor	0.46	0.46
tblOffRoadEquipment	LoadFactor	0.36	0.36
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.30	0.30
tblOffRoadEquipment	LoadFactor	0.46	0.46
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators

tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Surfacing Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00

tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	7.00	6.00
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tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	WorkerTripNumber	0.00	20.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	4.2041	38.6718	26.7303	0.0486	0.7852	2.3980	2.7892	0.2019	2.2597	2.3634	0.0000	4,816.7809	4,816.7809	1.0258	0.0000	4,838.3217
Total	**4.2041**	**38.6718**	**26.7303**	**0.0486**	**0.7852**	**2.3980**	**2.7892**	**0.2019**	**2.2597**	**2.3634**	**0.0000**	**4,816.7809**	**4,816.7809**	**1.0258**	**0.0000**	**4,838.3217**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	4.2041	38.6718	26.7303	0.0486	0.7423	2.3980	2.7892	0.1967	2.2597	2.3634	0.0000	4,816.780 9	4,816.7809	1.0258	0.0000	4,838.3217
Total	**4.2041**	**38.6718**	**26.7303**	**0.0486**	**0.7423**	**2.3980**	**2.7892**	**0.1967**	**2.2597**	**2.3634**	**0.0000**	**4,816.780 9**	**4,816.7809**	**1.0258**	**0.0000**	**4,838.3217**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**5.46**	**0.00**	**0.00**	**2.59**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/2/2015	2/6/2015	5	5	
2	Excavation and Shoring	Grading	2/9/2015	3/6/2015	5	20	
3	Pipeline and Casing Installation	Building Construction	3/9/2015	4/3/2015	5	20	
4	Removing Jacking and Receiving Pit	Grading	4/6/2015	4/24/2015	5	15	
5	Work Site Restoration	Paving	4/27/2015	5/1/2015	5	5	

Acres of Grading (Site Preparation Phase): 0.9

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Removing Jacking and Receiving Pit	Concrete/Industrial Saws	0	8.00	81	0.73
Removing Jacking and Receiving Pit	Rubber Tired Dozers	0	1.00	255	0.40
Site Preparation	Graders	0	8.00	174	0.41
Removing Jacking and Receiving Pit	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Air Compressors	1	6.00	78	0.48
Site Preparation	Concrete/Industrial Saws	1	2.00	81	0.73
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Site Preparation	Signal Boards	2	24.00	6	0.82
Excavation and Shoring	Concrete/Industrial Saws	0	8.00	81	0.73
Site Preparation	Sweepers/Scrubbers	2	1.00	64	0.46
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Excavation and Shoring	Bore/Drill Rigs	1	8.00	205	0.50
Excavation and Shoring	Rubber Tired Dozers	0	1.00	255	0.40
Excavation and Shoring	Dumpers/Tenders	1	8.00	16	0.38
Excavation and Shoring	Excavators	1	6.00	162	0.38
Excavation and Shoring	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Excavation and Shoring	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Excavation and Shoring	Off-Highway Trucks	1	2.00	400	0.38
Excavation and Shoring	Signal Boards	2	24.00	6	0.82
Excavation and Shoring	Sweepers/Scrubbers	1	1.00	64	0.46
Pipeline and Casing Installation	Cranes	0	4.00	226	0.29
Excavation and Shoring	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Pipeline and Casing Installation	Forklifts	0	6.00	89	0.20
Pipeline and Casing Installation	Air Compressors	1	3.00	78	0.48
Pipeline and Casing Installation	Cement and Mortar Mixers	1	3.00	9	0.56
Pipeline and Casing Installation	Rollers	1	8.00	80	0.38
Pipeline and Casing Installation	Dumpers/Tenders	1	8.00	16	0.38
Pipeline and Casing Installation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Pipeline and Casing Installation	Tractors/Loaders/Backhoes	1	3.00	97	0.37

Pipeline and Casing Installation	Excavators	1	6.00	162	0.38
Pipeline and Casing Installation	Off-Highway Trucks	1	2.00	400	0.38
Work Site Restoration	Cement and Mortar Mixers	0	6.00	9	0.56
Pipeline and Casing Installation	Signal Boards	2	24.00	6	0.82
Pipeline and Casing Installation	Sweepers/Scrubbers	1	1.00	64	0.46
Work Site Restoration	Pavers	1	8.00	125	0.42
Pipeline and Casing Installation	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Work Site Restoration	Rollers	2	8.00	80	0.38
Pipeline and Casing Installation	Welders	2	6.00	46	0.45
Removing Jacking and Receiving Pit	Excavators	1	6.00	162	0.38
Removing Jacking and Receiving Pit	Off-Highway Trucks	1	2.00	400	0.38
Removing Jacking and Receiving Pit	Signal Boards	2	24.00	6	0.82
Work Site Restoration	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Work Site Restoration	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Removing Jacking and Receiving Pit	Sweepers/Scrubbers	1	1.00	64	0.46
Work Site Restoration	Air Compressors	1	8.00	78	0.48
Work Site Restoration	Concrete/Industrial Saws	1	6.00	81	0.73
Work Site Restoration	Paving Equipment	1	8.00	130	0.36
Work Site Restoration	Signal Boards	2	24.00	6	0.82
Work Site Restoration	Skid Steer Loaders	1	8.00	64	0.37
Work Site Restoration	Surfacing Equipment	1	8.00	253	0.30
Work Site Restoration	Sweepers/Scrubbers	1	1.00	64	0.46
Work Site Restoration	Tractors/Loaders/Backhoes	1	4.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	12	30.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation and Shoring	10	25.00	0.00	500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline and Casing Installation	14	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Work Site Restoration	14	35.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Removing Jacking and Receiving Pit	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1909	0.0000	0.1909	0.0206	0.0000	0.0206			0.0000			0.0000
Off-Road	1.5751	11.9951	8.8140	0.0140		0.8820	0.8820		0.8436	0.8436		1,281.4346	1,281.4346	0.2492		1,286.6687
Total	**1.5751**	**11.9951**	**8.8140**	**0.0140**	**0.1909**	**0.8820**	**1.0729**	**0.0206**	**0.8436**	**0.8642**		**1,281.4346**	**1,281.4346**	**0.2492**		**1,286.6687**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1144	0.1486	1.8108	4.0700e-003	0.3353	2.4400e-003	0.3378	0.0889	2.2400e-003	0.0912		352.7477	352.7477	0.0173		353.1117
Total	**0.1144**	**0.1486**	**1.8108**	**4.0700e-003**	**0.3353**	**2.4400e-003**	**0.3378**	**0.0889**	**2.2400e-003**	**0.0912**		**352.7477**	**352.7477**	**0.0173**		**353.1117**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0745	0.0000	0.0745	8.0400e-003	0.0000	8.0400e-003			0.0000			0.0000
Off-Road	1.5751	11.9951	8.8140	0.0140		0.8820	0.8820		0.8436	0.8436	0.0000	1,281.4346	1,281.4346	0.2492		1,286.6687
Total	**1.5751**	**11.9951**	**8.8140**	**0.0140**	**0.0745**	**0.8820**	**0.9565**	**8.0400e-003**	**0.8436**	**0.8516**	**0.0000**	**1,281.4346**	**1,281.4346**	**0.2492**		**1,286.6687**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1144	0.1486	1.8108	4.0700e-003	0.3353	2.4400e-003	0.3378	0.0889	2.2400e-003	0.0912		352.7477	352.7477	0.0173		353.1117
Total	**0.1144**	**0.1486**	**1.8108**	**4.0700e-003**	**0.3353**	**2.4400e-003**	**0.3378**	**0.0889**	**2.2400e-003**	**0.0912**		**352.7477**	**352.7477**	**0.0173**		**353.1117**

3.3 Excavation and Shoring - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0703	0.0000	0.0703	8.5800e-003	0.0000	8.5800e-003			0.0000			0.0000
Off-Road	2.0629	21.8290	12.6676	0.0268		1.0912	1.0912		1.0122	1.0122		2,648.8755	2,648.8755	0.7216		2,664.0300
Total	**2.0629**	**21.8290**	**12.6676**	**0.0268**	**0.0703**	**1.0912**	**1.1615**	**8.5800e-003**	**1.0122**	**1.0208**		**2,648.8755**	**2,648.8755**	**0.7216**		**2,664.0300**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.5047	7.8053	5.3116	0.0184	0.4354	0.1294	0.5649	0.1192	0.1191	0.2383		1,873.9489	1,873.9489	0.0146		1,874.2559
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0954	0.1239	1.5090	3.3900e-003	0.2794	2.0300e-003	0.2815	0.0741	1.8700e-003	0.0760		293.9564	293.9564	0.0144		294.2597
Total	**0.6001**	**7.9291**	**6.8205**	**0.0218**	**0.7149**	**0.1315**	**0.8463**	**0.1933**	**0.1209**	**0.3142**		**2,167.9053**	**2,167.9053**	**0.0291**		**2,168.5156**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0274	0.0000	0.0274	3.3500e-003	0.0000	3.3500e-003			0.0000			0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	2.0629	21.8290	12.6676	0.0268		1.0912	1.0912		1.0122	1.0122	0.0000	2,648.8755	2,648.8755	0.7216		2,664.0300
Total	**2.0629**	**21.8290**	**12.6676**	**0.0268**	**0.0274**	**1.0912**	**1.1186**	**3.3500e-003**	**1.0122**	**1.0155**	**0.0000**	**2,648.8755**	**2,648.8755**	**0.7216**		**2,664.0300**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.5047	7.8053	5.3116	0.0184	0.4354	0.1294	0.5649	0.1192	0.1191	0.2383		1,873.9489	1,873.9489	0.0146		1,874.2559
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0954	0.1239	1.5090	3.3900e-003	0.2794	2.0300e-003	0.2815	0.0741	1.8700e-003	0.0760		293.9564	293.9564	0.0144		294.2597
Total	**0.6001**	**7.9291**	**6.8205**	**0.0218**	**0.7149**	**0.1315**	**0.8463**	**0.1933**	**0.1209**	**0.3142**		**2,167.9053**	**2,167.9053**	**0.0291**		**2,168.5156**

3.4 Pipeline and Casing Installation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2018	23.3332	16.6556	0.0262		1.5093	1.5093		1.4250	1.4250		2,471.3730	2,471.3730	0.6327		2,484.6596
Total	**3.2018**	**23.3332**	**16.6556**	**0.0262**		**1.5093**	**1.5093**		**1.4250**	**1.4250**		**2,471.3730**	**2,471.3730**	**0.6327**		**2,484.6596**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0763	0.0991	1.2072	2.7100e-003	0.2236	1.6200e-003	0.2252	0.0593	1.4900e-003	0.0608		235.1651	235.1651	0.0116		235.4078
Total	**0.0763**	**0.0991**	**1.2072**	**2.7100e-003**	**0.2236**	**1.6200e-003**	**0.2252**	**0.0593**	**1.4900e-003**	**0.0608**		**235.1651**	**235.1651**	**0.0116**		**235.4078**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2018	23.3332	16.6556	0.0262		1.5093	1.5093		1.4250	1.4250	0.0000	2,471.3730	2,471.3730	0.6327		2,484.6596
Total	**3.2018**	**23.3332**	**16.6556**	**0.0262**		**1.5093**	**1.5093**		**1.4250**	**1.4250**	**0.0000**	**2,471.3730**	**2,471.3730**	**0.6327**		**2,484.6596**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0763	0.0991	1.2072	2.7100e-003	0.2236	1.6200e-003	0.2252	0.0593	1.4900e-003	0.0608		235.1651	235.1651	0.0116		235.4078
Total	**0.0763**	**0.0991**	**1.2072**	**2.7100e-003**	**0.2236**	**1.6200e-003**	**0.2252**	**0.0593**	**1.4900e-003**	**0.0608**		**235.1651**	**235.1651**	**0.0116**		**235.4078**

3.5 Removing Jacking and Receiving Pit - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0636	0.0000	0.0636	6.8700e-003	0.0000	6.8700e-003			0.0000			0.0000
Off-Road	1.6914	16.1802	10.8848	0.0180		0.9578	0.9578		0.8879	0.8879		1,750.0723	1,750.0723	0.4649		1,759.8343
Total	**1.6914**	**16.1802**	**10.8848**	**0.0180**	**0.0636**	**0.9578**	**1.0214**	**6.8700e-003**	**0.8879**	**0.8948**		**1,750.0723**	**1,750.0723**	**0.4649**		**1,759.8343**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0687	0.0892	1.0865	2.4400e-003	0.2012	1.4600e-003	0.2027	0.0534	1.3400e-003	0.0547		211.6486	211.6486	0.0104		211.8670
Total	**0.0687**	**0.0892**	**1.0865**	**2.4400e-003**	**0.2012**	**1.4600e-003**	**0.2027**	**0.0534**	**1.3400e-003**	**0.0547**		**211.6486**	**211.6486**	**0.0104**		**211.8670**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0248	0.0000	0.0248	2.6800e-003	0.0000	2.6800e-003			0.0000			0.0000
Off-Road	1.6914	16.1802	10.8848	0.0180		0.9578	0.9578		0.8879	0.8879	0.0000	1,750.0723	1,750.0723	0.4649		1,759.8343
Total	**1.6914**	**16.1802**	**10.8848**	**0.0180**	**0.0248**	**0.9578**	**0.9826**	**2.6800e-003**	**0.8879**	**0.8906**	**0.0000**	**1,750.0723**	**1,750.0723**	**0.4649**		**1,759.8343**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0687	0.0892	1.0865	2.4400e-003	0.2012	1.4600e-003	0.2027	0.0534	1.3400e-003	0.0547		211.6486	211.6486	0.0104		211.8670
Total	**0.0687**	**0.0892**	**1.0865**	**2.4400e-003**	**0.2012**	**1.4600e-003**	**0.2027**	**0.0534**	**1.3400e-003**	**0.0547**		**211.6486**	**211.6486**	**0.0104**		**211.8670**

3.6 Work Site Restoration - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0706	38.4984	24.6177	0.0408		2.3951	2.3951		2.2571	2.2571		4,057.4125	4,057.4125	1.0055		4,078.5287
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.0706**	**38.4984**	**24.6177**	**0.0408**		**2.3951**	**2.3951**		**2.2571**	**2.2571**		**4,057.4125**	**4,057.4125**	**1.0055**		**4,078.5287**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1335	0.1734	2.1126	4.7500e-003	0.3912	2.8400e-003	0.3941	0.1038	2.6100e-003	0.1064		411.5390	411.5390	0.0202		411.9636
Total	**0.1335**	**0.1734**	**2.1126**	**4.7500e-003**	**0.3912**	**2.8400e-003**	**0.3941**	**0.1038**	**2.6100e-003**	**0.1064**		**411.5390**	**411.5390**	**0.0202**		**411.9636**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0706	38.4984	24.6177	0.0408		2.3951	2.3951		2.2571	2.2571	0.0000	4,057.4125	4,057.4125	1.0055		4,078.5287

Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.0706**	**38.4984**	**24.6177**	**0.0408**		**2.3951**	**2.3951**		**2.2571**	**2.2571**	**0.0000**	**4,057.4125**	**4,057.4125**	**1.0055**		**4,078.5287**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1335	0.1734	2.1126	4.7500e-003	0.3912	2.8400e-003	0.3941	0.1038	2.6100e-003	0.1064		411.5390	411.5390	0.0202		411.9636
Total	**0.1335**	**0.1734**	**2.1126**	**4.7500e-003**	**0.3912**	**2.8400e-003**	**0.3941**	**0.1038**	**2.6100e-003**	**0.1064**		**411.5390**	**411.5390**	**0.0202**		**411.9636**

Peters Canyon Reuse Pipeline Project - Jack & Bore Construction Emissions

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2015
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Assumes 3-month construction period for a jack and bore site.

Off-road Equipment - Construction equipment during excavation and shoring activities.

Off-road Equipment - Construction equipment for pipe installation and backfilling activities.

Off-road Equipment - Construction equipment for site preparation activities.

Off-road Equipment - Construction equipment for work site restoration activities.

Trips and VMT - Anticipated truck trips for open trench construction.

Grading - Max. area disturbed = 0.9 acres for jack and bore site.

Construction Off-road Equipment Mitigation -

Off-road Equipment - Equipment for pipleline and casing installation.

Off-road Equipment - Equipment for removal of jacking and receiving pit.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	15.00
tblConstructionPhase	PhaseStartDate	3/7/2015	3/9/2015
tblConstructionPhase	PhaseStartDate	2/7/2015	2/9/2015
tblConstructionPhase	PhaseStartDate	4/25/2015	4/27/2015
tblConstructionPhase	PhaseStartDate	4/4/2015	4/6/2015
tblGrading	AcresOfGrading	0.00	0.90
tblGrading	AcresOfGrading	0.00	0.90
tblGrading	AcresOfGrading	0.00	0.90
tblGrading	MaterialImported	0.00	4,000.00
tblOffRoadEquipment	LoadFactor	0.46	0.46
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.46	0.46
tblOffRoadEquipment	LoadFactor	0.37	0.37
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tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.46	0.46
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38

tblOffRoadEquipment	LoadFactor	0.46	0.46
tblOffRoadEquipment	LoadFactor	0.36	0.36
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.30	0.30
tblOffRoadEquipment	LoadFactor	0.46	0.46
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators

tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Surfacing Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00

tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	WorkerTripNumber	0.00	20.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	4.2113	38.6891	26.6132	0.0483	0.7852	2.3980	2.7892	0.2019	2.2597	2.3634	0.0000	4,796.7793	4,796.7793	1.0258	0.0000	4,818.3201
Total	**4.2113**	**38.6891**	**26.6132**	**0.0483**	**0.7852**	**2.3980**	**2.7892**	**0.2019**	**2.2597**	**2.3634**	**0.0000**	**4,796.7793**	**4,796.7793**	**1.0258**	**0.0000**	**4,818.3201**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	4.2113	38.6891	26.6132	0.0483	0.7423	2.3980	2.7892	0.1967	2.2597	2.3634	0.0000	4,796.7793	4,796.7793	1.0258	0.0000	4,818.3201
Total	**4.2113**	**38.6891**	**26.6132**	**0.0483**	**0.7423**	**2.3980**	**2.7892**	**0.1967**	**2.2597**	**2.3634**	**0.0000**	**4,796.7793**	**4,796.7793**	**1.0258**	**0.0000**	**4,818.3201**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**5.46**	**0.00**	**0.00**	**2.59**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/2/2015	2/6/2015	5	5	
2	Excavation and Shoring	Grading	2/9/2015	3/6/2015	5	20	
3	Pipeline and Casing Installation	Building Construction	3/9/2015	4/3/2015	5	20	
4	Removing Jacking and Receiving Pit	Grading	4/6/2015	4/24/2015	5	15	
5	Work Site Restoration	Paving	4/27/2015	5/1/2015	5	5	

Acres of Grading (Site Preparation Phase): 0.9

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Removing Jacking and Receiving Pit	Concrete/Industrial Saws	0	8.00	81	0.73
Removing Jacking and Receiving Pit	Rubber Tired Dozers	0	1.00	255	0.40
Site Preparation	Graders	0	8.00	174	0.41
Removing Jacking and Receiving Pit	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Air Compressors	1	6.00	78	0.48
Site Preparation	Concrete/Industrial Saws	1	2.00	81	0.73
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Site Preparation	Signal Boards	2	24.00	6	0.82
Excavation and Shoring	Concrete/Industrial Saws	0	8.00	81	0.73
Site Preparation	Sweepers/Scrubbers	2	1.00	64	0.46
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Excavation and Shoring	Bore/Drill Rigs	1	8.00	205	0.50
Excavation and Shoring	Rubber Tired Dozers	0	1.00	255	0.40
Excavation and Shoring	Dumpers/Tenders	1	8.00	16	0.38
Excavation and Shoring	Excavators	1	6.00	162	0.38
Excavation and Shoring	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Excavation and Shoring	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Excavation and Shoring	Off-Highway Trucks	1	2.00	400	0.38
Excavation and Shoring	Signal Boards	2	24.00	6	0.82
Excavation and Shoring	Sweepers/Scrubbers	1	1.00	64	0.46
Pipeline and Casing Installation	Cranes	0	4.00	226	0.29
Excavation and Shoring	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Pipeline and Casing Installation	Forklifts	0	6.00	89	0.20
Pipeline and Casing Installation	Air Compressors	1	3.00	78	0.48
Pipeline and Casing Installation	Cement and Mortar Mixers	1	3.00	9	0.56
Pipeline and Casing Installation	Rollers	1	8.00	80	0.38
Pipeline and Casing Installation	Dumpers/Tenders	1	8.00	16	0.38
Pipeline and Casing Installation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Pipeline and Casing Installation	Tractors/Loaders/Backhoes	1	3.00	97	0.37

Pipeline and Casing Installation	Excavators	1	6.00	162	0.38
Pipeline and Casing Installation	Off-Highway Trucks	1	2.00	400	0.38
Work Site Restoration	Cement and Mortar Mixers	0	6.00	9	0.56
Pipeline and Casing Installation	Signal Boards	2	24.00	6	0.82
Pipeline and Casing Installation	Sweepers/Scrubbers	1	1.00	64	0.46
Work Site Restoration	Pavers	1	8.00	125	0.42
Pipeline and Casing Installation	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Work Site Restoration	Rollers	2	8.00	80	0.38
Pipeline and Casing Installation	Welders	2	6.00	46	0.45
Removing Jacking and Receiving Pit	Excavators	1	6.00	162	0.38
Removing Jacking and Receiving Pit	Off-Highway Trucks	1	2.00	400	0.38
Removing Jacking and Receiving Pit	Signal Boards	2	24.00	6	0.82
Work Site Restoration	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Work Site Restoration	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Removing Jacking and Receiving Pit	Sweepers/Scrubbers	1	1.00	64	0.46
Work Site Restoration	Air Compressors	1	8.00	78	0.48
Work Site Restoration	Concrete/Industrial Saws	1	6.00	81	0.73
Work Site Restoration	Paving Equipment	1	8.00	130	0.36
Work Site Restoration	Signal Boards	2	24.00	6	0.82
Work Site Restoration	Skid Steer Loaders	1	8.00	64	0.37
Work Site Restoration	Surfacing Equipment	1	8.00	253	0.30
Work Site Restoration	Sweepers/Scrubbers	1	1.00	64	0.46
Work Site Restoration	Tractors/Loaders/Backhoes	1	4.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	12	30.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation and Shoring	10	25.00	0.00	500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline and Casing Installation	14	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Work Site Restoration	14	35.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Removing Jacking and Receiving Pit	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1909	0.0000	0.1909	0.0206	0.0000	0.0206			0.0000			0.0000
Off-Road	1.5751	11.9951	8.8140	0.0140		0.8820	0.8820		0.8436	0.8436		1,281.4346	1,281.4346	0.2492		1,286.6687
Total	**1.5751**	**11.9951**	**8.8140**	**0.0140**	**0.1909**	**0.8820**	**1.0729**	**0.0206**	**0.8436**	**0.8642**		**1,281.4346**	**1,281.4346**	**0.2492**		**1,286.6687**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1206	0.1635	1.7104	3.8500e-003	0.3353	2.4400e-003	0.3378	0.0889	2.2400e-003	0.0912		334.0909	334.0909	0.0173		334.4549
Total	**0.1206**	**0.1635**	**1.7104**	**3.8500e-003**	**0.3353**	**2.4400e-003**	**0.3378**	**0.0889**	**2.2400e-003**	**0.0912**		**334.0909**	**334.0909**	**0.0173**		**334.4549**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0745	0.0000	0.0745	8.0400e-003	0.0000	8.0400e-003			0.0000			0.0000
Off-Road	1.5751	11.9951	8.8140	0.0140		0.8820	0.8820		0.8436	0.8436	0.0000	1,281.4346	1,281.4346	0.2492		1,286.6687
Total	**1.5751**	**11.9951**	**8.8140**	**0.0140**	**0.0745**	**0.8820**	**0.9565**	**8.0400e-003**	**0.8436**	**0.8516**	**0.0000**	**1,281.4346**	**1,281.4346**	**0.2492**		**1,286.6687**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1206	0.1635	1.7104	3.8500e-003	0.3353	2.4400e-003	0.3378	0.0889	2.2400e-003	0.0912		334.0909	334.0909	0.0173		334.4549
Total	**0.1206**	**0.1635**	**1.7104**	**3.8500e-003**	**0.3353**	**2.4400e-003**	**0.3378**	**0.0889**	**2.2400e-003**	**0.0912**		**334.0909**	**334.0909**	**0.0173**		**334.4549**

3.3 Excavation and Shoring - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0703	0.0000	0.0703	8.5800e-003	0.0000	8.5800e-003			0.0000			0.0000
Off-Road	2.0629	21.8290	12.6676	0.0268		1.0912	1.0912		1.0122	1.0122		2,648.8755	2,648.8755	0.7216		2,664.0300
Total	**2.0629**	**21.8290**	**12.6676**	**0.0268**	**0.0703**	**1.0912**	**1.1615**	**8.5800e-003**	**1.0122**	**1.0208**		**2,648.8755**	**2,648.8755**	**0.7216**		**2,664.0300**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.5398	8.0733	6.0568	0.0184	0.4354	0.1299	0.5653	0.1192	0.1195	0.2387		1,869.4946	1,869.4946	0.0148		1,869.8055
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1005	0.1362	1.4254	3.2100e-003	0.2794	2.0300e-003	0.2815	0.0741	1.8700e-003	0.0760		278.4091	278.4091	0.0144		278.7124
Total	**0.6403**	**8.2095**	**7.4822**	**0.0216**	**0.7149**	**0.1319**	**0.8468**	**0.1933**	**0.1213**	**0.3147**		**2,147.9037**	**2,147.9037**	**0.0292**		**2,148.5179**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0274	0.0000	0.0274	3.3500e-003	0.0000	3.3500e-003			0.0000			0.0000

Off-Road	2.0629	21.8290	12.6676	0.0268		1.0912	1.0912		1.0122	1.0122	0.0000	2,648.8755	2,648.8755	0.7216		2,664.0300
Total	**2.0629**	**21.8290**	**12.6676**	**0.0268**	**0.0274**	**1.0912**	**1.1186**	**3.3500e-003**	**1.0122**	**1.0155**	**0.0000**	**2,648.8755**	**2,648.8755**	**0.7216**		**2,664.0300**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.5398	8.0733	6.0568	0.0184	0.4354	0.1299	0.5653	0.1192	0.1195	0.2387		1,869.4946	1,869.4946	0.0148		1,869.8055
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1005	0.1362	1.4254	3.2100e-003	0.2794	2.0300e-003	0.2815	0.0741	1.8700e-003	0.0760		278.4091	278.4091	0.0144		278.7124
Total	**0.6403**	**8.2095**	**7.4822**	**0.0216**	**0.7149**	**0.1319**	**0.8468**	**0.1933**	**0.1213**	**0.3147**		**2,147.9037**	**2,147.9037**	**0.0292**		**2,148.5179**

3.4 Pipeline and Casing Installation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2018	23.3332	16.6556	0.0262		1.5093	1.5093		1.4250	1.4250		2,471.3730	2,471.3730	0.6327		2,484.6596
Total	**3.2018**	**23.3332**	**16.6556**	**0.0262**		**1.5093**	**1.5093**		**1.4250**	**1.4250**		**2,471.3730**	**2,471.3730**	**0.6327**		**2,484.6596**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0804	0.1090	1.1403	2.5700e-003	0.2236	1.6200e-003	0.2252	0.0593	1.4900e-003	0.0608		222.7273	222.7273	0.0116		222.9699
Total	**0.0804**	**0.1090**	**1.1403**	**2.5700e-003**	**0.2236**	**1.6200e-003**	**0.2252**	**0.0593**	**1.4900e-003**	**0.0608**		**222.7273**	**222.7273**	**0.0116**		**222.9699**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2018	23.3332	16.6556	0.0262		1.5093	1.5093		1.4250	1.4250	0.0000	2,471.3730	2,471.3730	0.6327		2,484.6596
Total	**3.2018**	**23.3332**	**16.6556**	**0.0262**		**1.5093**	**1.5093**		**1.4250**	**1.4250**	**0.0000**	**2,471.3730**	**2,471.3730**	**0.6327**		**2,484.6596**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0804	0.1090	1.1403	2.5700e-003	0.2236	1.6200e-003	0.2252	0.0593	1.4900e-003	0.0608		222.7273	222.7273	0.0116		222.9699
Total	**0.0804**	**0.1090**	**1.1403**	**2.5700e-003**	**0.2236**	**1.6200e-003**	**0.2252**	**0.0593**	**1.4900e-003**	**0.0608**		**222.7273**	**222.7273**	**0.0116**		**222.9699**

3.5 Removing Jacking and Receiving Pit - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0636	0.0000	0.0636	6.8700e-003	0.0000	6.8700e-003			0.0000			0.0000
Off-Road	1.6914	16.1802	10.8848	0.0180		0.9578	0.9578		0.8879	0.8879		1,750.0723	1,750.0723	0.4649		1,759.8343
Total	**1.6914**	**16.1802**	**10.8848**	**0.0180**	**0.0636**	**0.9578**	**1.0214**	**6.8700e-003**	**0.8879**	**0.8948**		**1,750.0723**	**1,750.0723**	**0.4649**		**1,759.8343**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0724	0.0981	1.0263	2.3100e-003	0.2012	1.4600e-003	0.2027	0.0534	1.3400e-003	0.0547		200.4546	200.4546	0.0104		200.6729
Total	**0.0724**	**0.0981**	**1.0263**	**2.3100e-003**	**0.2012**	**1.4600e-003**	**0.2027**	**0.0534**	**1.3400e-003**	**0.0547**		**200.4546**	**200.4546**	**0.0104**		**200.6729**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0248	0.0000	0.0248	2.6800e-003	0.0000	2.6800e-003			0.0000			0.0000
Off-Road	1.6914	16.1802	10.8848	0.0180		0.9578	0.9578		0.8879	0.8879	0.0000	1,750.0723	1,750.0723	0.4649		1,759.8343
Total	**1.6914**	**16.1802**	**10.8848**	**0.0180**	**0.0248**	**0.9578**	**0.9826**	**2.6800e-003**	**0.8879**	**0.8906**	**0.0000**	**1,750.0723**	**1,750.0723**	**0.4649**		**1,759.8343**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0724	0.0981	1.0263	2.3100e-003	0.2012	1.4600e-003	0.2027	0.0534	1.3400e-003	0.0547		200.4546	200.4546	0.0104		200.6729
Total	**0.0724**	**0.0981**	**1.0263**	**2.3100e-003**	**0.2012**	**1.4600e-003**	**0.2027**	**0.0534**	**1.3400e-003**	**0.0547**		**200.4546**	**200.4546**	**0.0104**		**200.6729**

3.6 Work Site Restoration - 2015

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0706	38.4984	24.6177	0.0408		2.3951	2.3951		2.2571	2.2571		4,057.4125	4,057.4125	1.0055		4,078.5287
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.0706**	**38.4984**	**24.6177**	**0.0408**		**2.3951**	**2.3951**		**2.2571**	**2.2571**		**4,057.4125**	**4,057.4125**	**1.0055**		**4,078.5287**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1407	0.1907	1.9955	4.5000e-003	0.3912	2.8400e-003	0.3941	0.1038	2.6100e-003	0.1064		389.7727	389.7727	0.0202		390.1974
Total	**0.1407**	**0.1907**	**1.9955**	**4.5000e-003**	**0.3912**	**2.8400e-003**	**0.3941**	**0.1038**	**2.6100e-003**	**0.1064**		**389.7727**	**389.7727**	**0.0202**		**390.1974**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0706	38.4984	24.6177	0.0408		2.3951	2.3951		2.2571	2.2571	0.0000	4,057.4125	4,057.4125	1.0055		4,078.5287

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.0706**	**38.4984**	**24.6177**	**0.0408**		**2.3951**	**2.3951**		**2.2571**	**2.2571**	**0.0000**	**4,057.4125**	**4,057.4125**	**1.0055**		**4,078.5287**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1407	0.1907	1.9955	4.5000e-003	0.3912	2.8400e-003	0.3941	0.1038	2.6100e-003	0.1064		389.7727	389.7727	0.0202		390.1974
Total	**0.1407**	**0.1907**	**1.9955**	**4.5000e-003**	**0.3912**	**2.8400e-003**	**0.3941**	**0.1038**	**2.6100e-003**	**0.1064**		**389.7727**	**389.7727**	**0.0202**		**390.1974**

Peters Canyon Reuse Pipeline Project - Open-Trench Construction Emissions

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2015
Utility Company	Southern California Edison				
CO_2 Intensity (lb/MWhr)	630.89	**CH_4 Intensity (lb/MWhr)**	0.029	**N_2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Worst-case construction scenarion for open-trench site.

Off-road Equipment - Construction equipment during excavation and shoring activities.

Off-road Equipment - Equipment for pipe installation and backfiling during concurrent excavation and shoring phase.

Off-road Equipment - Construction equipment for site preparation activities.

Off-road Equipment - Construction equipment for work site restoration activities.

Trips and VMT - Anticipated truck trips for open trench construction.

Grading - Max. area disturbed = 1.4 acres for open-trench site; 4,000 cy of imported sand for pipe zone anticipated.

Construction Off-road Equipment Mitigation -

Off-road Equipment - Equipment for excavation and shoring phase.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	45.00
tblConstructionPhase	NumDays	0.00	45.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	PhaseEndDate	7/3/2015	5/1/2015
tblConstructionPhase	PhaseStartDate	5/2/2015	3/2/2015
tblConstructionPhase	PhaseStartDate	2/28/2015	3/2/2015
tblConstructionPhase	PhaseStartDate	5/2/2015	5/4/2015
tblGrading	AcresOfGrading	0.00	1.40
tblGrading	AcresOfGrading	0.00	1.40
tblGrading	MaterialImported	0.00	4,000.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Pavers
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators

tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Surfacing Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	3.00

tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblProjectCharacteristics	OperationalYear	2014	2015

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.1470	1.2542	0.8866	1.6800e-003	0.0193	0.0722	0.0915	4.9000e-003	0.0681	0.0730	0.0000	146.9798	146.9798	0.0306	0.0000	147.6233
Total	**0.1470**	**1.2542**	**0.8866**	**1.6800e-003**	**0.0193**	**0.0722**	**0.0915**	**4.9000e-003**	**0.0681**	**0.0730**	**0.0000**	**146.9798**	**146.9798**	**0.0306**	**0.0000**	**147.6233**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					

2015	0.1470	1.2542	0.8866	1.6800e-003	0.0183	0.0722	0.0905	4.7900e-003	0.0681	0.0729	0.0000	146.9797	146.9797	0.0306	0.0000	147.6232
Total	**0.1470**	**1.2542**	**0.8866**	**1.6800e-003**	**0.0183**	**0.0722**	**0.0905**	**4.7900e-003**	**0.0681**	**0.0729**	**0.0000**	**146.9797**	**146.9797**	**0.0306**	**0.0000**	**147.6232**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	5.44	0.00	1.15	2.24	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/2/2015	2/27/2015	5	20	
2	Excavation, and Shoring	Grading	3/2/2015	5/1/2015	5	45	
3	Pipe Installation and Backfilling	Building Construction	3/2/2015	5/1/2015	5	45	
4	Work Site Restoration	Paving	5/4/2015	5/29/2015	5	20	

Acres of Grading (Site Preparation Phase): 1.4

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Air Compressors	1	6.00	78	0.48
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Site Preparation	Graders	0	8.00	174	0.41
Site Preparation	Concrete/Industrial Saws	1	2.00	81	0.73
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Site Preparation	Signal Boards	2	24.00	6	0.82

Site Preparation	Tractors/Loaders/Backhoes		0	2.00	97	0.37
Site Preparation	Sweepers/Scrubbers		2	1.00	64	0.46
Pipe Installation and Backfilling	Air Compressors		1	3.00	78	0.48
Site Preparation	Tractors/Loaders/Backhoes		2	2.00	97	0.37
Excavation, and Shoring	Bore/Drill Rigs		1	8.00	205	0.50
Excavation, and Shoring	Dumpers/Tenders		1	8.00	16	0.38
Excavation, and Shoring	Excavators		1	6.00	162	0.38
Pipe Installation and Backfilling	Cement and Mortar Mixers		1	3.00	9	0.56
Excavation, and Shoring	Off-Highway Trucks		1	2.00	400	0.38
Excavation, and Shoring	Signal Boards		2	24.00	6	0.82
Excavation, and Shoring	Tractors/Loaders/Backhoes		1	8.00	97	0.37
Excavation, and Shoring	Tractors/Loaders/Backhoes		1	3.00	97	0.37
Excavation, and Shoring	Sweepers/Scrubbers		1	1.00	64	0.46
Excavation, and Shoring	Tractors/Loaders/Backhoes		1	3.00	97	0.37
Pipe Installation and Backfilling	Welders		2	6.00	46	0.45
Work Site Restoration	Air Compressors		1	8.00	78	0.48
Work Site Restoration	Concrete/Industrial Saws		1	6.00	81	0.73
Work Site Restoration	Pavers		1	8.00	125	0.42
Work Site Restoration	Paving Equipment		1	8.00	130	0.36
Work Site Restoration	Rollers		2	8.00	80	0.38
Work Site Restoration	Signal Boards		2	24.00	6	0.82
Work Site Restoration	Skid Steer Loaders		1	8.00	64	0.37
Work Site Restoration	Surfacing Equipment		1	8.00	253	0.30
Work Site Restoration	Sweepers/Scrubbers		1	1.00	64	0.46
Work Site Restoration	Tractors/Loaders/Backhoes		1	4.00	97	0.37
Work Site Restoration	Cement and Mortar Mixers		0	6.00	9	0.56
Excavation, and Shoring	Concrete/Industrial Saws		0	8.00	81	0.73
Pipe Installation and Backfilling	Cranes		0	4.00	226	0.29
Pipe Installation and Backfilling	Forklifts		0	6.00	89	0.20
Excavation, and Shoring	Rubber Tired Dozers		0	1.00	255	0.40

Pipe Installation and Backfilling	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Pipe Installation and Backfilling	Rollers	1	8.00	80	0.38
Work Site Restoration	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Work Site Restoration	Tractors/Loaders/Backhoes	1	4.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	12	30.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation, and Shoring	10	25.00	0.00	500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipe Installation and Backfilling	5	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Work Site Restoration	14	35.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.4000e-004	0.0000	7.4000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0158	0.1202	0.0883	1.4000e-004		8.8400e-003	8.8400e-003		8.4500e-003	8.4500e-003	0.0000	11.6428	11.6428	2.2700e-003	0.0000	11.6904
Total	**0.0158**	**0.1202**	**0.0883**	**1.4000e-004**	**7.4000e-004**	**8.8400e-003**	**9.5800e-003**	**8.0000e-005**	**8.4500e-003**	**8.5300e-003**	**0.0000**	**11.6428**	**11.6428**	**2.2700e-003**	**0.0000**	**11.6904**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1300e-003	1.6800e-003	0.0175	4.0000e-005	3.2900e-003	2.0000e-005	3.3200e-003	8.7000e-004	2.0000e-005	9.0000e-004	0.0000	3.0765	3.0765	1.6000e-004	0.0000	3.0798
Total	**1.1300e-003**	**1.6800e-003**	**0.0175**	**4.0000e-005**	**3.2900e-003**	**2.0000e-005**	**3.3200e-003**	**8.7000e-004**	**2.0000e-005**	**9.0000e-004**	**0.0000**	**3.0765**	**3.0765**	**1.6000e-004**	**0.0000**	**3.0798**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Fugitive Dust					2.9000e-004	0.0000	2.9000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0158	0.1202	0.0883	1.4000e-004		8.8400e-003	8.8400e-003		8.4500e-003	8.4500e-003	0.0000	11.6428	11.6428	2.2700e-003	0.0000	11.6904
Total	**0.0158**	**0.1202**	**0.0883**	**1.4000e-004**	**2.9000e-004**	**8.8400e-003**	**9.1300e-003**	**3.0000e-005**	**8.4500e-003**	**8.4800e-003**	**0.0000**	**11.6428**	**11.6428**	**2.2700e-003**	**0.0000**	**11.6904**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1300e-003	1.6800e-003	0.0175	4.0000e-005	3.2900e-003	2.0000e-005	3.3200e-003	8.7000e-004	2.0000e-005	9.0000e-004	0.0000	3.0765	3.0765	1.6000e-004	0.0000	3.0798
Total	**1.1300e-003**	**1.6800e-003**	**0.0175**	**4.0000e-005**	**3.2900e-003**	**2.0000e-005**	**3.3200e-003**	**8.7000e-004**	**2.0000e-005**	**9.0000e-004**	**0.0000**	**3.0765**	**3.0765**	**1.6000e-004**	**0.0000**	**3.0798**

3.3 Excavation, and Shoring - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.7000e-004	0.0000	9.7000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0463	0.4899	0.2845	6.0000e-004		0.0245	0.0245		0.0227	0.0227	0.0000	53.9134	53.9134	0.0147	0.0000	54.2217
Total	**0.0463**	**0.4899**	**0.2845**	**6.0000e-004**	**9.7000e-004**	**0.0245**	**0.0255**	**1.1000e-004**	**0.0227**	**0.0229**	**0.0000**	**53.9134**	**53.9134**	**0.0147**	**0.0000**	**54.2217**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.2700e-003	0.0821	0.0589	1.8000e-004	4.2900e-003	1.3000e-003	5.5800e-003	1.1800e-003	1.1900e-003	2.3700e-003	0.0000	16.9832	16.9832	1.3000e-004	0.0000	16.9860
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1200e-003	3.1500e-003	0.0327	7.0000e-005	6.1800e-003	5.0000e-005	6.2200e-003	1.6400e-003	4.0000e-005	1.6800e-003	0.0000	5.7684	5.7684	2.9000e-004	0.0000	5.7745
Total	**7.3900e-003**	**0.0853**	**0.0916**	**2.5000e-004**	**0.0105**	**1.3500e-003**	**0.0118**	**2.8200e-003**	**1.2300e-003**	**4.0500e-003**	**0.0000**	**22.7516**	**22.7516**	**4.2000e-004**	**0.0000**	**22.7606**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.8000e-004	0.0000	3.8000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0463	0.4899	0.2845	6.0000e-004		0.0245	0.0245		0.0227	0.0227	0.0000	53.9133	53.9133	0.0147	0.0000	54.2216
Total	**0.0463**	**0.4899**	**0.2845**	**6.0000e-004**	**3.8000e-004**	**0.0245**	**0.0249**	**4.0000e-005**	**0.0227**	**0.0228**	**0.0000**	**53.9133**	**53.9133**	**0.0147**	**0.0000**	**54.2216**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.2700e-003	0.0821	0.0589	1.8000e-004	4.2900e-003	1.3000e-003	5.5800e-003	1.1800e-003	1.1900e-003	2.3700e-003	0.0000	16.9832	16.9832	1.3000e-004	0.0000	16.9860
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1200e-003	3.1500e-003	0.0327	7.0000e-005	6.1800e-003	5.0000e-005	6.2200e-003	1.6400e-003	4.0000e-005	1.6800e-003	0.0000	5.7684	5.7684	2.9000e-004	0.0000	5.7745
Total	**7.3900e-003**	**0.0853**	**0.0916**	**2.5000e-004**	**0.0105**	**1.3500e-003**	**0.0118**	**2.8200e-003**	**1.2300e-003**	**4.0500e-003**	**0.0000**	**22.7516**	**22.7516**	**4.2000e-004**	**0.0000**	**22.7606**

3.4 Pipe Installation and Backfilling - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0343	0.1698	0.1379	1.8000e-004		0.0135	0.0135		0.0130	0.0130	0.0000	15.1604	15.1604	3.7900e-003	0.0000	15.2400
Total	**0.0343**	**0.1698**	**0.1379**	**1.8000e-004**		**0.0135**	**0.0135**		**0.0130**	**0.0130**	**0.0000**	**15.1604**	**15.1604**	**3.7900e-003**	**0.0000**	**15.2400**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0343	0.1698	0.1379	1.8000e-004		0.0135	0.0135		0.0130	0.0130	0.0000	15.1603	15.1603	3.7900e-003	0.0000	15.2400

Total	**0.0343**	**0.1698**	**0.1379**	**1.8000e-004**		**0.0135**	**0.0135**		**0.0130**	**0.0130**	**0.0000**	**15.1603**	**15.1603**	**3.7900e-003**	**0.0000**	**15.2400**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Work Site Restoration - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0408	0.3855	0.2466	4.1000e-004		0.0240	0.0240		0.0226	0.0226	0.0000	36.8461	36.8461	9.1300e-003	0.0000	37.0379
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0408**	**0.3855**	**0.2466**	**4.1000e-004**		**0.0240**	**0.0240**		**0.0226**	**0.0226**	**0.0000**	**36.8461**	**36.8461**	**9.1300e-003**	**0.0000**	**37.0379**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3200e-003	1.9600e-003	0.0204	5.0000e-005	3.8400e-003	3.0000e-005	3.8700e-003	1.0200e-003	3.0000e-005	1.0500e-003	0.0000	3.5892	3.5892	1.8000e-004	0.0000	3.5930
Total	**1.3200e-003**	**1.9600e-003**	**0.0204**	**5.0000e-005**	**3.8400e-003**	**3.0000e-005**	**3.8700e-003**	**1.0200e-003**	**3.0000e-005**	**1.0500e-003**	**0.0000**	**3.5892**	**3.5892**	**1.8000e-004**	**0.0000**	**3.5930**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0408	0.3855	0.2466	4.1000e-004		0.0240	0.0240		0.0226	0.0226	0.0000	36.8461	36.8461	9.1300e-003	0.0000	37.0379
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0408**	**0.3855**	**0.2466**	**4.1000e-004**		**0.0240**	**0.0240**		**0.0226**	**0.0226**	**0.0000**	**36.8461**	**36.8461**	**9.1300e-003**	**0.0000**	**37.0379**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3200e-003	1.9600e-003	0.0204	5.0000e-005	3.8400e-003	3.0000e-005	3.8700e-003	1.0200e-003	3.0000e-005	1.0500e-003	0.0000	3.5892	3.5892	1.8000e-004	0.0000	3.5930
Total	**1.3200e-003**	**1.9600e-003**	**0.0204**	**5.0000e-005**	**3.8400e-003**	**3.0000e-005**	**3.8700e-003**	**1.0200e-003**	**3.0000e-005**	**1.0500e-003**	**0.0000**	**3.5892**	**3.5892**	**1.8000e-004**	**0.0000**	**3.5930**

Peters Canyon Reuse Pipeline Project - Open-Trench Construction Emissions

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2015
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Worst-case construction scenarion for open-trench site.

Off-road Equipment - Construction equipment during excavation and shoring activities.

Off-road Equipment - Equipment for pipe installation and backfiling during concurrent excavation and shoring phase.

Off-road Equipment - Construction equipment for site preparation activities.

Off-road Equipment - Construction equipment for work site restoration activities.

Trips and VMT - Anticipated truck trips for open trench construction.

Grading - Max. area disturbed = 1.4 acres for open-trench site; 4,000 cy of imported sand for pipe zone anticipated.

Construction Off-road Equipment Mitigation -

Off-road Equipment - Equipment for excavation and shoring phase.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	45.00
tblConstructionPhase	NumDays	0.00	45.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	PhaseEndDate	7/3/2015	5/1/2015
tblConstructionPhase	PhaseStartDate	5/2/2015	3/2/2015
tblConstructionPhase	PhaseStartDate	2/28/2015	3/2/2015
tblConstructionPhase	PhaseStartDate	5/2/2015	5/4/2015
tblGrading	AcresOfGrading	0.00	1.40
tblGrading	AcresOfGrading	0.00	1.40
tblGrading	MaterialImported	0.00	4,000.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Pavers
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators

tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Surfacing Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	3.00

tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblProjectCharacteristics	OperationalYear	2014	2015

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	4.2088	38.7192	26.7681	0.0464	0.5160	2.4012	2.7924	0.1322	2.2626	2.3664	0.0000	4,510.8548	4,510.8548	1.0270	0.0000	4,532.4218
Total	**4.2088**	**38.7192**	**26.7681**	**0.0464**	**0.5160**	**2.4012**	**2.7924**	**0.1322**	**2.2626**	**2.3664**	**0.0000**	**4,510.8548**	**4,510.8548**	**1.0270**	**0.0000**	**4,532.4218**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					

2015	4.2088	38.7192	26.7681	0.0464	0.4898	2.4012	2.7924	0.1291	2.2626	2.3664	0.0000	4,510.8548	4,510.8548	1.0270	0.0000	4,532.4218
Total	**4.2088**	**38.7192**	**26.7681**	**0.0464**	**0.4898**	**2.4012**	**2.7924**	**0.1291**	**2.2626**	**2.3664**	**0.0000**	**4,510.8548**	**4,510.8548**	**1.0270**	**0.0000**	**4,532.4218**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**5.09**	**0.00**	**0.00**	**2.35**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/2/2015	2/27/2015	5	20	
2	Excavation, and Shoring	Grading	3/2/2015	5/1/2015	5	45	
3	Pipe Installation and Backfilling	Building Construction	3/2/2015	5/1/2015	5	45	
4	Work Site Restoration	Paving	5/4/2015	5/29/2015	5	20	

Acres of Grading (Site Preparation Phase): 1.4

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Air Compressors	1	6.00	78	0.48
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Site Preparation	Graders	0	8.00	174	0.41
Site Preparation	Concrete/Industrial Saws	1	2.00	81	0.73
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Site Preparation	Signal Boards	2	24.00	6	0.82

Site Preparation	Tractors/Loaders/Backhoes	0	2.00	97	0.37
Site Preparation	Sweepers/Scrubbers	2	1.00	64	0.46
Pipe Installation and Backfilling	Air Compressors	1	3.00	78	0.48
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Excavation, and Shoring	Bore/Drill Rigs	1	8.00	205	0.50
Excavation, and Shoring	Dumpers/Tenders	1	8.00	16	0.38
Excavation, and Shoring	Excavators	1	6.00	162	0.38
Pipe Installation and Backfilling	Cement and Mortar Mixers	1	3.00	9	0.56
Excavation, and Shoring	Off-Highway Trucks	1	2.00	400	0.38
Excavation, and Shoring	Signal Boards	2	24.00	6	0.82
Excavation, and Shoring	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Excavation, and Shoring	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Excavation, and Shoring	Sweepers/Scrubbers	1	1.00	64	0.46
Excavation, and Shoring	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Pipe Installation and Backfilling	Welders	2	6.00	46	0.45
Work Site Restoration	Air Compressors	1	8.00	78	0.48
Work Site Restoration	Concrete/Industrial Saws	1	6.00	81	0.73
Work Site Restoration	Pavers	1	8.00	125	0.42
Work Site Restoration	Paving Equipment	1	8.00	130	0.36
Work Site Restoration	Rollers	2	8.00	80	0.38
Work Site Restoration	Signal Boards	2	24.00	6	0.82
Work Site Restoration	Skid Steer Loaders	1	8.00	64	0.37
Work Site Restoration	Surfacing Equipment	1	8.00	253	0.30
Work Site Restoration	Sweepers/Scrubbers	1	1.00	64	0.46
Work Site Restoration	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Work Site Restoration	Cement and Mortar Mixers	0	6.00	9	0.56
Excavation, and Shoring	Concrete/Industrial Saws	0	8.00	81	0.73
Pipe Installation and Backfilling	Cranes	0	4.00	226	0.29
Pipe Installation and Backfilling	Forklifts	0	6.00	89	0.20
Excavation, and Shoring	Rubber Tired Dozers	0	1.00	255	0.40

Pipe Installation and Backfilling	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Pipe Installation and Backfilling	Rollers	1	8.00	80	0.38
Work Site Restoration	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Work Site Restoration	Tractors/Loaders/Backhoes	1	4.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	12	30.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation, and Shoring	10	25.00	0.00	500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipe Installation and Backfilling	5	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Work Site Restoration	14	35.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0742	0.0000	0.0742	8.0200e-003	0.0000	8.0200e-003			0.0000			0.0000
Off-Road	1.5776	12.0175	8.8289	0.0140		0.8839	0.8839		0.8453	0.8453		1,283.4000	1,283.4000	0.2498		1,288.6464
Total	**1.5776**	**12.0175**	**8.8289**	**0.0140**	**0.0742**	**0.8839**	**0.9581**	**8.0200e-003**	**0.8453**	**0.8533**		**1,283.4000**	**1,283.4000**	**0.2498**		**1,288.6464**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1144	0.1486	1.8108	4.0700e-003	0.3353	2.4400e-003	0.3378	0.0889	2.2400e-003	0.0912		352.7477	352.7477	0.0173		353.1117
Total	**0.1144**	**0.1486**	**1.8108**	**4.0700e-003**	**0.3353**	**2.4400e-003**	**0.3378**	**0.0889**	**2.2400e-003**	**0.0912**		**352.7477**	**352.7477**	**0.0173**		**353.1117**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Fugitive Dust					0.0290	0.0000	0.0290	3.1300e-003	0.0000	3.1300e-003			0.0000			0.0000
Off-Road	1.5776	12.0175	8.8289	0.0140		0.8839	0.8839		0.8453	0.8453	0.0000	1,283.4000	1,283.4000	0.2498		1,288.6464
Total	**1.5776**	**12.0175**	**8.8289**	**0.0140**	**0.0290**	**0.8839**	**0.9128**	**3.1300e-003**	**0.8453**	**0.8484**	**0.0000**	**1,283.4000**	**1,283.4000**	**0.2498**		**1,288.6464**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1144	0.1486	1.8108	4.0700e-003	0.3353	2.4400e-003	0.3378	0.0889	2.2400e-003	0.0912		352.7477	352.7477	0.0173		353.1117
Total	**0.1144**	**0.1486**	**1.8108**	**4.0700e-003**	**0.3353**	**2.4400e-003**	**0.3378**	**0.0889**	**2.2400e-003**	**0.0912**		**352.7477**	**352.7477**	**0.0173**		**353.1117**

3.3 Excavation, and Shoring - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0431	0.0000	0.0431	5.0800e-003	0.0000	5.0800e-003			0.0000			0.0000
Off-Road	2.0592	21.7750	12.6434	0.0267		1.0896	1.0896		1.0107	1.0107		2,641.3021	2,641.3021	0.7194		2,656.4090
Total	**2.0592**	**21.7750**	**12.6434**	**0.0267**	**0.0431**	**1.0896**	**1.1326**	**5.0800e-003**	**1.0107**	**1.0158**		**2,641.3021**	**2,641.3021**	**0.7194**		**2,656.4090**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2243	3.4690	2.3607	8.1800e-003	0.1935	0.0575	0.2511	0.0530	0.0529	0.1059		832.8662	832.8662	6.5000e-003		833.0026
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0954	0.1239	1.5090	3.3900e-003	0.2794	2.0300e-003	0.2815	0.0741	1.8700e-003	0.0760		293.9564	293.9564	0.0144		294.2597
Total	**0.3197**	**3.5929**	**3.8697**	**0.0116**	**0.4730**	**0.0596**	**0.5325**	**0.1271**	**0.0548**	**0.1819**		**1,126.8226**	**1,126.8226**	**0.0209**		**1,127.2623**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0168	0.0000	0.0168	1.9800e-003	0.0000	1.9800e-003			0.0000			0.0000
Off-Road	2.0592	21.7750	12.6434	0.0267		1.0896	1.0896		1.0107	1.0107	0.0000	2,641.3021	2,641.3021	0.7194		2,656.4090
Total	**2.0592**	**21.7750**	**12.6434**	**0.0267**	**0.0168**	**1.0896**	**1.1064**	**1.9800e-003**	**1.0107**	**1.0127**	**0.0000**	**2,641.3021**	**2,641.3021**	**0.7194**		**2,656.4090**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2243	3.4690	2.3607	8.1800e-003	0.1935	0.0575	0.2511	0.0530	0.0529	0.1059		832.8662	832.8662	6.5000e-003		833.0026
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0954	0.1239	1.5090	3.3900e-003	0.2794	2.0300e-003	0.2815	0.0741	1.8700e-003	0.0760		293.9564	293.9564	0.0144		294.2597
Total	**0.3197**	**3.5929**	**3.8697**	**0.0116**	**0.4730**	**0.0596**	**0.5325**	**0.1271**	**0.0548**	**0.1819**		**1,126.8226**	**1,126.8226**	**0.0209**		**1,127.2623**

3.4 Pipe Installation and Backfilling - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5263	7.5442	6.1288	8.1700e-003		0.5991	0.5991		0.5793	0.5793		742.7302	742.7302	0.1858		746.6316
Total	**1.5263**	**7.5442**	**6.1288**	**8.1700e-003**		**0.5991**	**0.5991**		**0.5793**	**0.5793**		**742.7302**	**742.7302**	**0.1858**		**746.6316**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5263	7.5442	6.1288	8.1700e-003		0.5991	0.5991		0.5793	0.5793	0.0000	742.7302	742.7302	0.1858		746.6316

Total	**1.5263**	**7.5442**	**6.1288**	**8.1700e-003**		**0.5991**	**0.5991**		**0.5793**	**0.5793**	**0.0000**	**742.7302**	**742.7302**	**0.1858**		**746.6316**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Work Site Restoration - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0753	38.5458	24.6556	0.0409		2.3983	2.3983		2.2600	2.2600		4,061.5871	4,061.5871	1.0068		4,082.7295
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.0753**	**38.5458**	**24.6556**	**0.0409**		**2.3983**	**2.3983**		**2.2600**	**2.2600**		**4,061.5871**	**4,061.5871**	**1.0068**		**4,082.7295**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1335	0.1734	2.1126	4.7500e-003	0.3912	2.8400e-003	0.3941	0.1038	2.6100e-003	0.1064		411.5390	411.5390	0.0202		411.9636
Total	**0.1335**	**0.1734**	**2.1126**	**4.7500e-003**	**0.3912**	**2.8400e-003**	**0.3941**	**0.1038**	**2.6100e-003**	**0.1064**		**411.5390**	**411.5390**	**0.0202**		**411.9636**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Off-Road	4.0753	38.5458	24.6556	0.0409		2.3983	2.3983		2.2600	2.2600	0.0000	4,061.5871	4,061.5871	1.0068		4,082.7295
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.0753**	**38.5458**	**24.6556**	**0.0409**		**2.3983**	**2.3983**		**2.2600**	**2.2600**	**0.0000**	**4,061.5871**	**4,061.5871**	**1.0068**		**4,082.7295**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1335	0.1734	2.1126	4.7500e-003	0.3912	2.8400e-003	0.3941	0.1038	2.6100e-003	0.1064		411.5390	411.5390	0.0202		411.9636
Total	**0.1335**	**0.1734**	**2.1126**	**4.7500e-003**	**0.3912**	**2.8400e-003**	**0.3941**	**0.1038**	**2.6100e-003**	**0.1064**		**411.5390**	**411.5390**	**0.0202**		**411.9636**

Peters Canyon Reuse Pipeline Project - Open-Trench Construction Emissions

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2015
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Worst-case construction scenarion for open-trench site.

Off-road Equipment - Construction equipment during excavation and shoring activities.

Off-road Equipment - Equipment for pipe installation and backfiling during concurrent excavation and shoring phase.

Off-road Equipment - Construction equipment for site preparation activities.

Off-road Equipment - Construction equipment for work site restoration activities.

Trips and VMT - Anticipated truck trips for open trench construction.

Grading - Max. area disturbed = 1.4 acres for open-trench site; 4,000 cy of imported sand for pipe zone anticipated.

Construction Off-road Equipment Mitigation -

Off-road Equipment - Equipment for excavation and shoring phase.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	45.00
tblConstructionPhase	NumDays	0.00	45.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	PhaseEndDate	7/3/2015	5/1/2015
tblConstructionPhase	PhaseStartDate	5/2/2015	3/2/2015
tblConstructionPhase	PhaseStartDate	2/28/2015	3/2/2015
tblConstructionPhase	PhaseStartDate	5/2/2015	5/4/2015
tblGrading	AcresOfGrading	0.00	1.40
tblGrading	AcresOfGrading	0.00	1.40
tblGrading	MaterialImported	0.00	4,000.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Pavers
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators

tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Surfacing Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	3.00

tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblProjectCharacteristics	OperationalYear	2014	2015

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	4.2160	38.7365	26.6511	0.0462	0.5160	2.4012	2.7924	0.1322	2.2626	2.3664	0.0000	4,493.3278	4,493.3278	1.0270	0.0000	4,514.8948
Total	**4.2160**	**38.7365**	**26.6511**	**0.0462**	**0.5160**	**2.4012**	**2.7924**	**0.1322**	**2.2626**	**2.3664**	**0.0000**	**4,493.3278**	**4,493.3278**	**1.0270**	**0.0000**	**4,514.8948**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2015	4.2160	38.7365	26.6511	0.0462	0.4898	2.4012	2.7924	0.1291	2.2626	2.3664	0.0000	4,493.3278	4,493.3278	1.0270	0.0000	4,514.8948
Total	**4.2160**	**38.7365**	**26.6511**	**0.0462**	**0.4898**	**2.4012**	**2.7924**	**0.1291**	**2.2626**	**2.3664**	**0.0000**	**4,493.3278**	**4,493.3278**	**1.0270**	**0.0000**	**4,514.8948**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	5.09	0.00	0.00	2.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/2/2015	2/27/2015	5	20	
2	Excavation, and Shoring	Grading	3/2/2015	5/1/2015	5	45	
3	Pipe Installation and Backfilling	Building Construction	3/2/2015	5/1/2015	5	45	
4	Work Site Restoration	Paving	5/4/2015	5/29/2015	5	20	

Acres of Grading (Site Preparation Phase): 1.4

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Air Compressors	1	6.00	78	0.48
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Site Preparation	Graders	0	8.00	174	0.41
Site Preparation	Concrete/Industrial Saws	1	2.00	81	0.73
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Site Preparation	Signal Boards	2	24.00	6	0.82

Site Preparation	Tractors/Loaders/Backhoes		0	2.00	97	0.37
Site Preparation	Sweepers/Scrubbers		2	1.00	64	0.46
Pipe Installation and Backfilling	Air Compressors		1	3.00	78	0.48
Site Preparation	Tractors/Loaders/Backhoes		2	2.00	97	0.37
Excavation, and Shoring	Bore/Drill Rigs		1	8.00	205	0.50
Excavation, and Shoring	Dumpers/Tenders		1	8.00	16	0.38
Excavation, and Shoring	Excavators		1	6.00	162	0.38
Pipe Installation and Backfilling	Cement and Mortar Mixers		1	3.00	9	0.56
Excavation, and Shoring	Off-Highway Trucks		1	2.00	400	0.38
Excavation, and Shoring	Signal Boards		2	24.00	6	0.82
Excavation, and Shoring	Tractors/Loaders/Backhoes		1	8.00	97	0.37
Excavation, and Shoring	Tractors/Loaders/Backhoes		1	3.00	97	0.37
Excavation, and Shoring	Sweepers/Scrubbers		1	1.00	64	0.46
Excavation, and Shoring	Tractors/Loaders/Backhoes		1	3.00	97	0.37
Pipe Installation and Backfilling	Welders		2	6.00	46	0.45
Work Site Restoration	Air Compressors		1	8.00	78	0.48
Work Site Restoration	Concrete/Industrial Saws		1	6.00	81	0.73
Work Site Restoration	Pavers		1	8.00	125	0.42
Work Site Restoration	Paving Equipment		1	8.00	130	0.36
Work Site Restoration	Rollers		2	8.00	80	0.38
Work Site Restoration	Signal Boards		2	24.00	6	0.82
Work Site Restoration	Skid Steer Loaders		1	8.00	64	0.37
Work Site Restoration	Surfacing Equipment		1	8.00	253	0.30
Work Site Restoration	Sweepers/Scrubbers		1	1.00	64	0.46
Work Site Restoration	Tractors/Loaders/Backhoes		1	4.00	97	0.37
Work Site Restoration	Cement and Mortar Mixers		0	6.00	9	0.56
Excavation, and Shoring	Concrete/Industrial Saws		0	8.00	81	0.73
Pipe Installation and Backfilling	Cranes		0	4.00	226	0.29
Pipe Installation and Backfilling	Forklifts		0	6.00	89	0.20
Excavation, and Shoring	Rubber Tired Dozers		0	1.00	255	0.40

Pipe Installation and Backfilling	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Pipe Installation and Backfilling	Rollers	1	8.00	80	0.38
Work Site Restoration	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Work Site Restoration	Tractors/Loaders/Backhoes	1	4.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	12	30.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation, and Shoring	10	25.00	0.00	500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pipe Installation and Backfilling	5	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Work Site Restoration	14	35.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0742	0.0000	0.0742	8.0200e-003	0.0000	8.0200e-003			0.0000			0.0000
Off-Road	1.5776	12.0175	8.8289	0.0140		0.8839	0.8839		0.8453	0.8453		1,283.4000	1,283.4000	0.2498		1,288.6464
Total	**1.5776**	**12.0175**	**8.8289**	**0.0140**	**0.0742**	**0.8839**	**0.9581**	**8.0200e-003**	**0.8453**	**0.8533**		**1,283.4000**	**1,283.4000**	**0.2498**		**1,288.6464**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1206	0.1635	1.7104	3.8500e-003	0.3353	2.4400e-003	0.3378	0.0889	2.2400e-003	0.0912		334.0909	334.0909	0.0173		334.4549
Total	**0.1206**	**0.1635**	**1.7104**	**3.8500e-003**	**0.3353**	**2.4400e-003**	**0.3378**	**0.0889**	**2.2400e-003**	**0.0912**		**334.0909**	**334.0909**	**0.0173**		**334.4549**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0290	0.0000	0.0290	3.1300e-003	0.0000	3.1300e-003			0.0000			0.0000
Off-Road	1.5776	12.0175	8.8289	0.0140		0.8839	0.8839		0.8453	0.8453	0.0000	1,283.4000	1,283.4000	0.2498		1,288.6464
Total	**1.5776**	**12.0175**	**8.8289**	**0.0140**	**0.0290**	**0.8839**	**0.9128**	**3.1300e-003**	**0.8453**	**0.8484**	**0.0000**	**1,283.4000**	**1,283.4000**	**0.2498**		**1,288.6464**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1206	0.1635	1.7104	3.8500e-003	0.3353	2.4400e-003	0.3378	0.0889	2.2400e-003	0.0912		334.0909	334.0909	0.0173		334.4549
Total	**0.1206**	**0.1635**	**1.7104**	**3.8500e-003**	**0.3353**	**2.4400e-003**	**0.3378**	**0.0889**	**2.2400e-003**	**0.0912**		**334.0909**	**334.0909**	**0.0173**		**334.4549**

3.3 Excavation, and Shoring - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0431	0.0000	0.0431	5.0800e-003	0.0000	5.0800e-003			0.0000			0.0000
Off-Road	2.0592	21.7750	12.6434	0.0267		1.0896	1.0896		1.0107	1.0107		2,641.3021	2,641.3021	0.7194		2,656.4090
Total	**2.0592**	**21.7750**	**12.6434**	**0.0267**	**0.0431**	**1.0896**	**1.1326**	**5.0800e-003**	**1.0107**	**1.0158**		**2,641.3021**	**2,641.3021**	**0.7194**		**2,656.4090**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2399	3.5881	2.6919	8.1700e-003	0.1935	0.0577	0.2513	0.0530	0.0531	0.1061		830.8865	830.8865	6.5800e-003		831.0247
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1005	0.1362	1.4254	3.2100e-003	0.2794	2.0300e-003	0.2815	0.0741	1.8700e-003	0.0760		278.4091	278.4091	0.0144		278.7124
Total	**0.3404**	**3.7244**	**4.1173**	**0.0114**	**0.4730**	**0.0598**	**0.5327**	**0.1271**	**0.0550**	**0.1821**		**1,109.2956**	**1,109.2956**	**0.0210**		**1,109.7371**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Fugitive Dust					0.0168	0.0000	0.0168	1.9800e-003	0.0000	1.9800e-003			0.0000			0.0000
Off-Road	2.0592	21.7750	12.6434	0.0267		1.0896	1.0896		1.0107	1.0107	0.0000	2,641.3021	2,641.3021	0.7194		2,656.4090
Total	**2.0592**	**21.7750**	**12.6434**	**0.0267**	**0.0168**	**1.0896**	**1.1064**	**1.9800e-003**	**1.0107**	**1.0127**	**0.0000**	**2,641.3021**	**2,641.3021**	**0.7194**		**2,656.4090**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.2399	3.5881	2.6919	8.1700e-003	0.1935	0.0577	0.2513	0.0530	0.0531	0.1061		830.8865	830.8865	6.5800e-003		831.0247
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1005	0.1362	1.4254	3.2100e-003	0.2794	2.0300e-003	0.2815	0.0741	1.8700e-003	0.0760		278.4091	278.4091	0.0144		278.7124
Total	**0.3404**	**3.7244**	**4.1173**	**0.0114**	**0.4730**	**0.0598**	**0.5327**	**0.1271**	**0.0550**	**0.1821**		**1,109.2956**	**1,109.2956**	**0.0210**		**1,109.7371**

3.4 Pipe Installation and Backfilling - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5263	7.5442	6.1288	8.1700e-003		0.5991	0.5991		0.5793	0.5793		742.7302	742.7302	0.1858		746.6316
Total	**1.5263**	**7.5442**	**6.1288**	**8.1700e-003**		**0.5991**	**0.5991**		**0.5793**	**0.5793**		**742.7302**	**742.7302**	**0.1858**		**746.6316**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5263	7.5442	6.1288	8.1700e-003		0.5991	0.5991		0.5793	0.5793	0.0000	742.7302	742.7302	0.1858		746.6316

Total	**1.5263**	**7.5442**	**6.1288**	**8.1700e-003**		**0.5991**	**0.5991**		**0.5793**	**0.5793**	**0.0000**	**742.7302**	**742.7302**	**0.1858**		**746.6316**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Work Site Restoration - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0753	38.5458	24.6556	0.0409		2.3983	2.3983		2.2600	2.2600		4,061.5871	4,061.5871	1.0068		4,082.7295
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.0753**	**38.5458**	**24.6556**	**0.0409**		**2.3983**	**2.3983**		**2.2600**	**2.2600**		**4,061.5871**	**4,061.5871**	**1.0068**		**4,082.7295**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1407	0.1907	1.9955	4.5000e-003	0.3912	2.8400e-003	0.3941	0.1038	2.6100e-003	0.1064		389.7727	389.7727	0.0202		390.1974
Total	**0.1407**	**0.1907**	**1.9955**	**4.5000e-003**	**0.3912**	**2.8400e-003**	**0.3941**	**0.1038**	**2.6100e-003**	**0.1064**		**389.7727**	**389.7727**	**0.0202**		**390.1974**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Off-Road	4.0753	38.5458	24.6556	0.0409		2.3983	2.3983		2.2600	2.2600	0.0000	4,061.5871	4,061.5871	1.0068		4,082.7295
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.0753**	**38.5458**	**24.6556**	**0.0409**		**2.3983**	**2.3983**		**2.2600**	**2.2600**	**0.0000**	**4,061.5871**	**4,061.5871**	**1.0068**		**4,082.7295**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1407	0.1907	1.9955	4.5000e-003	0.3912	2.8400e-003	0.3941	0.1038	2.6100e-003	0.1064		389.7727	389.7727	0.0202		390.1974
Total	**0.1407**	**0.1907**	**1.9955**	**4.5000e-003**	**0.3912**	**2.8400e-003**	**0.3941**	**0.1038**	**2.6100e-003**	**0.1064**		**389.7727**	**389.7727**	**0.0202**		**390.1974**

Air Quality Analysis

CalEEMod Output for Localized Construction Emissions

Peters Canyon Reuse Pipeline Project - Onsite Jack & Bore Construction Emissions

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2015
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Assumes 3-month construction period for a jack and bore site.

Off-road Equipment - Construction equipment during excavation and shoring activities.

Off-road Equipment - Construction equipment for pipe installation and backfilling activities.

Off-road Equipment - Equipment for pipleline and casing installation.

Off-road Equipment - Equipment for removal of jacking and receiving pit.

Off-road Equipment - Construction equipment for site preparation activities.

Off-road Equipment - Construction equipment for work site restoration activities.

Trips and VMT - Anticipated truck trips for jack & bore construction; on-site travel length of 0.1 mile anticipated for vehicles.

Grading - Max. area disturbed = 0.9 acres for jack and bore site.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	NumDays	0.00	15.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	PhaseStartDate	3/7/2015	3/9/2015
tblConstructionPhase	PhaseStartDate	2/7/2015	2/9/2015
tblConstructionPhase	PhaseStartDate	4/4/2015	4/6/2015
tblConstructionPhase	PhaseStartDate	4/25/2015	4/27/2015
tblGrading	AcresOfGrading	0.00	0.90
tblGrading	AcresOfGrading	0.00	0.90
tblGrading	AcresOfGrading	0.00	0.90
tblGrading	MaterialImported	0.00	4,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripLength	20.00	0.10
tblTripsAndVMT	HaulingTripLength	20.00	0.10
tblTripsAndVMT	HaulingTripLength	20.00	0.10
tblTripsAndVMT	HaulingTripLength	20.00	0.10
tblTripsAndVMT	HaulingTripLength	20.00	0.10
tblTripsAndVMT	VendorTripLength	6.90	0.10
tblTripsAndVMT	VendorTripLength	6.90	0.10
tblTripsAndVMT	VendorTripLength	6.90	0.10
tblTripsAndVMT	VendorTripLength	6.90	0.10
tblTripsAndVMT	VendorTripLength	6.90	0.10
tblTripsAndVMT	WorkerTripLength	14.70	0.10
tblTripsAndVMT	WorkerTripLength	14.70	0.10

tblTripsAndVMT	WorkerTripLength	14.70	0.10
tblTripsAndVMT	WorkerTripLength	14.70	0.10
tblTripsAndVMT	WorkerTripLength	14.70	0.10
tblTripsAndVMT	WorkerTripNumber	0.00	20.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	4.1631	38.5648	24.8842	0.0410	0.1935	2.3986	2.4016	0.0213	2.2603	2.2611	0.0000	4,072.7880	4,072.7880	1.0081	0.0000	4,093.9590
Total	**4.1631**	**38.5648**	**24.8842**	**0.0410**	**0.1935**	**2.3986**	**2.4016**	**0.0213**	**2.2603**	**2.2611**	**0.0000**	**4,072.7880**	**4,072.7880**	**1.0081**	**0.0000**	**4,093.9590**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	4.1631	38.5648	24.8842	0.0410	0.0770	2.3986	2.4016	8.7600e-003	2.2603	2.2611	0.0000	4,072.7880	4,072.7880	1.0081	0.0000	4,093.9590
Total	**4.1631**	**38.5648**	**24.8842**	**0.0410**	**0.0770**	**2.3986**	**2.4016**	**8.7600e-003**	**2.2603**	**2.2611**	**0.0000**	**4,072.7880**	**4,072.7880**	**1.0081**	**0.0000**	**4,093.9590**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	60.19	0.00	0.00	58.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/2/2015	2/6/2015	5	5	
2	Excavation and Shoring	Grading	2/9/2015	3/6/2015	5	20	
3	Pipeline and Casing Installation	Building Construction	3/9/2015	4/3/2015	5	20	
4	Removing Jacking and Receiving Pit	Grading	4/6/2015	4/24/2015	5	15	
5	Work Site Restoration	Paving	4/27/2015	5/1/2015	5	5	

Acres of Grading (Site Preparation Phase): 0.9

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Air Compressors	1	6.00	78	0.48
Site Preparation	Concrete/Industrial Saws	1	2.00	81	0.73
Site Preparation	Graders	0	8.00	174	0.41
Site Preparation	Signal Boards	2	24.00	6	0.82
Site Preparation	Sweepers/Scrubbers	2	1.00	64	0.46
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Excavation and Shoring	Bore/Drill Rigs	1	8.00	205	0.50

Excavation and Shoring	Concrete/Industrial Saws	0	8.00	81	0.73
Excavation and Shoring	Dumpers/Tenders	1	8.00	16	0.38
Excavation and Shoring	Excavators	1	6.00	162	0.38
Excavation and Shoring	Off-Highway Trucks	1	2.00	400	0.38
Excavation and Shoring	Rubber Tired Dozers	0	1.00	255	0.40
Excavation and Shoring	Signal Boards	2	24.00	6	0.82
Excavation and Shoring	Sweepers/Scrubbers	1	1.00	64	0.46
Excavation and Shoring	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Excavation and Shoring	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Excavation and Shoring	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Pipeline and Casing Installation	Air Compressors	1	3.00	78	0.48
Pipeline and Casing Installation	Cement and Mortar Mixers	1	3.00	9	0.56
Pipeline and Casing Installation	Cranes	0	4.00	226	0.29
Pipeline and Casing Installation	Dumpers/Tenders	1	8.00	16	0.38
Pipeline and Casing Installation	Excavators	1	6.00	162	0.38
Pipeline and Casing Installation	Forklifts	0	6.00	89	0.20
Pipeline and Casing Installation	Off-Highway Trucks	1	2.00	400	0.38
Pipeline and Casing Installation	Rollers	1	8.00	80	0.38
Pipeline and Casing Installation	Signal Boards	2	24.00	6	0.82
Pipeline and Casing Installation	Sweepers/Scrubbers	1	1.00	64	0.46
Pipeline and Casing Installation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Pipeline and Casing Installation	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Pipeline and Casing Installation	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Pipeline and Casing Installation	Welders	2	6.00	46	0.45
Removing Jacking and Receiving Pit	Concrete/Industrial Saws	0	8.00	81	0.73
Removing Jacking and Receiving Pit	Excavators	1	6.00	162	0.38
Removing Jacking and Receiving Pit	Off-Highway Trucks	1	2.00	400	0.38
Removing Jacking and Receiving Pit	Rubber Tired Dozers	0	1.00	255	0.40
Removing Jacking and Receiving Pit	Signal Boards	2	24.00	6	0.82
Removing Jacking and Receiving Pit	Sweepers/Scrubbers	1	1.00	64	0.46

Removing Jacking and Receiving Pit	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Work Site Restoration	Air Compressors	1	8.00	78	0.48
Work Site Restoration	Cement and Mortar Mixers	0	6.00	9	0.56
Work Site Restoration	Concrete/Industrial Saws	1	6.00	81	0.73
Work Site Restoration	Pavers	1	8.00	125	0.42
Work Site Restoration	Paving Equipment	1	8.00	130	0.36
Work Site Restoration	Rollers	2	8.00	80	0.38
Work Site Restoration	Signal Boards	2	24.00	6	0.82
Work Site Restoration	Skid Steer Loaders	1	8.00	64	0.37
Work Site Restoration	Surfacing Equipment	1	8.00	253	0.30
Work Site Restoration	Sweepers/Scrubbers	1	1.00	64	0.46
Work Site Restoration	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Work Site Restoration	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Work Site Restoration	Tractors/Loaders/Backhoes	1	4.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	12	30.00	0.00	0.00	0.10	0.10	0.10	LD_Mix	HDT_Mix	HHDT
Excavation and Shoring	10	25.00	0.00	500.00	0.10	0.10	0.10	LD_Mix	HDT_Mix	HHDT
Pipeline and Casing Installation	14	20.00	0.00	0.00	0.10	0.10	0.10	LD_Mix	HDT_Mix	HHDT
Removing Jacking and Receiving Pit	7	18.00	0.00	0.00	0.10	0.10	0.10	LD_Mix	HDT_Mix	HHDT
Work Site Restoration	14	35.00	0.00	0.00	0.10	0.10	0.10	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1909	0.0000	0.1909	0.0206	0.0000	0.0206			0.0000			0.0000
Off-Road	1.5776	12.0175	8.8289	0.0140		0.8839	0.8839		0.8453	0.8453		1,283.4000	1,283.4000	0.2498		1,288.6464
Total	**1.5776**	**12.0175**	**8.8289**	**0.0140**	**0.1909**	**0.8839**	**1.0748**	**0.0206**	**0.8453**	**0.8659**		**1,283.4000**	**1,283.4000**	**0.2498**		**1,288.6464**

Unmitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0752	0.0163	0.1960	1.1000e-004	2.5800e-003	2.4000e-004	2.8200e-003	7.2000e-004	2.2000e-004	9.5000e-004		9.6008	9.6008	1.1700e-003		9.6253
Total	**0.0752**	**0.0163**	**0.1960**	**1.1000e-004**	**2.5800e-003**	**2.4000e-004**	**2.8200e-003**	**7.2000e-004**	**2.2000e-004**	**9.5000e-004**		**9.6008**	**9.6008**	**1.1700e-003**		**9.6253**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Fugitive Dust					0.0745	0.0000	0.0745	8.0400e-003	0.0000	8.0400e-003			0.0000			0.0000
Off-Road	1.5776	12.0175	8.8289	0.0140		0.8839	0.8839		0.8453	0.8453	0.0000	1,283.4000	1,283.4000	0.2498		1,288.6464
Total	**1.5776**	**12.0175**	**8.8289**	**0.0140**	**0.0745**	**0.8839**	**0.9583**	**8.0400e-003**	**0.8453**	**0.8533**	**0.0000**	**1,283.4000**	**1,283.4000**	**0.2498**		**1,288.6464**

Mitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0752	0.0163	0.1960	1.1000e-004	2.5800e-003	2.4000e-004	2.8200e-003	7.2000e-004	2.2000e-004	9.5000e-004		9.6008	9.6008	1.1700e-003		9.6253
Total	**0.0752**	**0.0163**	**0.1960**	**1.1000e-004**	**2.5800e-003**	**2.4000e-004**	**2.8200e-003**	**7.2000e-004**	**2.2000e-004**	**9.5000e-004**		**9.6008**	**9.6008**	**1.1700e-003**		**9.6253**

3.3 Excavation and Shoring - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0703	0.0000	0.0703	8.5800e-003	0.0000	8.5800e-003			0.0000			0.0000
Off-Road	2.0592	21.7750	12.6434	0.0267		1.0896	1.0896		1.0107	1.0107		2,641.3021	2,641.3021	0.7194		2,656.4090
Total	**2.0592**	**21.7750**	**12.6434**	**0.0267**	**0.0703**	**1.0896**	**1.1599**	**8.5800e-003**	**1.0107**	**1.0193**		**2,641.3021**	**2,641.3021**	**0.7194**		**2,656.4090**

Unmitigated Construction On-Site Vehicle Travel

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.2040	0.5885	3.2228	5.9000e-004	2.7000e-003	2.5900e-003	5.2900e-003	7.8000e-004	2.3500e-003	3.1400e-003		55.2573	55.2573	1.4100e-003		55.2869
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0627	0.0136	0.1633	9.0000e-005	2.1500e-003	2.0000e-004	2.3500e-003	6.0000e-004	1.9000e-004	7.9000e-004		8.0007	8.0007	9.7000e-004		8.0211
Total	**0.2667**	**0.6021**	**3.3861**	**6.8000e-004**	**4.8500e-003**	**2.7900e-003**	**7.6400e-003**	**1.3800e-003**	**2.5400e-003**	**3.9300e-003**		**63.2580**	**63.2580**	**2.3800e-003**		**63.3080**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Fugitive Dust					0.0274	0.0000	0.0274	3.3500e-003	0.0000	3.3500e-003			0.0000			0.0000
Off-Road	2.0592	21.7750	12.6434	0.0267		1.0896	1.0896		1.0107	1.0107	0.0000	2,641.3021	2,641.3021	0.7194		2,656.4090
Total	**2.0592**	**21.7750**	**12.6434**	**0.0267**	**0.0274**	**1.0896**	**1.1170**	**3.3500e-003**	**1.0107**	**1.0141**	**0.0000**	**2,641.3021**	**2,641.3021**	**0.7194**		**2,656.4090**

Mitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2040	0.5885	3.2228	5.9000e-004	2.7000e-003	2.5900e-003	5.2900e-003	7.8000e-004	2.3500e-003	3.1400e-003		55.2573	55.2573	1.4100e-003		55.2869
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0627	0.0136	0.1633	9.0000e-005	2.1500e-003	2.0000e-004	2.3500e-003	6.0000e-004	1.9000e-004	7.9000e-004		8.0007	8.0007	9.7000e-004		8.0211
Total	**0.2667**	**0.6021**	**3.3861**	**6.8000e-004**	**4.8500e-003**	**2.7900e-003**	**7.6400e-003**	**1.3800e-003**	**2.5400e-003**	**3.9300e-003**		**63.2580**	**63.2580**	**2.3800e-003**		**63.3080**

3.4 Pipeline and Casing Installation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2046	23.3517	16.6679	0.0262		1.5118	1.5118		1.4273	1.4273		2,471.8556	2,471.8556	0.6328		2,485.1452
Total	**3.2046**	**23.3517**	**16.6679**	**0.0262**		**1.5118**	**1.5118**		**1.4273**	**1.4273**		**2,471.8556**	**2,471.8556**	**0.6328**		**2,485.1452**

Unmitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0502	0.0109	0.1307	7.0000e-005	1.7200e-003	1.6000e-004	1.8800e-003	4.8000e-004	1.5000e-004	6.3000e-004		6.4005	6.4005	7.8000e-004		6.4169
Total	**0.0502**	**0.0109**	**0.1307**	**7.0000e-005**	**1.7200e-003**	**1.6000e-004**	**1.8800e-003**	**4.8000e-004**	**1.5000e-004**	**6.3000e-004**		**6.4005**	**6.4005**	**7.8000e-004**		**6.4169**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2046	23.3517	16.6679	0.0262		1.5118	1.5118		1.4273	1.4273	0.0000	2,471.8556	2,471.8556	0.6328		2,485.1452
Total	**3.2046**	**23.3517**	**16.6679**	**0.0262**		**1.5118**	**1.5118**		**1.4273**	**1.4273**	**0.0000**	**2,471.8556**	**2,471.8556**	**0.6328**		**2,485.1452**

Mitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0502	0.0109	0.1307	7.0000e-005	1.7200e-003	1.6000e-004	1.8800e-003	4.8000e-004	1.5000e-004	6.3000e-004		6.4005	6.4005	7.8000e-004		6.4169
Total	**0.0502**	**0.0109**	**0.1307**	**7.0000e-005**	**1.7200e-003**	**1.6000e-004**	**1.8800e-003**	**4.8000e-004**	**1.5000e-004**	**6.3000e-004**		**6.4005**	**6.4005**	**7.8000e-004**		**6.4169**

3.5 Removing Jacking and Receiving Pit - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0636	0.0000	0.0636	6.8700e-003	0.0000	6.8700e-003			0.0000			0.0000
Off-Road	1.6891	16.1510	10.8676	0.0180		0.9567	0.9567		0.8869	0.8869		1,746.5793	1,746.5793	0.4638		1,756.3193
Total	**1.6891**	**16.1510**	**10.8676**	**0.0180**	**0.0636**	**0.9567**	**1.0203**	**6.8700e-003**	**0.8869**	**0.8938**		**1,746.5793**	**1,746.5793**	**0.4638**		**1,756.3193**

Unmitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0451	9.7900e-003	0.1176	7.0000e-005	1.5500e-003	1.5000e-004	1.6900e-003	4.3000e-004	1.3000e-004	5.7000e-004		5.7605	5.7605	7.0000e-004		5.7752
Total	**0.0451**	**9.7900e-003**	**0.1176**	**7.0000e-005**	**1.5500e-003**	**1.5000e-004**	**1.6900e-003**	**4.3000e-004**	**1.3000e-004**	**5.7000e-004**		**5.7605**	**5.7605**	**7.0000e-004**		**5.7752**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0248	0.0000	0.0248	2.6800e-003	0.0000	2.6800e-003			0.0000			0.0000
Off-Road	1.6891	16.1510	10.8676	0.0180		0.9567	0.9567		0.8869	0.8869	0.0000	1,746.5793	1,746.5793	0.4638		1,756.3193
Total	**1.6891**	**16.1510**	**10.8676**	**0.0180**	**0.0248**	**0.9567**	**0.9815**	**2.6800e-003**	**0.8869**	**0.8896**	**0.0000**	**1,746.5793**	**1,746.5793**	**0.4638**		**1,756.3193**

Mitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0451	9.7900e-003	0.1176	7.0000e-005	1.5500e-003	1.5000e-004	1.6900e-003	4.3000e-004	1.3000e-004	5.7000e-004		5.7605	5.7605	7.0000e-004		5.7752
Total	**0.0451**	**9.7900e-003**	**0.1176**	**7.0000e-005**	**1.5500e-003**	**1.5000e-004**	**1.6900e-003**	**4.3000e-004**	**1.3000e-004**	**5.7000e-004**		**5.7605**	**5.7605**	**7.0000e-004**		**5.7752**

3.6 Work Site Restoration - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0753	38.5458	24.6556	0.0409		2.3983	2.3983		2.2600	2.2600		4,061.5871	4,061.5871	1.0068		4,082.7295

Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.0753**	**38.5458**	**24.6556**	**0.0409**		**2.3983**	**2.3983**		**2.2600**	**2.2600**		**4,061.5871**	**4,061.5871**	**1.0068**		**4,082.7295**

Unmitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0878	0.0190	0.2287	1.3000e-004	3.0000e-003	2.8000e-004	3.2900e-003	8.4000e-004	2.6000e-004	1.1000e-003		11.2009	11.2009	1.3600e-003		11.2295
Total	**0.0878**	**0.0190**	**0.2287**	**1.3000e-004**	**3.0000e-003**	**2.8000e-004**	**3.2900e-003**	**8.4000e-004**	**2.6000e-004**	**1.1000e-003**		**11.2009**	**11.2009**	**1.3600e-003**		**11.2295**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0753	38.5458	24.6556	0.0409		2.3983	2.3983		2.2600	2.2600	0.0000	4,061.5871	4,061.5871	1.0068		4,082.7295
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.0753**	**38.5458**	**24.6556**	**0.0409**		**2.3983**	**2.3983**		**2.2600**	**2.2600**	**0.0000**	**4,061.5871**	**4,061.5871**	**1.0068**		**4,082.7295**

Mitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/day								lb/day			
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0878	0.0190	0.2287	1.3000e-004	3.0000e-003	2.8000e-004	3.2900e-003	8.4000e-004	2.6000e-004	1.1000e-003		11.2009	11.2009	1.3600e-003		11.2295
Total	**0.0878**	**0.0190**	**0.2287**	**1.3000e-004**	**3.0000e-003**	**2.8000e-004**	**3.2900e-003**	**8.4000e-004**	**2.6000e-004**	**1.1000e-003**		**11.2009**	**11.2009**	**1.3600e-003**		**11.2295**

Peters Canyon Reuse Pipeline Project - Onsite Jack & Bore Construction Emissions

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2015
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Assumes 3-month construction period for a jack and bore site.

Off-road Equipment - Construction equipment during excavation and shoring activities.

Off-road Equipment - Construction equipment for pipe installation and backfilling activities.

Off-road Equipment - Equipment for pipleline and casing installation.

Off-road Equipment - Equipment for removal of jacking and receiving pit.

Off-road Equipment - Construction equipment for site preparation activities.

Off-road Equipment - Construction equipment for work site restoration activities.

Trips and VMT - Anticipated truck trips for jack & bore construction; on-site travel length of 0.1 mile anticipated for vehicles.

Grading - Max. area disturbed = 0.9 acres for jack and bore site.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	NumDays	0.00	15.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	PhaseStartDate	3/7/2015	3/9/2015
tblConstructionPhase	PhaseStartDate	2/7/2015	2/9/2015
tblConstructionPhase	PhaseStartDate	4/4/2015	4/6/2015
tblConstructionPhase	PhaseStartDate	4/25/2015	4/27/2015
tblGrading	AcresOfGrading	0.00	0.90
tblGrading	AcresOfGrading	0.00	0.90
tblGrading	AcresOfGrading	0.00	0.90
tblGrading	MaterialImported	0.00	4,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripLength	20.00	0.10
tblTripsAndVMT	HaulingTripLength	20.00	0.10
tblTripsAndVMT	HaulingTripLength	20.00	0.10
tblTripsAndVMT	HaulingTripLength	20.00	0.10
tblTripsAndVMT	HaulingTripLength	20.00	0.10
tblTripsAndVMT	VendorTripLength	6.90	0.10
tblTripsAndVMT	VendorTripLength	6.90	0.10
tblTripsAndVMT	VendorTripLength	6.90	0.10
tblTripsAndVMT	VendorTripLength	6.90	0.10
tblTripsAndVMT	VendorTripLength	6.90	0.10
tblTripsAndVMT	WorkerTripLength	14.70	0.10
tblTripsAndVMT	WorkerTripLength	14.70	0.10

tblTripsAndVMT	WorkerTripLength	14.70	0.10
tblTripsAndVMT	WorkerTripLength	14.70	0.10
tblTripsAndVMT	WorkerTripLength	14.70	0.10
tblTripsAndVMT	WorkerTripNumber	0.00	20.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	4.1721	38.5665	24.9422	0.0410	0.1935	2.3986	2.4016	0.0213	2.2603	2.2611	0.0000	4,072.4939	4,072.4939	1.0081	0.0000	4,093.6649
Total	**4.1721**	**38.5665**	**24.9422**	**0.0410**	**0.1935**	**2.3986**	**2.4016**	**0.0213**	**2.2603**	**2.2611**	**0.0000**	**4,072.4939**	**4,072.4939**	**1.0081**	**0.0000**	**4,093.6649**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	4.1721	38.5665	24.9422	0.0410	0.0770	2.3986	2.4016	8.7600e-003	2.2603	2.2611	0.0000	4,072.4939	4,072.4939	1.0081	0.0000	4,093.6649
Total	**4.1721**	**38.5665**	**24.9422**	**0.0410**	**0.0770**	**2.3986**	**2.4016**	**8.7600e-003**	**2.2603**	**2.2611**	**0.0000**	**4,072.4939**	**4,072.4939**	**1.0081**	**0.0000**	**4,093.6649**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	60.19	0.00	0.00	58.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/2/2015	2/6/2015	5	5	
2	Excavation and Shoring	Grading	2/9/2015	3/6/2015	5	20	
3	Pipeline and Casing Installation	Building Construction	3/9/2015	4/3/2015	5	20	
4	Removing Jacking and Receiving Pit	Grading	4/6/2015	4/24/2015	5	15	
5	Work Site Restoration	Paving	4/27/2015	5/1/2015	5	5	

Acres of Grading (Site Preparation Phase): 0.9

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Air Compressors	1	6.00	78	0.48
Site Preparation	Concrete/Industrial Saws	1	2.00	81	0.73
Site Preparation	Graders	0	8.00	174	0.41
Site Preparation	Signal Boards	2	24.00	6	0.82
Site Preparation	Sweepers/Scrubbers	2	1.00	64	0.46
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Excavation and Shoring	Bore/Drill Rigs	1	8.00	205	0.50

Excavation and Shoring	Concrete/Industrial Saws	0	8.00	81	0.73
Excavation and Shoring	Dumpers/Tenders	1	8.00	16	0.38
Excavation and Shoring	Excavators	1	6.00	162	0.38
Excavation and Shoring	Off-Highway Trucks	1	2.00	400	0.38
Excavation and Shoring	Rubber Tired Dozers	0	1.00	255	0.40
Excavation and Shoring	Signal Boards	2	24.00	6	0.82
Excavation and Shoring	Sweepers/Scrubbers	1	1.00	64	0.46
Excavation and Shoring	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Excavation and Shoring	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Excavation and Shoring	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Pipeline and Casing Installation	Air Compressors	1	3.00	78	0.48
Pipeline and Casing Installation	Cement and Mortar Mixers	1	3.00	9	0.56
Pipeline and Casing Installation	Cranes	0	4.00	226	0.29
Pipeline and Casing Installation	Dumpers/Tenders	1	8.00	16	0.38
Pipeline and Casing Installation	Excavators	1	6.00	162	0.38
Pipeline and Casing Installation	Forklifts	0	6.00	89	0.20
Pipeline and Casing Installation	Off-Highway Trucks	1	2.00	400	0.38
Pipeline and Casing Installation	Rollers	1	8.00	80	0.38
Pipeline and Casing Installation	Signal Boards	2	24.00	6	0.82
Pipeline and Casing Installation	Sweepers/Scrubbers	1	1.00	64	0.46
Pipeline and Casing Installation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Pipeline and Casing Installation	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Pipeline and Casing Installation	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Pipeline and Casing Installation	Welders	2	6.00	46	0.45
Removing Jacking and Receiving Pit	Concrete/Industrial Saws	0	8.00	81	0.73
Removing Jacking and Receiving Pit	Excavators	1	6.00	162	0.38
Removing Jacking and Receiving Pit	Off-Highway Trucks	1	2.00	400	0.38
Removing Jacking and Receiving Pit	Rubber Tired Dozers	0	1.00	255	0.40
Removing Jacking and Receiving Pit	Signal Boards	2	24.00	6	0.82
Removing Jacking and Receiving Pit	Sweepers/Scrubbers	1	1.00	64	0.46

Removing Jacking and Receiving Pit	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Work Site Restoration	Air Compressors	1	8.00	78	0.48
Work Site Restoration	Cement and Mortar Mixers	0	6.00	9	0.56
Work Site Restoration	Concrete/Industrial Saws	1	6.00	81	0.73
Work Site Restoration	Pavers	1	8.00	125	0.42
Work Site Restoration	Paving Equipment	1	8.00	130	0.36
Work Site Restoration	Rollers	2	8.00	80	0.38
Work Site Restoration	Signal Boards	2	24.00	6	0.82
Work Site Restoration	Skid Steer Loaders	1	8.00	64	0.37
Work Site Restoration	Surfacing Equipment	1	8.00	253	0.30
Work Site Restoration	Sweepers/Scrubbers	1	1.00	64	0.46
Work Site Restoration	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Work Site Restoration	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Work Site Restoration	Tractors/Loaders/Backhoes	1	4.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	12	30.00	0.00	0.00	0.10	0.10	0.10	LD_Mix	HDT_Mix	HHDT
Excavation and Shoring	10	25.00	0.00	500.00	0.10	0.10	0.10	LD_Mix	HDT_Mix	HHDT
Pipeline and Casing Installation	14	20.00	0.00	0.00	0.10	0.10	0.10	LD_Mix	HDT_Mix	HHDT
Removing Jacking and Receiving Pit	7	18.00	0.00	0.00	0.10	0.10	0.10	LD_Mix	HDT_Mix	HHDT
Work Site Restoration	14	35.00	0.00	0.00	0.10	0.10	0.10	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1909	0.0000	0.1909	0.0206	0.0000	0.0206			0.0000			0.0000
Off-Road	1.5776	12.0175	8.8289	0.0140		0.8839	0.8839		0.8453	0.8453		1,283.4000	1,283.4000	0.2498		1,288.6464
Total	**1.5776**	**12.0175**	**8.8289**	**0.0140**	**0.1909**	**0.8839**	**1.0748**	**0.0206**	**0.8453**	**0.8659**		**1,283.4000**	**1,283.4000**	**0.2498**		**1,288.6464**

Unmitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0830	0.0178	0.2457	1.1000e-004	2.5800e-003	2.4000e-004	2.8200e-003	7.2000e-004	2.2000e-004	9.5000e-004		9.3487	9.3487	1.1700e-003		9.3732
Total	**0.0830**	**0.0178**	**0.2457**	**1.1000e-004**	**2.5800e-003**	**2.4000e-004**	**2.8200e-003**	**7.2000e-004**	**2.2000e-004**	**9.5000e-004**		**9.3487**	**9.3487**	**1.1700e-003**		**9.3732**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Fugitive Dust					0.0745	0.0000	0.0745	8.0400e-003	0.0000	8.0400e-003			0.0000			0.0000
Off-Road	1.5776	12.0175	8.8289	0.0140		0.8839	0.8839		0.8453	0.8453	0.0000	1,283.4000	1,283.4000	0.2498		1,288.6464
Total	**1.5776**	**12.0175**	**8.8289**	**0.0140**	**0.0745**	**0.8839**	**0.9583**	**8.0400e-003**	**0.8453**	**0.8533**	**0.0000**	**1,283.4000**	**1,283.4000**	**0.2498**		**1,288.6464**

Mitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0830	0.0178	0.2457	1.1000e-004	2.5800e-003	2.4000e-004	2.8200e-003	7.2000e-004	2.2000e-004	9.5000e-004		9.3487	9.3487	1.1700e-003		9.3732
Total	**0.0830**	**0.0178**	**0.2457**	**1.1000e-004**	**2.5800e-003**	**2.4000e-004**	**2.8200e-003**	**7.2000e-004**	**2.2000e-004**	**9.5000e-004**		**9.3487**	**9.3487**	**1.1700e-003**		**9.3732**

3.3 Excavation and Shoring - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0703	0.0000	0.0703	8.5800e-003	0.0000	8.5800e-003			0.0000			0.0000
Off-Road	2.0592	21.7750	12.6434	0.0267		1.0896	1.0896		1.0107	1.0107		2,641.3021	2,641.3021	0.7194		2,656.4090
Total	**2.0592**	**21.7750**	**12.6434**	**0.0267**	**0.0703**	**1.0896**	**1.1599**	**8.5800e-003**	**1.0107**	**1.0193**		**2,641.3021**	**2,641.3021**	**0.7194**		**2,656.4090**

Unmitigated Construction On-Site Vehicle Travel

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.2394	0.5797	3.9782	5.6000e-004	2.7000e-003	3.0500e-003	5.7500e-003	7.8000e-004	2.7800e-003	3.5600e-003		50.8030	50.8030	1.5900e-003		50.8365
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0691	0.0148	0.2047	9.0000e-005	2.1500e-003	2.0000e-004	2.3500e-003	6.0000e-004	1.9000e-004	7.9000e-004		7.7906	7.7906	9.7000e-004		7.8110
Total	**0.3085**	**0.5945**	**4.1829**	**6.5000e-004**	**4.8500e-003**	**3.2500e-003**	**8.1000e-003**	**1.3800e-003**	**2.9700e-003**	**4.3500e-003**		**58.5936**	**58.5936**	**2.5600e-003**		**58.6475**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Fugitive Dust					0.0274	0.0000	0.0274	3.3500e-003	0.0000	3.3500e-003			0.0000			0.0000
Off-Road	2.0592	21.7750	12.6434	0.0267		1.0896	1.0896		1.0107	1.0107	0.0000	2,641.3021	2,641.3021	0.7194		2,656.4090
Total	**2.0592**	**21.7750**	**12.6434**	**0.0267**	**0.0274**	**1.0896**	**1.1170**	**3.3500e-003**	**1.0107**	**1.0141**	**0.0000**	**2,641.3021**	**2,641.3021**	**0.7194**		**2,656.4090**

Mitigated Construction On-Site Vehicle Travel

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.2394	0.5797	3.9782	5.6000e-004	2.7000e-003	3.0500e-003	5.7500e-003	7.8000e-004	2.7800e-003	3.5600e-003		50.8030	50.8030	1.5900e-003		50.8365
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0691	0.0148	0.2047	9.0000e-005	2.1500e-003	2.0000e-004	2.3500e-003	6.0000e-004	1.9000e-004	7.9000e-004		7.7906	7.7906	9.7000e-004		7.8110
Total	**0.3085**	**0.5945**	**4.1829**	**6.5000e-004**	**4.8500e-003**	**3.2500e-003**	**8.1000e-003**	**1.3800e-003**	**2.9700e-003**	**4.3500e-003**		**58.5936**	**58.5936**	**2.5600e-003**		**58.6475**

3.4 Pipeline and Casing Installation - 2015

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Off-Road	3.2046	23.3517	16.6679	0.0262		1.5118	1.5118		1.4273	1.4273		2,471.8556	2,471.8556	0.6328		2,485.1452
Total	**3.2046**	**23.3517**	**16.6679**	**0.0262**		**1.5118**	**1.5118**		**1.4273**	**1.4273**		**2,471.8556**	**2,471.8556**	**0.6328**		**2,485.1452**

Unmitigated Construction On-Site Vehicle Travel

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0553	0.0118	0.1638	7.0000e-005	1.7200e-003	1.6000e-004	1.8800e-003	4.8000e-004	1.5000e-004	6.3000e-004		6.2325	6.2325	7.8000e-004		6.2488
Total	**0.0553**	**0.0118**	**0.1638**	**7.0000e-005**	**1.7200e-003**	**1.6000e-004**	**1.8800e-003**	**4.8000e-004**	**1.5000e-004**	**6.3000e-004**		**6.2325**	**6.2325**	**7.8000e-004**		**6.2488**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2046	23.3517	16.6679	0.0262		1.5118	1.5118		1.4273	1.4273	0.0000	2,471.8556	2,471.8556	0.6328		2,485.1452
Total	**3.2046**	**23.3517**	**16.6679**	**0.0262**		**1.5118**	**1.5118**		**1.4273**	**1.4273**	**0.0000**	**2,471.8556**	**2,471.8556**	**0.6328**		**2,485.1452**

Mitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0553	0.0118	0.1638	7.0000e-005	1.7200e-003	1.6000e-004	1.8800e-003	4.8000e-004	1.5000e-004	6.3000e-004		6.2325	6.2325	7.8000e-004		6.2488
Total	**0.0553**	**0.0118**	**0.1638**	**7.0000e-005**	**1.7200e-003**	**1.6000e-004**	**1.8800e-003**	**4.8000e-004**	**1.5000e-004**	**6.3000e-004**		**6.2325**	**6.2325**	**7.8000e-004**		**6.2488**

3.5 Removing Jacking and Receiving Pit - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0636	0.0000	0.0636	6.8700e-003	0.0000	6.8700e-003			0.0000			0.0000
Off-Road	1.6891	16.1510	10.8676	0.0180		0.9567	0.9567		0.8869	0.8869		1,746.5793	1,746.5793	0.4638		1,756.3193
Total	**1.6891**	**16.1510**	**10.8676**	**0.0180**	**0.0636**	**0.9567**	**1.0203**	**6.8700e-003**	**0.8869**	**0.8938**		**1,746.5793**	**1,746.5793**	**0.4638**		**1,756.3193**

Unmitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0498	0.0107	0.1474	7.0000e-005	1.5500e-003	1.5000e-004	1.6900e-003	4.3000e-004	1.3000e-004	5.7000e-004		5.6092	5.6092	7.0000e-004		5.6239
Total	**0.0498**	**0.0107**	**0.1474**	**7.0000e-005**	**1.5500e-003**	**1.5000e-004**	**1.6900e-003**	**4.3000e-004**	**1.3000e-004**	**5.7000e-004**		**5.6092**	**5.6092**	**7.0000e-004**		**5.6239**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0248	0.0000	0.0248	2.6800e-003	0.0000	2.6800e-003			0.0000			0.0000
Off-Road	1.6891	16.1510	10.8676	0.0180		0.9567	0.9567		0.8869	0.8869	0.0000	1,746.5793	1,746.5793	0.4638		1,756.3193
Total	**1.6891**	**16.1510**	**10.8676**	**0.0180**	**0.0248**	**0.9567**	**0.9815**	**2.6800e-003**	**0.8869**	**0.8896**	**0.0000**	**1,746.5793**	**1,746.5793**	**0.4638**		**1,756.3193**

Mitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0498	0.0107	0.1474	7.0000e-005	1.5500e-003	1.5000e-004	1.6900e-003	4.3000e-004	1.3000e-004	5.7000e-004		5.6092	5.6092	7.0000e-004		5.6239
Total	**0.0498**	**0.0107**	**0.1474**	**7.0000e-005**	**1.5500e-003**	**1.5000e-004**	**1.6900e-003**	**4.3000e-004**	**1.3000e-004**	**5.7000e-004**		**5.6092**	**5.6092**	**7.0000e-004**		**5.6239**

3.6 Work Site Restoration - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0753	38.5458	24.6556	0.0409		2.3983	2.3983		2.2600	2.2600		4,061.5871	4,061.5871	1.0068		4,082.7295

Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.0753**	**38.5458**	**24.6556**	**0.0409**		**2.3983**	**2.3983**		**2.2600**	**2.2600**		**4,061.5871**	**4,061.5871**	**1.0068**		**4,082.7295**

Unmitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0968	0.0207	0.2866	1.3000e-004	3.0000e-003	2.8000e-004	3.2900e-003	8.4000e-004	2.6000e-004	1.1000e-003		10.9068	10.9068	1.3600e-003		10.9354
Total	**0.0968**	**0.0207**	**0.2866**	**1.3000e-004**	**3.0000e-003**	**2.8000e-004**	**3.2900e-003**	**8.4000e-004**	**2.6000e-004**	**1.1000e-003**		**10.9068**	**10.9068**	**1.3600e-003**		**10.9354**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0753	38.5458	24.6556	0.0409		2.3983	2.3983		2.2600	2.2600	0.0000	4,061.5871	4,061.5871	1.0068		4,082.7295
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.0753**	**38.5458**	**24.6556**	**0.0409**		**2.3983**	**2.3983**		**2.2600**	**2.2600**	**0.0000**	**4,061.5871**	**4,061.5871**	**1.0068**		**4,082.7295**

Mitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0968	0.0207	0.2866	1.3000e-004	3.0000e-003	2.8000e-004	3.2900e-003	8.4000e-004	2.6000e-004	1.1000e-003		10.9068	10.9068	1.3600e-003		10.9354
Total	**0.0968**	**0.0207**	**0.2866**	**1.3000e-004**	**3.0000e-003**	**2.8000e-004**	**3.2900e-003**	**8.4000e-004**	**2.6000e-004**	**1.1000e-003**		**10.9068**	**10.9068**	**1.3600e-003**		**10.9354**

Peters Canyon Reuse Pipeline Project - Onsite Open-Trench Construction Emissions

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 30

Climate Zone 8 **Operational Year** 2015

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 630.89 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Worst-case construction scenarion for open-trench site.

Off-road Equipment - Construction equipment during excavation and shoring activities.

Off-road Equipment - Equipment for excavation and shoring phase.

Off-road Equipment - Equipment for pipe installation and backfiling during concurrent excavation and shoring phase.

Off-road Equipment - Construction equipment for site preparation activities.

Off-road Equipment - Construction equipment for work site restoration activities.

Trips and VMT - Anticipated truck trips for open trench construction; assumes on-site travel distance of 0.1 miles by vehicles.

Grading - Max. area disturbed = 1.4 acres for open-trench site; 4,000 cy of imported sand for pipe zone anticipated.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	45.00
tblConstructionPhase	NumDays	0.00	45.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	PhaseEndDate	7/3/2015	5/1/2015
tblConstructionPhase	PhaseStartDate	5/2/2015	3/2/2015
tblConstructionPhase	PhaseStartDate	2/28/2015	3/2/2015
tblConstructionPhase	PhaseStartDate	5/2/2015	5/4/2015
tblGrading	AcresOfGrading	0.00	1.40
tblGrading	AcresOfGrading	0.00	1.40
tblGrading	MaterialImported	0.00	4,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00

tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripLength	20.00	0.10
tblTripsAndVMT	HaulingTripLength	20.00	0.10
tblTripsAndVMT	HaulingTripLength	20.00	0.10
tblTripsAndVMT	HaulingTripLength	20.00	0.10
tblTripsAndVMT	VendorTripLength	6.90	0.10
tblTripsAndVMT	VendorTripLength	6.90	0.10
tblTripsAndVMT	VendorTripLength	6.90	0.10
tblTripsAndVMT	VendorTripLength	6.90	0.10
tblTripsAndVMT	WorkerTripLength	14.70	0.10
tblTripsAndVMT	WorkerTripLength	14.70	0.10
tblTripsAndVMT	WorkerTripLength	14.70	0.10
tblTripsAndVMT	WorkerTripLength	14.70	0.10

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Year	lb/day										lb/day					
2015	4.1631	38.5648	24.8842	0.0410	0.0768	2.3986	2.4016	8.7400e-003	2.2603	2.2611	0.0000	4,072.7880	4,072.7880	1.0081	0.0000	4,093.9590
Total	**4.1631**	**38.5648**	**24.8842**	**0.0410**	**0.0768**	**2.3986**	**2.4016**	**8.7400e-003**	**2.2603**	**2.2611**	**0.0000**	**4,072.7880**	**4,072.7880**	**1.0081**	**0.0000**	**4,093.9590**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	4.1631	38.5648	24.8842	0.0410	0.0315	2.3986	2.4016	3.8500e-003	2.2603	2.2611	0.0000	4,072.7880	4,072.7880	1.0081	0.0000	4,093.9590
Total	**4.1631**	**38.5648**	**24.8842**	**0.0410**	**0.0315**	**2.3986**	**2.4016**	**3.8500e-003**	**2.2603**	**2.2611**	**0.0000**	**4,072.7880**	**4,072.7880**	**1.0081**	**0.0000**	**4,093.9590**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.95**	**0.00**	**0.00**	**55.95**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/2/2015	2/27/2015	5	20	
2	Excavation, and Shoring	Grading	3/2/2015	5/1/2015	5	45	
3	Pipe Installation and Backfilling	Building Construction	3/2/2015	5/1/2015	5	45	
4	Work Site Restoration	Paving	5/4/2015	5/29/2015	5	20	

Acres of Grading (Site Preparation Phase): 1.4

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Air Compressors	1	6.00	78	0.48
Site Preparation	Concrete/Industrial Saws	1	2.00	81	0.73
Site Preparation	Graders	0	8.00	174	0.41
Site Preparation	Signal Boards	2	24.00	6	0.82
Site Preparation	Sweepers/Scrubbers	2	1.00	64	0.46
Site Preparation	Tractors/Loaders/Backhoes	0	2.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Excavation, and Shoring	Bore/Drill Rigs	1	8.00	205	0.50
Excavation, and Shoring	Concrete/Industrial Saws	0	8.00	81	0.73
Excavation, and Shoring	Dumpers/Tenders	1	8.00	16	0.38
Excavation, and Shoring	Excavators	1	6.00	162	0.38
Excavation, and Shoring	Off-Highway Trucks	1	2.00	400	0.38
Excavation, and Shoring	Rubber Tired Dozers	0	1.00	255	0.40
Excavation, and Shoring	Signal Boards	2	24.00	6	0.82
Excavation, and Shoring	Sweepers/Scrubbers	1	1.00	64	0.46
Excavation, and Shoring	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Excavation, and Shoring	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Excavation, and Shoring	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Pipe Installation and Backfilling	Air Compressors	1	3.00	78	0.48
Pipe Installation and Backfilling	Cement and Mortar Mixers	1	3.00	9	0.56
Pipe Installation and Backfilling	Cranes	0	4.00	226	0.29

Pipe Installation and Backfilling	Forklifts	0	6.00	89	0.20
Pipe Installation and Backfilling	Rollers	1	8.00	80	0.38
Pipe Installation and Backfilling	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Pipe Installation and Backfilling	Welders	2	6.00	46	0.45
Work Site Restoration	Air Compressors	1	8.00	78	0.48
Work Site Restoration	Cement and Mortar Mixers	0	6.00	9	0.56
Work Site Restoration	Concrete/Industrial Saws	1	6.00	81	0.73
Work Site Restoration	Pavers	1	8.00	125	0.42
Work Site Restoration	Paving Equipment	1	8.00	130	0.36
Work Site Restoration	Rollers	2	8.00	80	0.38
Work Site Restoration	Signal Boards	2	24.00	6	0.82
Work Site Restoration	Skid Steer Loaders	1	8.00	64	0.37
Work Site Restoration	Surfacing Equipment	1	8.00	253	0.30
Work Site Restoration	Sweepers/Scrubbers	1	1.00	64	0.46
Work Site Restoration	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Work Site Restoration	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Work Site Restoration	Tractors/Loaders/Backhoes	1	4.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	12	30.00	0.00	0.00	0.10	0.10	0.10	LD_Mix	HDT_Mix	HHDT
Excavation, and Shoring	10	25.00	0.00	500.00	0.10	0.10	0.10	LD_Mix	HDT_Mix	HHDT
Pipe Installation and Backfilling	5	0.00	0.00	0.00	0.10	0.10	0.10	LD_Mix	HDT_Mix	HHDT
Work Site Restoration	14	35.00	0.00	0.00	0.10	0.10	0.10	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Fugitive Dust					0.0742	0.0000	0.0742	8.0200e-003	0.0000	8.0200e-003			0.0000			0.0000
Off-Road	1.5776	12.0175	8.8289	0.0140		0.8839	0.8839		0.8453	0.8453		1,283.4000	1,283.4000	0.2498		1,288.6464
Total	**1.5776**	**12.0175**	**8.8289**	**0.0140**	**0.0742**	**0.8839**	**0.9581**	**8.0200e-003**	**0.8453**	**0.8533**		**1,283.4000**	**1,283.4000**	**0.2498**		**1,288.6464**

Unmitigated Construction On-Site Vehicle Travel

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0752	0.0163	0.1960	1.1000e-004	2.5800e-003	2.4000e-004	2.8200e-003	7.2000e-004	2.2000e-004	9.5000e-004		9.6008	9.6008	1.1700e-003		9.6253
Total	**0.0752**	**0.0163**	**0.1960**	**1.1000e-004**	**2.5800e-003**	**2.4000e-004**	**2.8200e-003**	**7.2000e-004**	**2.2000e-004**	**9.5000e-004**		**9.6008**	**9.6008**	**1.1700e-003**		**9.6253**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Fugitive Dust					0.0290	0.0000	0.0290	3.1300e-003	0.0000	3.1300e-003			0.0000			0.0000
Off-Road	1.5776	12.0175	8.8289	0.0140		0.8839	0.8839		0.8453	0.8453	0.0000	1,283.4000	1,283.4000	0.2498		1,288.6464
Total	**1.5776**	**12.0175**	**8.8289**	**0.0140**	**0.0290**	**0.8839**	**0.9128**	**3.1300e-003**	**0.8453**	**0.8484**	**0.0000**	**1,283.4000**	**1,283.4000**	**0.2498**		**1,288.6464**

Mitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0752	0.0163	0.1960	1.1000e-004	2.5800e-003	2.4000e-004	2.8200e-003	7.2000e-004	2.2000e-004	9.5000e-004		9.6008	9.6008	1.1700e-003		9.6253
Total	**0.0752**	**0.0163**	**0.1960**	**1.1000e-004**	**2.5800e-003**	**2.4000e-004**	**2.8200e-003**	**7.2000e-004**	**2.2000e-004**	**9.5000e-004**		**9.6008**	**9.6008**	**1.1700e-003**		**9.6253**

3.3 Excavation, and Shoring - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0431	0.0000	0.0431	5.0800e-003	0.0000	5.0800e-003			0.0000			0.0000
Off-Road	2.0592	21.7750	12.6434	0.0267		1.0896	1.0896		1.0107	1.0107		2,641.3021	2,641.3021	0.7194		2,656.4090

Total	**2.0592**	**21.7750**	**12.6434**	**0.0267**	**0.0431**	**1.0896**	**1.1326**	**5.0800e-003**	**1.0107**	**1.0158**		**2,641.3021**	**2,641.3021**	**0.7194**		**2,656.4090**

Unmitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0907	0.2616	1.4323	2.6000e-004	1.2000e-003	1.1500e-003	2.3500e-003	3.5000e-004	1.0500e-003	1.3900e-003		24.5588	24.5588	6.3000e-004		24.5719
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0627	0.0136	0.1633	9.0000e-005	2.1500e-003	2.0000e-004	2.3500e-003	6.0000e-004	1.9000e-004	7.9000e-004		8.0007	8.0007	9.7000e-004		8.0211
Total	**0.1534**	**0.2752**	**1.5957**	**3.5000e-004**	**3.3500e-003**	**1.3500e-003**	**4.7000e-003**	**9.5000e-004**	**1.2400e-003**	**2.1800e-003**		**32.5595**	**32.5595**	**1.6000e-003**		**32.5930**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0168	0.0000	0.0168	1.9800e-003	0.0000	1.9800e-003			0.0000			0.0000
Off-Road	2.0592	21.7750	12.6434	0.0267		1.0896	1.0896		1.0107	1.0107	0.0000	2,641.3021	2,641.3021	0.7194		2,656.4090
Total	**2.0592**	**21.7750**	**12.6434**	**0.0267**	**0.0168**	**1.0896**	**1.1064**	**1.9800e-003**	**1.0107**	**1.0127**	**0.0000**	**2,641.3021**	**2,641.3021**	**0.7194**		**2,656.4090**

Mitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0907	0.2616	1.4323	2.6000e-004	1.2000e-003	1.1500e-003	2.3500e-003	3.5000e-004	1.0500e-003	1.3900e-003		24.5588	24.5588	6.3000e-004		24.5719
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0627	0.0136	0.1633	9.0000e-005	2.1500e-003	2.0000e-004	2.3500e-003	6.0000e-004	1.9000e-004	7.9000e-004		8.0007	8.0007	9.7000e-004		8.0211
Total	**0.1534**	**0.2752**	**1.5957**	**3.5000e-004**	**3.3500e-003**	**1.3500e-003**	**4.7000e-003**	**9.5000e-004**	**1.2400e-003**	**2.1800e-003**		**32.5595**	**32.5595**	**1.6000e-003**		**32.5930**

3.4 Pipe Installation and Backfilling - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5310	7.5867	6.1546	8.2100e-003		0.6022	0.6022		0.5822	0.5822		746.2079	746.2079	0.1868		750.1312
Total	**1.5310**	**7.5867**	**6.1546**	**8.2100e-003**		**0.6022**	**0.6022**		**0.5822**	**0.5822**		**746.2079**	**746.2079**	**0.1868**		**750.1312**

Unmitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5310	7.5867	6.1546	8.2100e-003		0.6022	0.6022		0.5822	0.5822	0.0000	746.2079	746.2079	0.1868		750.1312
Total	**1.5310**	**7.5867**	**6.1546**	**8.2100e-003**		**0.6022**	**0.6022**		**0.5822**	**0.5822**	**0.0000**	**746.2079**	**746.2079**	**0.1868**		**750.1312**

Mitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Work Site Restoration - 2015

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Off-Road	4.0753	38.5458	24.6556	0.0409		2.3983	2.3983		2.2600	2.2600		4,061.5871	4,061.5871	1.0068		4,082.7295
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.0753**	**38.5458**	**24.6556**	**0.0409**		**2.3983**	**2.3983**		**2.2600**	**2.2600**		**4,061.5871**	**4,061.5871**	**1.0068**		**4,082.7295**

Unmitigated Construction On-Site Vehicle Travel

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0878	0.0190	0.2287	1.3000e-004	3.0000e-003	2.8000e-004	3.2900e-003	8.4000e-004	2.6000e-004	1.1000e-003		11.2009	11.2009	1.3600e-003		11.2295
Total	**0.0878**	**0.0190**	**0.2287**	**1.3000e-004**	**3.0000e-003**	**2.8000e-004**	**3.2900e-003**	**8.4000e-004**	**2.6000e-004**	**1.1000e-003**		**11.2009**	**11.2009**	**1.3600e-003**		**11.2295**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Off-Road	4.0753	38.5458	24.6556	0.0409		2.3983	2.3983		2.2600	2.2600	0.0000	4,061.5871	4,061.5871	1.0068		4,082.7295
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.0753**	**38.5458**	**24.6556**	**0.0409**		**2.3983**	**2.3983**		**2.2600**	**2.2600**	**0.0000**	**4,061.5871**	**4,061.5871**	**1.0068**		**4,082.7295**

Mitigated Construction On-Site Vehicle Travel

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0878	0.0190	0.2287	1.3000e-004	3.0000e-003	2.8000e-004	3.2900e-003	8.4000e-004	2.6000e-004	1.1000e-003		11.2009	11.2009	1.3600e-003		11.2295
Total	**0.0878**	**0.0190**	**0.2287**	**1.3000e-004**	**3.0000e-003**	**2.8000e-004**	**3.2900e-003**	**8.4000e-004**	**2.6000e-004**	**1.1000e-003**		**11.2009**	**11.2009**	**1.3600e-003**		**11.2295**

Peters Canyon Reuse Pipeline Project - Onsite Open-Trench Construction Emissions

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2015
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Worst-case construction scenarion for open-trench site.

Off-road Equipment - Construction equipment during excavation and shoring activities.

Off-road Equipment - Equipment for excavation and shoring phase.

Off-road Equipment - Equipment for pipe installation and backfiling during concurrent excavation and shoring phase.

Off-road Equipment - Construction equipment for site preparation activities.

Off-road Equipment - Construction equipment for work site restoration activities.

Trips and VMT - Anticipated truck trips for open trench construction; assumes on-site travel distance of 0.1 miles by vehicles.

Grading - Max. area disturbed = 1.4 acres for open-trench site; 4,000 cy of imported sand for pipe zone anticipated.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	45.00
tblConstructionPhase	NumDays	0.00	45.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	PhaseEndDate	7/3/2015	5/1/2015
tblConstructionPhase	PhaseStartDate	5/2/2015	3/2/2015
tblConstructionPhase	PhaseStartDate	2/28/2015	3/2/2015
tblConstructionPhase	PhaseStartDate	5/2/2015	5/4/2015
tblGrading	AcresOfGrading	0.00	1.40
tblGrading	AcresOfGrading	0.00	1.40
tblGrading	MaterialImported	0.00	4,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00

tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripLength	20.00	0.10
tblTripsAndVMT	HaulingTripLength	20.00	0.10
tblTripsAndVMT	HaulingTripLength	20.00	0.10
tblTripsAndVMT	HaulingTripLength	20.00	0.10
tblTripsAndVMT	VendorTripLength	6.90	0.10
tblTripsAndVMT	VendorTripLength	6.90	0.10
tblTripsAndVMT	VendorTripLength	6.90	0.10
tblTripsAndVMT	VendorTripLength	6.90	0.10
tblTripsAndVMT	WorkerTripLength	14.70	0.10
tblTripsAndVMT	WorkerTripLength	14.70	0.10
tblTripsAndVMT	WorkerTripLength	14.70	0.10
tblTripsAndVMT	WorkerTripLength	14.70	0.10

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Year	lb/day										lb/day					
2015	4.1721	38.5665	24.9422	0.0410	0.0768	2.3986	2.4016	8.7400e-003	2.2603	2.2611	0.0000	4,072.4939	4,072.4939	1.0081	0.0000	4,093.6649
Total	**4.1721**	**38.5665**	**24.9422**	**0.0410**	**0.0768**	**2.3986**	**2.4016**	**8.7400e-003**	**2.2603**	**2.2611**	**0.0000**	**4,072.4939**	**4,072.4939**	**1.0081**	**0.0000**	**4,093.6649**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	4.1721	38.5665	24.9422	0.0410	0.0315	2.3986	2.4016	3.8500e-003	2.2603	2.2611	0.0000	4,072.4939	4,072.4939	1.0081	0.0000	4,093.6649
Total	**4.1721**	**38.5665**	**24.9422**	**0.0410**	**0.0315**	**2.3986**	**2.4016**	**3.8500e-003**	**2.2603**	**2.2611**	**0.0000**	**4,072.4939**	**4,072.4939**	**1.0081**	**0.0000**	**4,093.6649**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.95**	**0.00**	**0.00**	**55.95**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/2/2015	2/27/2015	5	20	
2	Excavation, and Shoring	Grading	3/2/2015	5/1/2015	5	45	
3	Pipe Installation and Backfilling	Building Construction	3/2/2015	5/1/2015	5	45	
4	Work Site Restoration	Paving	5/4/2015	5/29/2015	5	20	

Acres of Grading (Site Preparation Phase): 1.4

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Air Compressors	1	6.00	78	0.48
Site Preparation	Concrete/Industrial Saws	1	2.00	81	0.73
Site Preparation	Graders	0	8.00	174	0.41
Site Preparation	Signal Boards	2	24.00	6	0.82
Site Preparation	Sweepers/Scrubbers	2	1.00	64	0.46
Site Preparation	Tractors/Loaders/Backhoes	0	2.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Excavation, and Shoring	Bore/Drill Rigs	1	8.00	205	0.50
Excavation, and Shoring	Concrete/Industrial Saws	0	8.00	81	0.73
Excavation, and Shoring	Dumpers/Tenders	1	8.00	16	0.38
Excavation, and Shoring	Excavators	1	6.00	162	0.38
Excavation, and Shoring	Off-Highway Trucks	1	2.00	400	0.38
Excavation, and Shoring	Rubber Tired Dozers	0	1.00	255	0.40
Excavation, and Shoring	Signal Boards	2	24.00	6	0.82
Excavation, and Shoring	Sweepers/Scrubbers	1	1.00	64	0.46
Excavation, and Shoring	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Excavation, and Shoring	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Excavation, and Shoring	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Pipe Installation and Backfilling	Air Compressors	1	3.00	78	0.48
Pipe Installation and Backfilling	Cement and Mortar Mixers	1	3.00	9	0.56

Pipe Installation and Backfilling	Cranes	0	4.00	226	0.29
Pipe Installation and Backfilling	Forklifts	0	6.00	89	0.20
Pipe Installation and Backfilling	Rollers	1	8.00	80	0.38
Pipe Installation and Backfilling	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Pipe Installation and Backfilling	Welders	2	6.00	46	0.45
Work Site Restoration	Air Compressors	1	8.00	78	0.48
Work Site Restoration	Cement and Mortar Mixers	0	6.00	9	0.56
Work Site Restoration	Concrete/Industrial Saws	1	6.00	81	0.73
Work Site Restoration	Pavers	1	8.00	125	0.42
Work Site Restoration	Paving Equipment	1	8.00	130	0.36
Work Site Restoration	Rollers	2	8.00	80	0.38
Work Site Restoration	Signal Boards	2	24.00	6	0.82
Work Site Restoration	Skid Steer Loaders	1	8.00	64	0.37
Work Site Restoration	Surfacing Equipment	1	8.00	253	0.30
Work Site Restoration	Sweepers/Scrubbers	1	1.00	64	0.46
Work Site Restoration	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Work Site Restoration	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Work Site Restoration	Tractors/Loaders/Backhoes	1	4.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	12	30.00	0.00	0.00	0.10	0.10	0.10	LD_Mix	HDT_Mix	HHDT
Excavation, and Shoring	10	25.00	0.00	500.00	0.10	0.10	0.10	LD_Mix	HDT_Mix	HHDT
Pipe Installation and Backfilling	5	0.00	0.00	0.00	0.10	0.10	0.10	LD_Mix	HDT_Mix	HHDT
Work Site Restoration	14	35.00	0.00	0.00	0.10	0.10	0.10	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0742	0.0000	0.0742	8.0200e-003	0.0000	8.0200e-003			0.0000			0.0000
Off-Road	1.5776	12.0175	8.8289	0.0140		0.8839	0.8839		0.8453	0.8453		1,283.4000	1,283.4000	0.2498		1,288.6464
Total	**1.5776**	**12.0175**	**8.8289**	**0.0140**	**0.0742**	**0.8839**	**0.9581**	**8.0200e-003**	**0.8453**	**0.8533**		**1,283.4000**	**1,283.4000**	**0.2498**		**1,288.6464**

Unmitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0830	0.0178	0.2457	1.1000e-004	2.5800e-003	2.4000e-004	2.8200e-003	7.2000e-004	2.2000e-004	9.5000e-004		9.3487	9.3487	1.1700e-003		9.3732
Total	**0.0830**	**0.0178**	**0.2457**	**1.1000e-004**	**2.5800e-003**	**2.4000e-004**	**2.8200e-003**	**7.2000e-004**	**2.2000e-004**	**9.5000e-004**		**9.3487**	**9.3487**	**1.1700e-003**		**9.3732**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0290	0.0000	0.0290	3.1300e-003	0.0000	3.1300e-003			0.0000			0.0000
Off-Road	1.5776	12.0175	8.8289	0.0140		0.8839	0.8839		0.8453	0.8453	0.0000	1,283.4000	1,283.4000	0.2498		1,288.6464
Total	**1.5776**	**12.0175**	**8.8289**	**0.0140**	**0.0290**	**0.8839**	**0.9128**	**3.1300e-003**	**0.8453**	**0.8484**	**0.0000**	**1,283.4000**	**1,283.4000**	**0.2498**		**1,288.6464**

Mitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0830	0.0178	0.2457	1.1000e-004	2.5800e-003	2.4000e-004	2.8200e-003	7.2000e-004	2.2000e-004	9.5000e-004		9.3487	9.3487	1.1700e-003		9.3732
Total	**0.0830**	**0.0178**	**0.2457**	**1.1000e-004**	**2.5800e-003**	**2.4000e-004**	**2.8200e-003**	**7.2000e-004**	**2.2000e-004**	**9.5000e-004**		**9.3487**	**9.3487**	**1.1700e-003**		**9.3732**

3.3 Excavation, and Shoring - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0431	0.0000	0.0431	5.0800e-003	0.0000	5.0800e-003			0.0000			0.0000

Off-Road	2.0592	21.7750	12.6434	0.0267		1.0896	1.0896		1.0107	1.0107		2,641.3021	2,641.3021	0.7194		2,656.4090
Total	**2.0592**	**21.7750**	**12.6434**	**0.0267**	**0.0431**	**1.0896**	**1.1326**	**5.0800e-003**	**1.0107**	**1.0158**		**2,641.3021**	**2,641.3021**	**0.7194**		**2,656.4090**

Unmitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1064	0.2576	1.7681	2.5000e-004	1.2000e-003	1.3600e-003	2.5600e-003	3.5000e-004	1.2300e-003	1.5800e-003		22.5791	22.5791	7.1000e-004		22.5940
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0691	0.0148	0.2047	9.0000e-005	2.1500e-003	2.0000e-004	2.3500e-003	6.0000e-004	1.9000e-004	7.9000e-004		7.7906	7.7906	9.7000e-004		7.8110
Total	**0.1755**	**0.2724**	**1.9728**	**3.4000e-004**	**3.3500e-003**	**1.5600e-003**	**4.9100e-003**	**9.5000e-004**	**1.4200e-003**	**2.3700e-003**		**30.3697**	**30.3697**	**1.6800e-003**		**30.4050**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0168	0.0000	0.0168	1.9800e-003	0.0000	1.9800e-003			0.0000			0.0000
Off-Road	2.0592	21.7750	12.6434	0.0267		1.0896	1.0896		1.0107	1.0107	0.0000	2,641.3021	2,641.3021	0.7194		2,656.4090
Total	**2.0592**	**21.7750**	**12.6434**	**0.0267**	**0.0168**	**1.0896**	**1.1064**	**1.9800e-003**	**1.0107**	**1.0127**	**0.0000**	**2,641.3021**	**2,641.3021**	**0.7194**		**2,656.4090**

Mitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1064	0.2576	1.7681	2.5000e-004	1.2000e-003	1.3600e-003	2.5600e-003	3.5000e-004	1.2300e-003	1.5800e-003		22.5791	22.5791	7.1000e-004		22.5940
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0691	0.0148	0.2047	9.0000e-005	2.1500e-003	2.0000e-004	2.3500e-003	6.0000e-004	1.9000e-004	7.9000e-004		7.7906	7.7906	9.7000e-004		7.8110
Total	**0.1755**	**0.2724**	**1.9728**	**3.4000e-004**	**3.3500e-003**	**1.5600e-003**	**4.9100e-003**	**9.5000e-004**	**1.4200e-003**	**2.3700e-003**		**30.3697**	**30.3697**	**1.6800e-003**		**30.4050**

3.4 Pipe Installation and Backfilling - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5310	7.5867	6.1546	8.2100e-003		0.6022	0.6022		0.5822	0.5822		746.2079	746.2079	0.1868		750.1312
Total	**1.5310**	**7.5867**	**6.1546**	**8.2100e-003**		**0.6022**	**0.6022**		**0.5822**	**0.5822**		**746.2079**	**746.2079**	**0.1868**		**750.1312**

Unmitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5310	7.5867	6.1546	8.2100e-003		0.6022	0.6022		0.5822	0.5822	0.0000	746.2079	746.2079	0.1868		750.1312
Total	**1.5310**	**7.5867**	**6.1546**	**8.2100e-003**		**0.6022**	**0.6022**		**0.5822**	**0.5822**	**0.0000**	**746.2079**	**746.2079**	**0.1868**		**750.1312**

Mitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Work Site Restoration - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0753	38.5458	24.6556	0.0409		2.3983	2.3983		2.2600	2.2600		4,061.5871	4,061.5871	1.0068		4,082.7295
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.0753**	**38.5458**	**24.6556**	**0.0409**		**2.3983**	**2.3983**		**2.2600**	**2.2600**		**4,061.5871**	**4,061.5871**	**1.0068**		**4,082.7295**

Unmitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0968	0.0207	0.2866	1.3000e-004	3.0000e-003	2.8000e-004	3.2900e-003	8.4000e-004	2.6000e-004	1.1000e-003		10.9068	10.9068	1.3600e-003		10.9354
Total	**0.0968**	**0.0207**	**0.2866**	**1.3000e-004**	**3.0000e-003**	**2.8000e-004**	**3.2900e-003**	**8.4000e-004**	**2.6000e-004**	**1.1000e-003**		**10.9068**	**10.9068**	**1.3600e-003**		**10.9354**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0753	38.5458	24.6556	0.0409		2.3983	2.3983		2.2600	2.2600	0.0000	4,061.5871	4,061.5871	1.0068		4,082.7295
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.0753**	**38.5458**	**24.6556**	**0.0409**		**2.3983**	**2.3983**		**2.2600**	**2.2600**	**0.0000**	**4,061.5871**	**4,061.5871**	**1.0068**		**4,082.7295**

Mitigated Construction On-Site Vehicle Travel

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0968	0.0207	0.2866	1.3000e-004	3.0000e-003	2.8000e-004	3.2900e-003	8.4000e-004	2.6000e-004	1.1000e-003		10.9068	10.9068	1.3600e-003		10.9354
Total	**0.0968**	**0.0207**	**0.2866**	**1.3000e-004**	**3.0000e-003**	**2.8000e-004**	**3.2900e-003**	**8.4000e-004**	**2.6000e-004**	**1.1000e-003**		**10.9068**	**10.9068**	**1.3600e-003**		**10.9354**

Operational Greenhouse Gas Emissions

EMISSIONS OF GREENHOUSE GAS EMISSIONS FROM ELECTRICITY GENERATION

Project Name: Peters Canyon Channel Reuse Pipeline Project

ELECTRICITY DEMAND

Total Megawatt Hours (MWh) per Year: 600.0

GREENHOUSE GAS EMISSIONS

Emissions	Emission Factors (lbs/MWh)	Emissions (metric tons)	CO_2 Equivalency Factors	CO_2 Equivalent Emissions (tons per year)
Carbon Dioxide	630.89	171.70	1	171.70
Methane	0.029	0.008	21	0.17
Nitrous Oxide	0.006	0.002	310	0.52
	Total Emissions:	171.71		172.39

Source of GHG emission factors: CalEEMod, Version 2013.2.2

APPENDIX B

Biological Resources Technical Report

PETERS CANYON CHANNEL WATER CAPTURE AND REUSE PIPELINE PROJECT

Biological Resources Technical Report
Volume 1

Prepared for
Irvine Ranch Water District

December 2014

ESA

PETERS CANYON CHANNEL WATER CAPTURE AND REUSE PIPELINE PROJECT

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PETERS CANYON CHANNEL WATER CAPTURE AND REUSE PIPELINE PROJECT

Biological Resources Technical Report Volume 1

Executive Summary

The Peters Canyon Channel Water Capture and Reuse Pipeline Project (project), collectively proposed by the Irvine Ranch Water District, Orange County Flood Control, City of Irvine, City of Tustin, California Department of Transportation, and the Transportation Corridor Agency is seeking a cost-effective solution for the collection, transport and treatment of nuisance groundwater and surface water flows with high nitrate and selenium concentrations that discharge into Peters Canyon Channel. The Peters Canyon Channel Water Capture and Reuse Pipeline (“proposed project”) would divert such flows to Orange County Sanitation District (OCSD) for treatment to protect and maintain local water quality. Currently, these high nitrate and selenium waters are discharged into either Peters Canyon Channel or into IRWD’s sewer system.

Biological reconnaissance surveys were conducted throughout the project area and immediate vicinity to identify potential environmental and regulatory constraints associated with construction of the project. Although a formal jurisdictional delineation was not conducted, an assessment of potential jurisdictional resources within the project area and immediate vicinity was conducted. Based on the assessment, both Peters Canyon Channel and San Diego Creek likely fall under the jurisdiction of the U.S. Army Corps of Engineers, California Department of Fish and Wildlife, and the Regional Water Quality Control Board. No federal wetlands are anticipated to occur within the project area, due to the limited presence of hydrophytic vegetation and lack of mapped hydric soils.

The project site contains five plant communities and land uses: cattail marsh, disturbed cattail marsh, developed/ornamental, ruderal/disturbed, and streambed. No focused surveys for specific special-status plant or wildlife species were conducted; however, one special-status plant species, Coulter’s Matilija poppy (*Romneya coulteri*) (California Native Plant Society [CNPS] rare plant rank 4.2), was observed during project surveys. Two additional special-status plant species, southern tarplant (*Centromadia parryi* ssp. *australis*) (CNPS rare plant rank 1B.1) and mud nama (*Nama stenocarpum*) (CNPS rare plant rank 2B.2), were determined to have a high potential to occur based on the presence of suitable habitat and because the project site is located within their range of distribution. No federal or state endangered or threatened plant species were identified in during the reconnaissance survey. Many common wildlife species typical of the region, including northern raccoon (*Procyon lotor*) and coyote (*Canis latrans*) were observed during the

reconnaissance survey. No federal or state endangered or threatened wildlife species were identified in the project area. Three California special-status wildlife species, burrowing owl (*Athene cunicularia*), western pond turtle (*Emys marmorata*), and California horned lark (*Eremophila alpestris actia*), were determined to have a medium or high potential to occur on the project site. There are feasible mitigation measures that may be implemented to avoid or reduce potential impacts to special-status plant and wildlife species, including preconstruction surveys and in some instances construction monitoring by a qualified biologist.

The project site does not occur within any designated critical habitat areas. The closest designated critical habitat is for coastal California gnatcatcher (*Polioptila californica californica*) located approximately two miles to the southeast of the project site. No identified terrestrial wildlife migration corridors occur within the immediate vicinity of the project site, and the project is not anticipated to significantly impede the local or regional movement of wildlife in the area.

The project is subject to compliance with local policies and plans including the City of Irvine General Plan and the City of Tustin General Plan. There are no direct impacts to lands within the Orange County Natural Communities Conservation Plan/Habitat Conservation Plan, even though these conservation planning areas are located within the region. However, Peters Canyon Channel and San Diego Creek have a hydrologic connection with the San Joaquin Marsh located downstream, which is located within the Orange County NCCP/HCP covered area. Potential operational impacts to habitats located within the boundaries of the marsh will be addressed in Volume 2 of this Biological Resources Technical Report.

PETERS CANYON CHANNEL WATER CAPTURE AND REUSE PIPELINE PROJECT

Biological Resources Technical Report Volume 1

1. Introduction

This report has been prepared to document biological resources that could be directly affected within the limits of the Peters Canyon Channel Water Capture and Reuse Pipeline Project (project). This report describes the environmental setting of the project area, including plant communities, habitats, and sensitive biological resources determined to be present, as well as those that have a potential to be present; and the applicable regulatory framework. Impacts to sensitive biological resources are categorized based on biological resource issues that are required to be analyzed in accordance with the California Environmental Quality Act (CEQA), including sensitive plant species, wildlife species, natural communities, jurisdictional resources, local policies and ordinances, wildlife movement corridors, and conservation areas. Direct impacts related to construction of the project are described herein. Operational impacts that could result from reduced flows due to proposed diversions to in-channel biological resources (including downstream impacts) are evaluated in Volume 2 of this Biological Resources Technical Report.

2. Project Description

Irvine Ranch Water District (IRWD), Orange County Flood Control District (OC Flood), City of Irvine, City of Tustin, California Department of Transportation (Caltrans), and Transportation Corridor Agency (TCA) are collectively seeking a cost-effective solution for the disposal of Peters Canyon Channel flows that contain high nitrate and selenium concentrations. The proposed project would divert high selenium nuisance surface and groundwater flows to the Orange County Sanitation District (OCSD) for treatment and reuse. Currently, these flows are discharged into either Peters Canyon Channel or into IRWD's Harvard Avenue Trunk Sewer (HATS) under a temporary special discharge permit.

The proposed project includes diversion of dewatered groundwater and surface storm drain flows into a backbone pipeline conveyance system that would connect to OCSD's sewer system. The project would be located in the Cities of Tustin and Irvine along Peters Canyon Channel and San Diego Creek Channel (Figure 1). The project consists of the following components:

2.1 Backbone Reuse Pipeline

A pipeline conveyance system consisting of approximately 17,300 linear feet of 8-inch to 16-inch diameter pressurized pipeline is proposed to run along the southern side of the Peters Canyon Channel and the northern side of San Diego Creek. The vast majority of the project will occur along Peters Canyon Channel, which converges into San Diego Creek just south of Barranca Parkway. The pipeline would begin at the Caltrans Ground Water Treatment Facility (GWTF) at Walnut Avenue and terminate at the 60-inch OCSD sewer located within Main Street just west of San Diego Creek. The pipeline will cross infrastructure throughout the alignment, including storm drains, roadways, a rail line, as well as Peters Canyon Channel itself, potentially requiring a jack-and-bore installation process at multiple locations (Figure 2). As jack and bore crossings may or may not be required, both scenarios are considered in the document. Construction of the pipeline would avoid direct impacts to Peters Canyon Channel and San Diego Creek.

2.2 Caltrans Ground Water Treatment Facility Diversion

The existing discharge pipeline located at the GWTF that currently discharges to IRWD's sewer would be disconnected and flows will be rerouted to the proposed pipeline for the continued discharge of approximately 490 gallons per minute (gpm; 1.1 cubic feet per second [cfs]), which would go directly to the OCSD Main Street Trunk Sewer. Discharges from the GWTF are expected to occur during both wet weather and dry weather conditions.

2.3 Storm Channel Diversions

All dry weather flow from Como Channel, Edinger Circular Drain, and Valencia Drain would be diverted to the backbone reuse pipeline. Diversion structures would be constructed within these three drains just upstream of each discharge point into Peters Canyon Channel. Pump stations would consist of wet wells and submersible pumps sized for flows of 492 gpm, 123 gpm, and 515 gpm (1.1 cfs, 0.3 cfs, and 1.2 cfs), respectively. Maximum dry weather flow diverted from Peters Canyon Channel would be approximately 1,130 gpm (2.6 cfs), and facilities would be designed to accommodate such flow. During wet weather events, flows in these three storm channels would continue to discharge into Peters Canyon Channel.

3. Methodology

3.1 Literature and Database Review

Appropriate resources were reviewed by Environmental Science Associates (ESA) that included aerial photographs of the project site and surrounding area, United States Geological Survey (USGS) topographic maps and National Wetland Inventory (NWI) maps. Biological resource databases were also queried, which included the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB), California Native Plant Society (CNPS) On-line Inventory of Rare and Endangered Vascular Plants of California, and the United States Fish and Wildlife Service (USFWS) Information, Planning, and Conservation System

(IPaC). These databases helped to identify which special-status species have been previously recorded within the project vicinity. Due to the heavily developed nature of the area surrounding the project site, suitable habitat for special-status species is limited. Nonetheless, a three-mile to five-mile radius around the project was queried to identify recorded special-status plant and wildlife species occurrences in the area.

"Special-status" species analyzed included plants and animals that are legally protected (i.e., listed) under the California Endangered Species Act (CESA) or Federal Endangered Species Act (FESA), or other regulations, and species that are considered sufficiently rare or sensitive by the scientific community to qualify for such listing. Special-status species are categorized as follows:

- Species listed or proposed for listing as threatened or endangered, or are candidates for possible future listing as threatened or endangered, under CESA or FESA;
- Species protected under the federal Bald and Golden Eagle Protection Act;
- Species that meet the definitions of rare or endangered under CEQA (*CEQA Guidelines* § 15380);
- Plants listed as rare under the California Native Plant Protection Act (NPPA; Fish and Game Code § 1900 et seq.);
- Plants considered by the CNPS to be rare, threatened, or endangered in California;
- Species covered under an adopted Natural Community Conservation Plan (NCCP)/Habitat Conservation Plan (HCP);
- CDFW Special Animals and wildlife species of special concern;
- Wildlife fully protected in California (Fish and Game Code § 3511, 4700, and 5050); and/or
- Avian species protected by the federal Migratory Bird Treaty Act (MBTA).

Additionally, the CNDDB (CDFW, 2014c) was queried for the purposes of identifying sensitive natural communities that have been recorded in the vicinity of the project site. Sensitive natural communities are designated as such by various resource agencies, such as the CDFW, or in local policies and regulations, and are generally considered to have important functions or values for wildlife and/or are recognized as declining in extent or distribution, and are considered threatened enough to warrant some level of protection. Sensitive natural communities include those that are identified in the CDFW *List of California Terrestrial Communities* (CDFW, 2010).

From these queries, a list of target special-status species and sensitive natural communities was developed for the project site. Potentially-occurring special-status species were defined as having a geographic range and habitat similar to those found within the vicinity of the project site and thus having the potential to occur within the project site.

Available background information, including USGS topographic maps and current and historical aerial photographs were used in conjunction with geographic information system (GIS) data to characterize soils and to map vegetation communities, and to identify any USFWS-designated or local county critical habitat boundaries or CDFW Natural Community Conservation Planning areas.

3.2 Biological Resource Surveys

A biological reconnaissance survey was conducted by ESA biologists on February 19, 2014, within the limits of the project site that included areas that are approximately 500 feet from the project boundary. In addition, a biological survey was conducted on April 1, 2014 within and downstream of the project site for purposes of evaluating the operational effects of the project, primarily reduced discharges into Peters Canyon Channel and San Diego Creek, and increased residence time within the San Joaquin Marsh. These survey results are reported in Volume 2 of this Biological Resources Technical Report.

The reconnaissance surveys were conducted on foot by two biologists to identify potential biological resource constraints associated with the implementation of the proposed project. Special attention was paid to habitats having potential to support sensitive biological resources (e.g., special-status species, sensitive natural communities and riparian habitats), including features potentially subject to U.S. Army Corps of Engineers (USACE), CDFW, and Regional Water Quality Control Board (RWQCB) jurisdiction regulations. Aerial photography and Geographic Positioning System (GPS) technology was used to accurately locate and assess sensitive biological resources.

Onsite plant communities were mapped in order to quantify their limits within the project site and immediate vicinity. Plant communities were initially mapped directly on aerial photographs and then digitized in ArcGIS. All plant species observed during the field reconnaissance were identified to the species or subspecies level. Plant taxonomy followed Hickman (1993), as updated in Baldwin, et al. (2012). Representative photographs of the Study Area are included in Appendix C.

Wildlife species were identified during the field reconnaissance by sight, call, tracks, nests, scat, remains, or other sign, with use of binoculars and taxonomic keys where appropriate. Vertebrate taxonomy followed in this report is according to Stebbins (1985) for amphibians and reptiles, the American Ornithologists' Union (1983, as supplemented) for birds, and Jones et al. (1997) for mammals.

The analysis of potential wildlife habitat linkages on the project site or immediate vicinity was based on information compiled from literature and analysis of physical barriers observed on aerial photographs and during the field reconnaissance. This information was used to identify whether Peters Canyon Channel or San Diego Creek could be used as an important wildlife movement corridor connecting large open space areas located upstream and downstream from the project site. The discussions in this report related to wildlife movement are intended to focus on areas within the project boundaries, immediate vicinity, and general region.

3.3 Jurisdictional Assessment

To identify if Peters Canyon Channel, San Diego Creek, and associated tributaries located within the immediate vicinity of the project site are potentially jurisdictional waters, a review of available background information pertaining to these waterways was conducted prior to the reconnaissance survey. Site maps were generated on aerial photographs and potentially jurisdictional water features were identified in ArcGIS to assist in field verification. The project site, including areas upstream and downstream, were assessed for potentially jurisdictional wetlands or waters of the U.S. and/or state protected waters based on the presence of hydrophytic vegetation, stream geomorphology, ordinary high water mark (OHWM), connectivity to traditionally navigable waters, and other appropriate hydrologic indicators.

A general jurisdictional assessment was conducted to determine features likely under the jurisdiction of federal, state, and local resource agencies. The following resources distributed by the USACE were referenced where necessary during the assessment to determine any areas of USACE jurisdiction: The *U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987), the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Arid West Region (Version 2.0),* as well as the *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE, 2008a; USACE, 2008b).

4. Environmental Setting

4.1 Regional Setting

The project site is located in Orange County straddling the Cities of Irvine and Tustin and within the coastal plain of the Los Angeles Basin. Significant regional geographic features around the area include the peninsular ranges to the northeast and south and the Pacific Ocean to the southwest. Eleven major watersheds traverse the county, transporting water from the surrounding mountains and deserts to the Pacific Ocean (OCPW, 2014). Dense urban development occurs within the general area surrounding the project site in all directions.

The climate in the region is Mediterranean, with dry summers and moderately wet winters; however, the region has experienced drought conditions over the past few years. The region lies in the semi-permanent high-pressure zone of the eastern Pacific Ocean, resulting in a mild climate tempered by moderate onshore winds, but is occasionally interrupted by periods of hot weather, winter storms, or Santa Ana winds; however, these interruptions are seasonal and do not generally affect the region for extended periods of time.

Plant communities typically found within the coastal plains of the region include a mosaic of xeric habitats including sage scrub, grassland, and chaparral, with occasional riparian or woodland habitat associated with riverine or other aquatic features. Habitats throughout the region are known to support a wide variety of common plant and wildlife species, as well as many special-status species protected by federal, state and local regulations. Some creeks in the region are perennial; however, many are intermittent or ephemeral and support only seasonal flows.

4.2 Local Setting

The project site is located within the San Joaquin Land Grant of the USGS Tustin 7.5-minute topographic map within a heavily urbanized area, spanning between the Cities of Tustin and Irvine. Land use to the northwest consists primarily of industrial development; however, portions of the inactive (and undeveloped) Marine Corps Air Station Tustin are located just north of the eastern extent of the proposed project alignment. Land use to the south consists primarily of single-family homes as well as the City of Irvine Civic Center, situated along the central portion of the alignment (Figure 1 and Figure 2). Elevation throughout the project site ranges from approximately 72 feet above mean sea level (amsl) in the southwest to approximately 246 feet amsl in the north (Google Earth, 2014).

Currently, the Como Channel, Edinger Circular Drain and Valencia Drain empty into the Peters Canyon Channel. Peters Canyon Channel converges with San Diego Creek, which ultimately flows into Upper Newport Bay downstream. The San Joaquin Marsh receives freshwater from a diversion from San Diego Creek located upstream of Upper Newport Bay.

4.3 Soils

There are two soils classes, Chino and Omni, within the project site according to the United States Department of Agriculture Soil Service (USDA, 2014). A description of each soil class is provided below. Figure 3 shows the distribution of each soil class along with the individual soil types within each soil class.

Chino Soil Class

Two soil types within the Chino soil class were identified within the project site and immediate vicinity, “Chino silty clay loam” and “Chino silty clay loam, drained.” Chino silty clay loam is located within and surrounding the northeast half of the project site, and Chino silty clay loam, drained is located sporadically throughout the entire project site. Both Chino silty clay loam and Chino silty clay loam, drained generally occur on 0 to 2 percent slopes. Both soil types are somewhat poorly drained and are commonly located within floodplains. The capacity for these soils to transmit water is considered moderately high.

Omni Soil Class

Three soil types within the Omni soil class were identified within the project site and immediate vicinity, “Omni silt loam, drained”, “Omni clay”, and “Omni clay, drained.” Omni silt loam, drained is located sporadically throughout the project site, and both Omni clay and Omni clay, drained are located in the northeast corner of the project. All three soil types generally occur on 0 to 2 percent slopes, are considered poorly drained, are commonly located in depressions, and have a moderately low to moderately high capacity to transmit water.

SOURCE: ESRI Imagery

Peters Canyon Channel Water Capture and Reuse Pipeline . 130993

Figure 1
Regional Location Map

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SOURCE: ESRI

Peters Canyon Channel Water Capture and Reuse Pipeline . 130993

Figure 2

Aerial Project Limits Map

SOURCE: USDA

Peters Canyon Channel Water Capture and Reuse Pipeline . 130993

Figure 3

Soils

4.4 Plant Communities and Land Uses

The project site consists primarily of the upper banks of Peters Canyon Channel and San Diego Creek and associated tributaries (i.e., Como Channel, Edinger Circular Drain, and Valencia Drain) which have been reinforced with concrete or stabilized with riprap. Much of the bed of the Peters Canyon Channel and San Diego Creek within the immediate vicinity of the project site is soft bottom, and thus supports vegetation. In an effort to maintain proper flow characteristics, the Orange County Public Works regularly clears vegetation from Peters Canyon Channel on an as-needed basis under existing USACE, RWQCB and CDFW maintenance permits (SPL-20120-0711-SME, 30-2004-15-DGW, and 1600-2004-0281-R5, respectively), rendering the channel devoid of vegetation periodically throughout the year. Many of these maintained areas within the channel are dominated by cattails (*Typha latifolia*) prior to clearing activities and are therefore characterized as disturbed cattail marsh. The majority of the channel supports only low-growing vegetation and is characterized as streambed, as shown on Figure 4. The tributaries of Peters Canyon Channel and San Diego Creek (i.e., Como Channel, Edinger Circular Drain, and Valencia Drain) are concrete or rip-rap lined drainages lacking riparian vegetation. The area outside of the boundaries of the channels tends to be dominated by disturbed upland vegetation and is characterized as ruderal/disturbed, as shown on Figure 4. Along the fenced perimeter of the project alignment; however, ornamental vegetation and existing development dominate the landscape.

Plant community descriptions were characterized in the field using the *Manual of California Vegetation* (Sawyer et al., 2009) and *The Jepson Manual* (Baldwin et al., 2012). Vegetation and land uses not effectively described within the manuals were characterized based on field observations of dominant species. Details of each plant community and land use occurring within the project site are below and a map depicting the distribution of each community and land use within the project site and immediate vicinity is presented in Figure 4. A complete list of plant species observed during the reconnaissance survey is included in Appendix A and representative photographs are included in Appendix C.

Cattail Marsh

Undisturbed cattail marsh is present at two locations that are adjacent to the project site: within a detention basin adjacent to the Walnut Avenue pump station to the northeast of project site, and within an unnamed tributary located along the north side of Warner Avenue. These areas are dominated by cattails, and also contain several willow species (*Salix* spp.). These areas are located outside of Peters Canyon Channel and San Diego Creek and are not within the proposed project footprint.

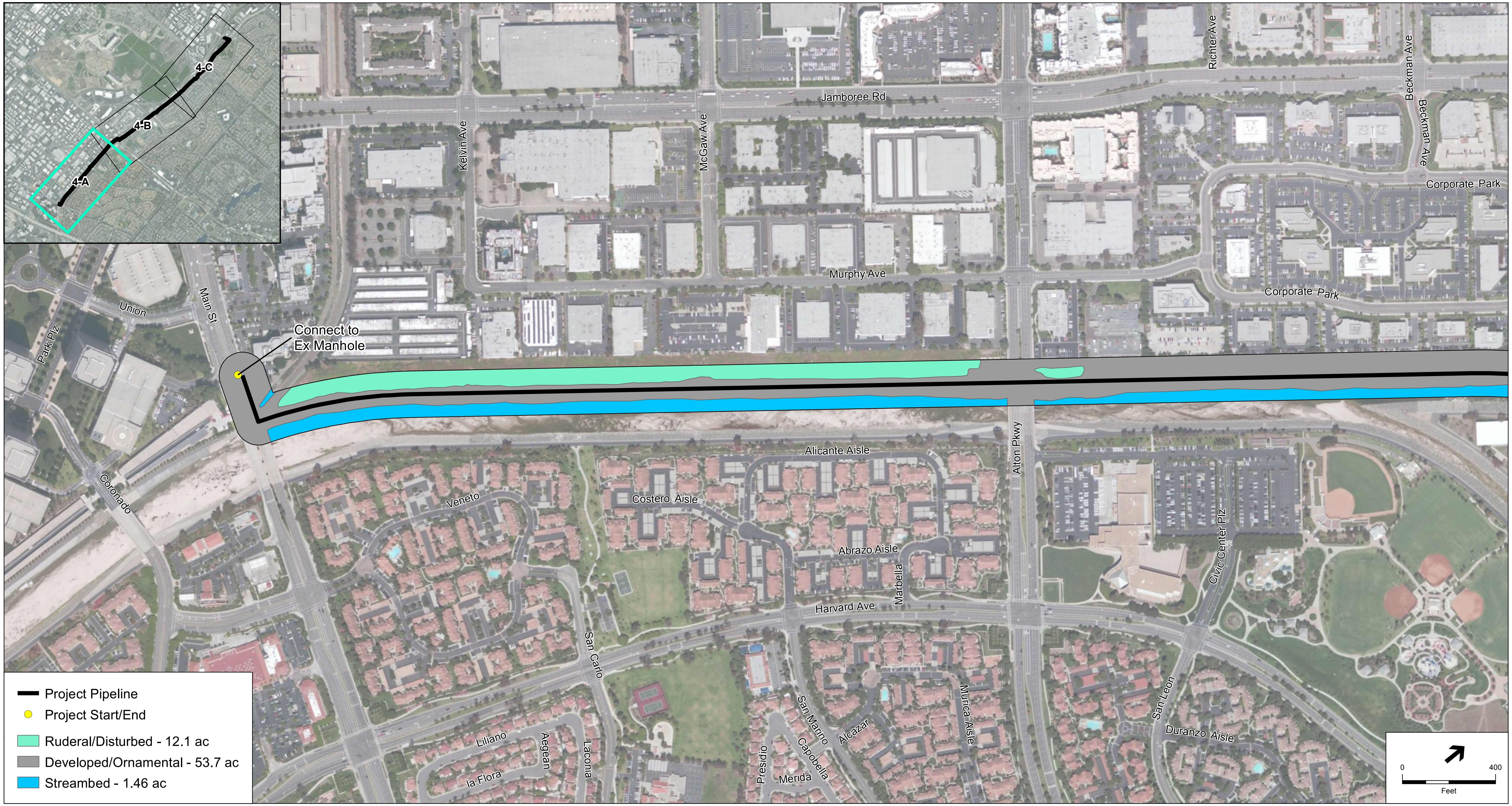
Disturbed Cattail Marsh

Disturbed cattail marsh is restricted to the northeast of the project site, west of the Walnut Avenue pump station and upstream of the three proposed diversion points. Due to regular permitted vegetation clearing conducted along the bed of the Peters Canyon Channel, cattail marsh is only able to persist in small patches. Therefore, the function and vegetative diversity of this plant community is highly affected and thus fragmented. Additional herbaceous vegetation occurring throughout the bed and banks of the channel includes duckweed (*Lemna minuta*) and watercress (*Nasturtium officinale*).

Developed/Ornamental

Developed/Ornamental areas are present within the project site along the perimeter of the alignment fencing, extending out into the surrounding development. In addition, this land use also includes the concrete and riprap lining along the channel banks as well as bridges and other infrastructure crossing that consist of impermeable surfaces along Peters Canyon Channel, San Diego Creek, Como Channel, Edinger Circular Drain, and Valencia Drain.

Ornamental shrub and tree species occurring within developed/ornamental areas include everblooming acacia (*Acacia retinoides*), oleander (*Nerium oleander*), Aleppo pine (*Pinus halipensis*), Peruvian pepper tree (*Schinus molle*), lemon scented gum (*Eucalyptus citrinoides*), and Mexican fan palm (*Washingtonia robusta*).

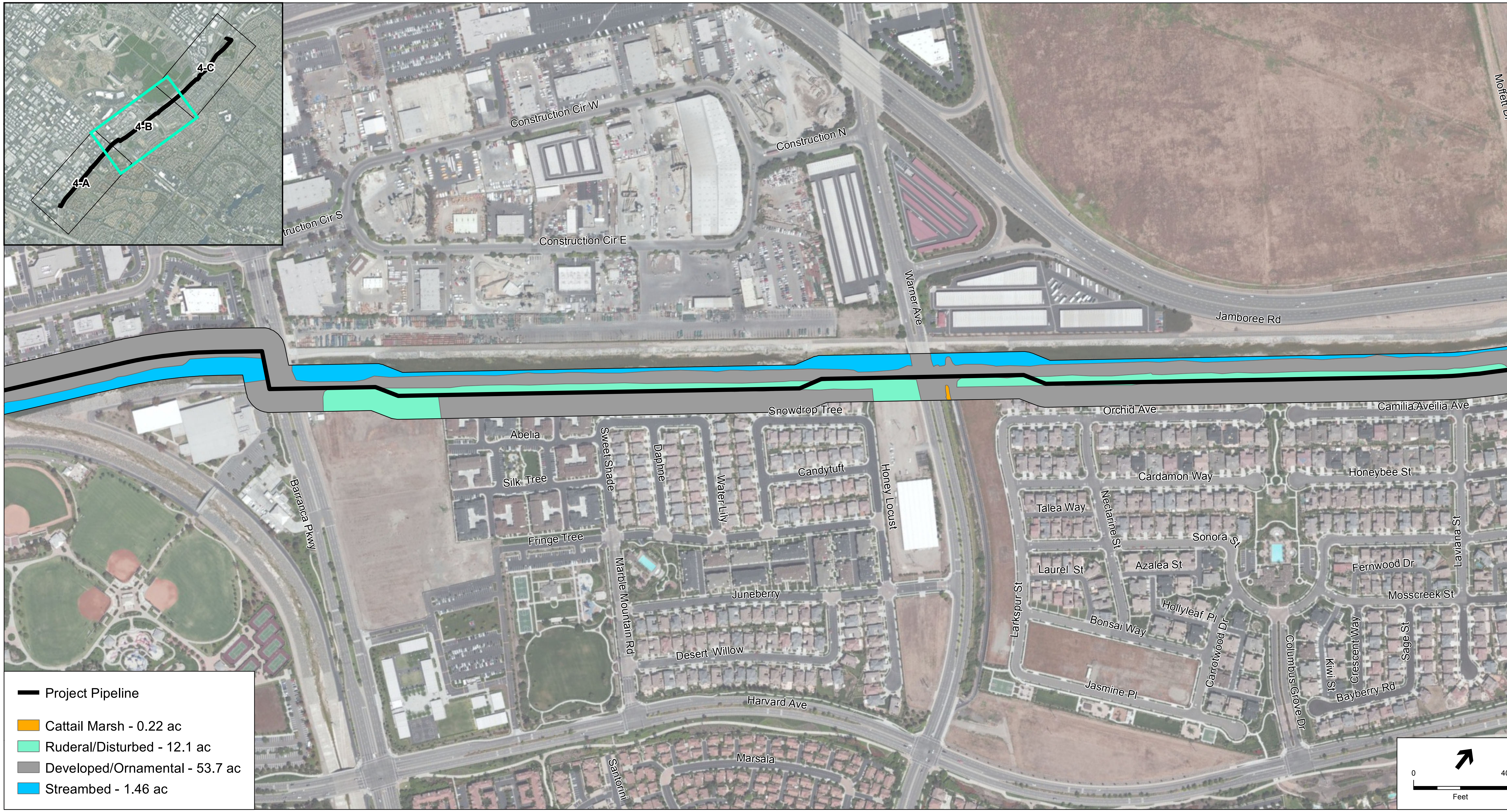


SOURCE: ESRI

Peters Canyon Channel Water Capture and Reuse Pipeline . 130993

Figure 4-A

Plant Communites and Land Use

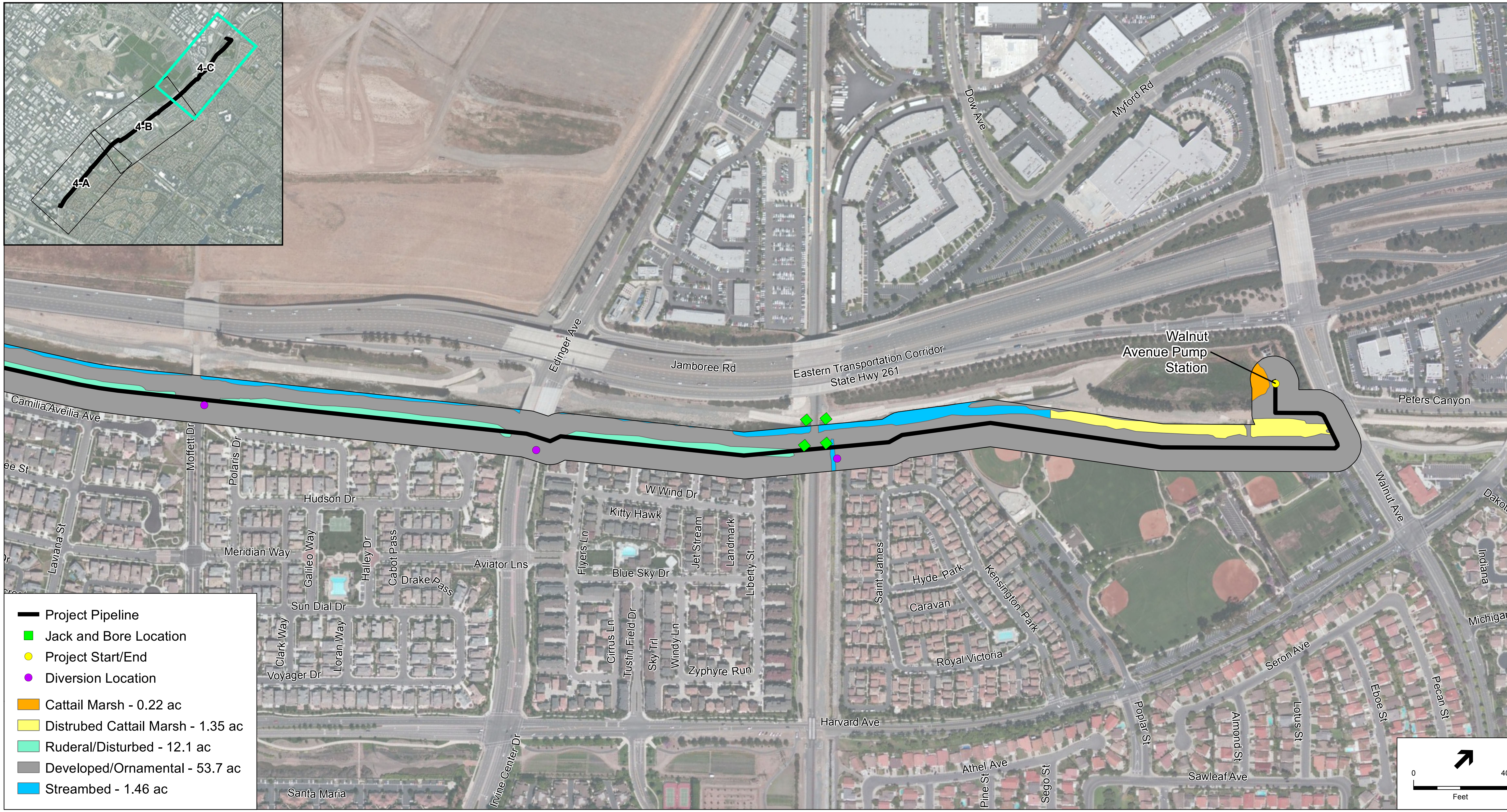


SOURCE: ESRI

Peters Canyon Channel Water Capture and Reuse Pipeline . 130993

Figure 4-B

Plant Communites and Land Use



SOURCE: ESRI

Peters Canyon Channel Water Capture and Reuse Pipeline . 130993

Figure 4-C

Plant Communites and Land Use

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Ruderal/Disturbed

Ruderal/Disturbed areas are generally located throughout the disturbed portions of the project site in upland areas, outside of the bed and banks of the Peters Canyon Channel, San Diego Creek and associated tributaries. This vegetation is generally dominated by non-native annual grasses and forbs including wild oats (*Avena fatua*), red stem filaree (*Erodium cicutarium*), telegraph weed (*Heterotheca grandiflora*), shortpod mustard (*Hirschfeldia incana*), and annual yellow sweetclover (*Meliliotus indicus*). Native scrub species including California sagebrush (*Artemisia californica*), thickleaf yerba santa (*Eriodictyon crassifolium*), and California buckwheat (*Eriogonum fasciculatum*) occur intermittently throughout many of the open areas as well. However, the occurrence of these species is minimal, and not sufficient to constitute a separate plant community.

Streambed

Streambed consists of the soft-bottom areas within the bottom of Peters Canyon Channel and San Diego Creek, and associated tributaries (i.e., Como Channel, Edinger Circular Drain, and Valencia Drain). Although much of the streambed within the vicinity of the project site is unvegetated, many areas support low-density vegetative cover. Vegetation generally consists of annual herbaceous species, including least duckweed, common knotweed (*Persicaria lapanthifolia*), and water cress. However, some non-native upland species line the bottom of the channel banks and streambed in areas of less frequent inundation, including common plantain (*Plantago major*), rabbit foot grass (*Polypogon monspeliensis*), and red stemmed filaree.

4.5 Wildlife Species

The project site and adjacent areas supports a variety of common wildlife species typically found within the urban environments of Southern California; however, the presence of perennial water sources in Peters Canyon Channel and San Diego Creek, and associated tributaries provides foraging and wading habitat for shorebirds and waterfowl, and breeding habitat for several aquatic wildlife species.

Common avian species detected or observed during the reconnaissance survey, or expected to occur in the project area, include (but not limited to) western grebe (*Aechmorphus occidentalis*), cinnamon teal (*Anas cyanoptera*), green-winged teal (*Anas crecca*), mallard (*Anas platyrhynchos*), bufflehead (*Bucephala albeola*), yellow-rumped warbler (*Dendroica coronata*), American coot (*Fulica americana*), black-necked stilt (*Himantopus mexicanus*), and bushtit (*Psaltriparus minimus*). Several raptor were observed soaring within the vicinity of the project area, including red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), and turkey vulture (*Cathartes aura*); however, these species are not necessarily expected to forage or nest within the project site. Additional wildlife species observed in the upland areas along the alignment during surveys, or expected to occur in the project area, include coyote (*Canis latrans*), striped skunk (*Mephitis mephitis*), northern raccoon (*Procyon lotor*), western fence lizard (*Sceloporus occidentalis*), and California ground squirrel (*Spermophilus beecheyi*). One fish species, common carp (*Cyprinus carpio*), and one turtle species, Texas spiny softshell (*Apalone spinifera* ssp. *emoryi*), were observed within Peters Canyon Channel and San Diego Creek during the reconnaissance survey. A complete list of all wildlife species identified during the reconnaissance survey can be found in Appendix B.

4.6 Special-Status Species

Based on the literature/database review and field reconnaissance, several special-status species have the potential to occur in the project site or immediate vicinity. Special-status wildlife and plant species previously recorded within the vicinity of the project site are depicted in Figures 5-A and 5-B, respectively. Such special-status plant and wildlife species were analyzed based on the following 'potential to occur' definitions:

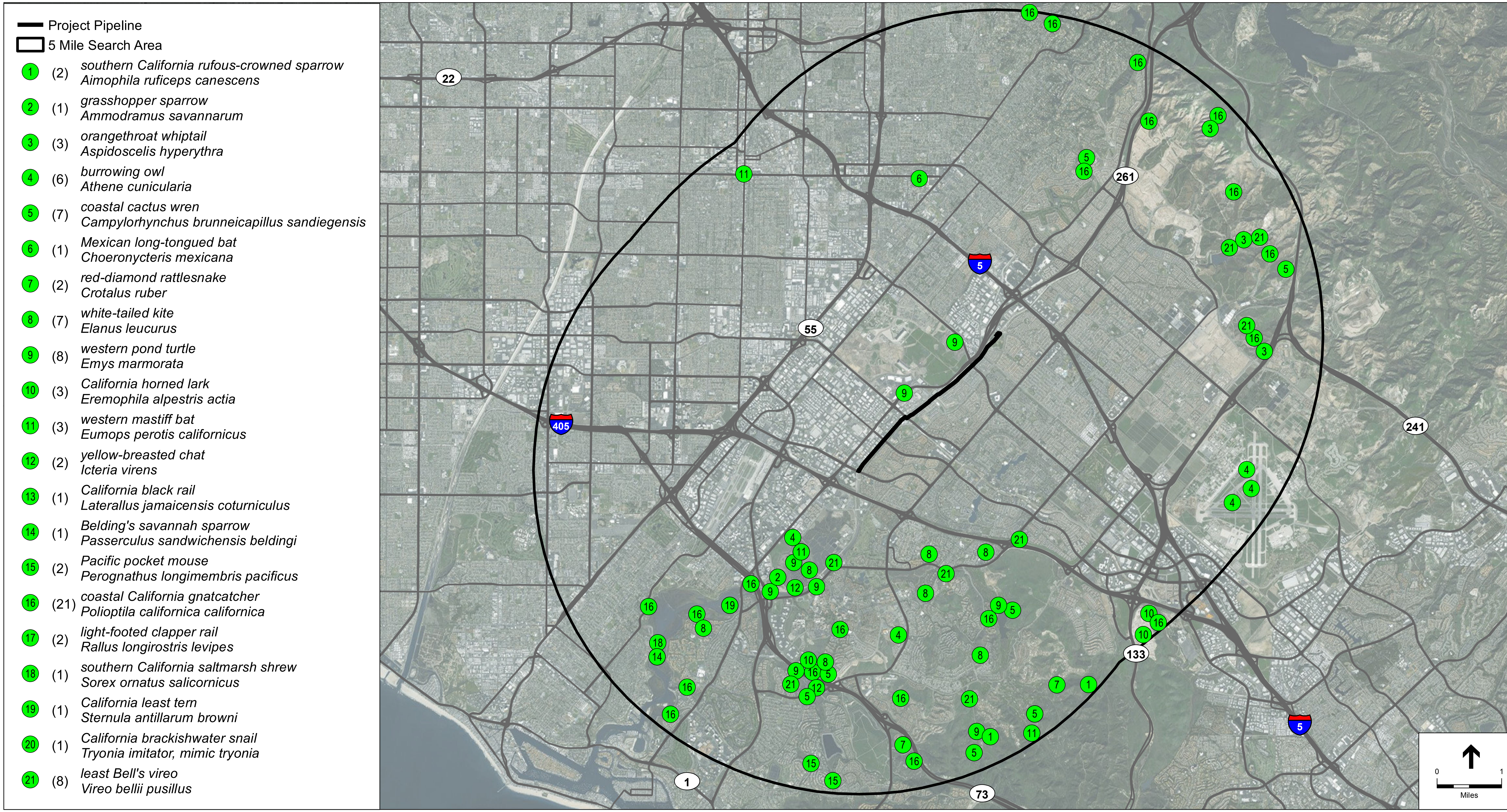
- **Unlikely:** The project site or immediate vicinity do not support suitable habitat for a particular species, and therefore the species is unlikely to occur within the area.
- **Low Potential:** The project site or immediate vicinity only provide limited habitat for a particular species. In addition, the known range for a particular species may be outside of the project site or immediate vicinity.
- **Moderate Potential:** The project site or immediate vicinity provide suitable habitat for a particular species.
- **High Potential:** The project site or immediate vicinity provides ideal habitat conditions for a particular species. Additionally, known populations of the species may occur in the project area or immediate vicinity.
- **Present:** The species was observed within the project site or immediate vicinity during relevant biological surveys or other project visits.

Special-Status Plant Species

One CNPS special status plant species, Coulter's Matilija poppy (*Romneya coulteri*), was observed within the vicinity of the project site, but outside of the project boundaries during surveys. Two CNPS special-status plant species, southern tarplant (*Centromadia parryi* ssp. *australis*) and mud nama (*Nama stenocarpum*), were determined to have a high potential to occur based on the presence of suitable habitat within the project site and previously recorded occurrences within the project area (Figure 5-B). San Bernardino aster (*Symphotrichum defoliatum*) was determined to have a low potential to occur based on the presence of marginal habitat, and nine additional special-status plant species were determined have an unlikely potential to occur within the project area due to a lack of suitable habitat. **Table 1** lists the special-status plant species that have been recorded in the area, including their potential to occur on the project site.

Sensitive Natural Communities

Cattail marsh, a CDFW Sensitive Natural Community, was identified within the vicinity of the project site. The distribution of cattail marsh within the area is limited and is generally disturbed by existing flood management practices. Additionally, riparian marsh habitat, which is also considered a Sensitive Natural Community, is present downstream within the San Joaquin Marsh.



SOURCE: ESRI Imagery, CNDDB

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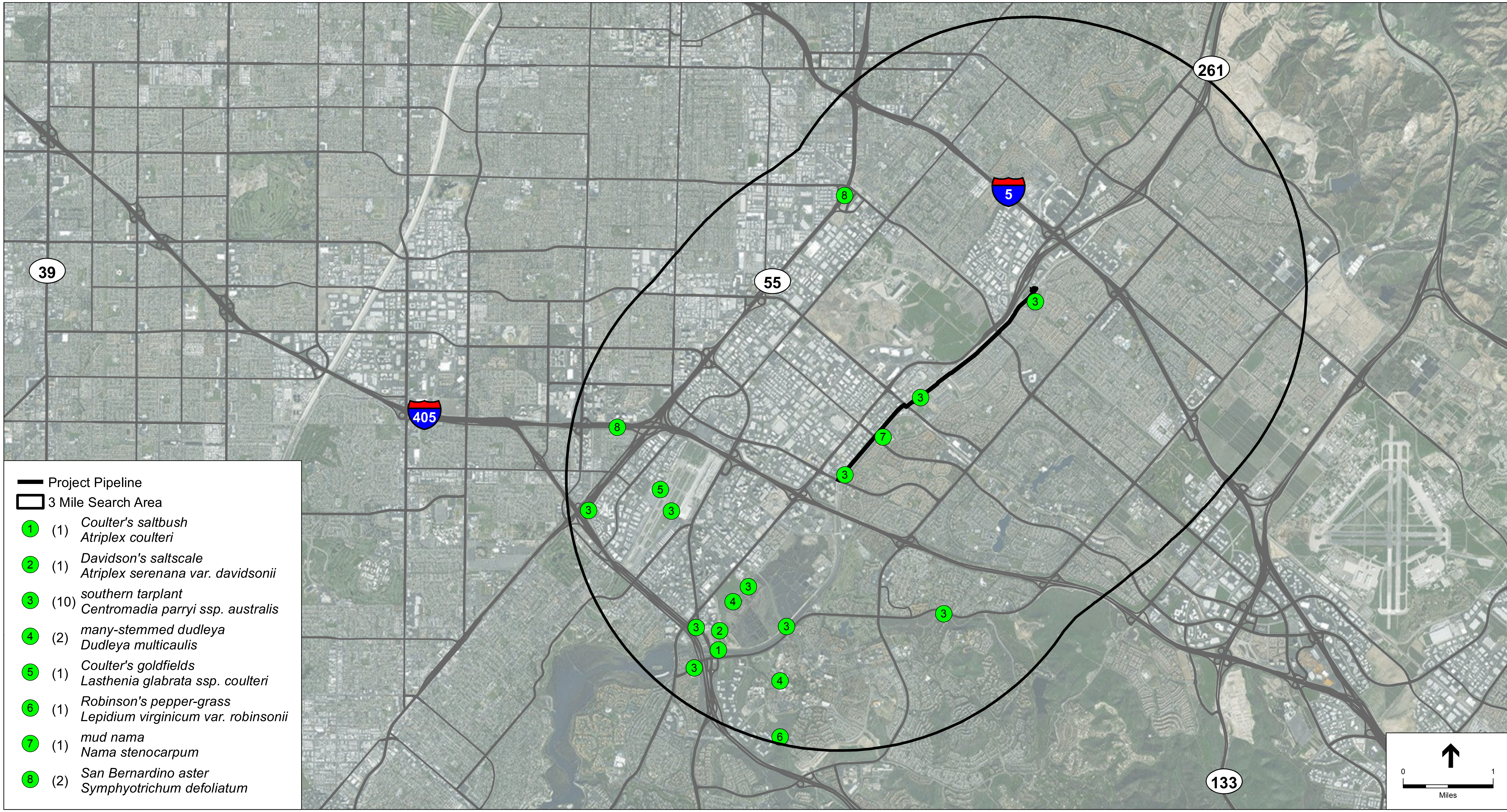
Figure 5-A
Special-Status Wildlife Species Occurrences



SOURCE: ESRI Imagery, CNDDB

Peters Canyon Channel Water Capture and Reuse Pipeline . 130993

Figure 5-B

Special-Status Plant Occurrences

TABLE 1
SPECIAL-STATUS PLANT SPECIES WITH POTENTIAL TO OCCUR

Species	Status[1] Federal/State/ CRPR	Habitat Requirements	Potential to Occur
Coulter's saltbush (*Atriplex coulteri*)	-- / -- / 1B.2	Found on alkaline or clay substrate within coastal bluff scrub, coastal dune, coastal scrub and valley and foothill grassland habitats. Blooms from March to October at elevations from 10 to1,509 feet (3 to 460 meters) amsl.	**Unlikely**. Suitable habitat for this species is not present onsite. Not observed during project surveys.
South Coast saltscale (*Atriplex pacifica*)	-- / -- / 1B.2	Found within chenopod scrub, coastal bluff and coastal scrub habitats. Blooms from March to October at elevations up to 459 feet (140 meters) amsl.	**Unlikely.** Suitable habitat for this species is not present onsite. Not observed during project surveys.
Davidson's saltscale (*Atriplex serenana* var. *davidsonii*)	-- / -- / --	Found on alkaline substrate within coastal bluff scrub and coastal scrub habitats. Blooms from April to October at elevations from 33 to 656 feet (10 to 200 meters) amsl.	**Unlikely.** Suitable habitat for this species is not present onsite. Not observed during project surveys.
thread-leaved brodiaea (*Brodiaea filifolia*)	FT / SE / 1B.1	Found on clay substrate within chaparral, cismontane woodland, coastal scrub, and valley and foothill habitats. Microhabitats for the species include playas and vernal pools. Blooms from March to June at elevations from 82 to 3,675 feet (25 to 1,120 meters) amsl.	**Unlikely.** Suitable habitat for this species is not present onsite.
southern tarplant (*Centromadia parryi* ssp. *australis*)	-- / -- / 1B.1	Found in the margins of marshes and swamps, vernally mesic valley and foothill grasslands, and vernal pool habitats. This species is commonly found in disturbed areas, in relatively close proximity to a seasonal or perennial water source. Blooms from May to November at elevations up to 1,394 feet (425 meters) amsl.	**High**. Suitable habitat is present onsite along unchannelized portions of the drainage as well as the upland portion of the alignment. Three occurrences of this species have been previously reported immediately adjacent to Peters Canyon Channel.
many-stemmed dudleya (*Dudleya multicaulis*)	-- / -- / 1B.2	Found on clay substrate within chaparral, coastal scrub and valley and grassland habitats. Blooms from April to July at elevations from 49 to 2,592 feet (15 to 790 meters) amsl.	**Unlikely**. Suitable habitat for the species is not present onsite.
Laguna beach liveforever (*Dudleya stolonifera*)	FT / ST / 1B.1	Found on rocky substrate within chaparral, cismontane woodland, coastal scrub and valley and grassland habitats. Blooms from May to July at elevations from 33 to 853 feet (10 to 260 meters) amsl.	**Unlikely**. Suitable habitat for the species is not present onsite.
Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*	-- / -- / 1B.1	Found in wetland habitats. Microhabitats include playas and vernal pools. Blooms from February to June at elevations up to 4,002 feet (1,220 meters) amsl.	**Unlikely**. Suitable habitat for the species is not present onsite.
Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)	-- / -- / 1B.2	Found within chaparral and coastal scrub habitats. Blooms from January to July at elevations up to 2,903 feet (885 meters) amsl.	**Unlikely**. Suitable habitat for the species is not present onsite.

TABLE 1
SPECIAL-STATUS PLANT SPECIES WITH POTENTIAL TO OCCUR

Species	Status[1] Federal/State/ CRPR	Habitat Requirements	Potential to Occur
mud nama (*Nama stenocarpum*)	-- / -- / 2B.2	Found along freshwater lake margins, riverbanks, marshes and swamps. Blooms from January to July at elevations from 16 to 1,640 feet (5 to 500 meters) amsl.	**High**. Suitable habitat is present within unchannelized portions of Peter's Canyon Creek. One occurrence of this species reported that two individuals were observed within the vicinity of the project site in 1998.
Coulter's Matilija poppy (*Romneya coulteri*)	-- / -- / 4.2	Found within chaparral and coastal scrub habitats. Blooms from March to July at elevations from 66 to 3,937 feet (20 to 1,200 meters) amsl.	**Present.** Species was observed within vicinity of the project site during surveys.
San Bernardino aster (*Symphotrichum defoliatum*)	-- / -- / 1B.2	Found near ditches, streams and springs within cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps and valley and foothill grassland. Blooms from July to November at elevations up to 6,693 feet (2,040 meters) amsl.	**Low**. Marginally suitable habitat exists within and adjacent to the project site along the channel banks.
big-leaved crownbeard (*Verbesina dissita*)	FT / ST / 1B.1	Found within chaparral and coastal scrub habitats. Blooms from April to July at elevations from 148 to 673 feet (45 to 205 meters) amsl.	**Unlikely**. Suitable habitat for the species is not present onsite.

[1] Description of status codes:

FT = Listed as threatened under the FESA

ST= Listed as threatened under the CESA

SE = Listed as endangered under the CESA

CRPR = California Rare Plant Rank (CNPS, 2014)

CRPR 1B.1 = Seriously threatened in California and elsewhere

CRPR 1B.2 = Fairly threatened in California and elsewhere

CRPR 2B.2 = Fairly threatened in California, but more common elsewhere

CRPR 4.2 = Fairly threatened in California, placed on a watch-list due to limited distribution throughout its range

Southern Tarplant

Southern tarplant has a rare plant rank of 1B.1, as recognized by the CNPS, indicating that the species is seriously endangered in California and elsewhere (CNPS, 2014). Suitable habitat for this species includes marsh and swamp margins and vernally mesic valley and foothill grassland habitats. Due to its growth habits, this species thrives in areas of temporary soil disturbance (Baldwin et al., 2012). Through wind dispersion of fertile seeds, this annual herb will sprout, flower and seed within one growing season. The seeds that are produced will spread throughout the general vicinity of the mother plant and establish a seed bank. Disturbance tends to unearth this seed bank, assisting in the persistence of the species.

The ongoing annual maintenance occurring within the channel and impacts to surrounding upland areas may assist in this species establishing and persisting in the project area, if a seed source is present in the soil. However, southern tarplant was not detected during project surveys; therefore, only the potential for occurrence exists based on the presence of suitable soils and overall habitat conditions. Ten recorded occurrences of the species within three miles of the project site have been reported to the CNDDB. A substantial population was recorded directly adjacent to Peters Canyon Channel in an open field on the Marine Corps Air Station Tustin property. Additionally, two other occurrences of the species were recorded along San Diego Creek, upstream from the convergence with Peters Canyon Channel, hence the high potential for this species to be present.

Mud Nama

Mud nama has a rare plant rank of 2B.2, as recognized by the CNPS, indicating that the species is fairly endangered in California, but more common elsewhere (CNPS, 2014). Suitable habitat for the species includes freshwater lake margins, riverbanks, marshes, and swamps. Habitat for this species is present along the bed and banks of the Peters Canyon Channel and San Diego Creek in areas that support vegetation. Mud nama is commonly found in areas of human disturbance as this species annual growth pattern lends to its ability to benefit and perpetuate in these conditions. While not observed during surveys, the database review indicated that two individuals of this species were previously recorded within the vicinity of the project site, adjacent to Peters Canyon Channel; therefore, this species has a high potential to be present within the project area.

Coulter's Matilija Poppy

Coulter's Matilija poppy has a rare plant rank of 4.2, as recognized by the CNPS, indicating that the species is fairly threatened in California, and is recommended to be placed on a watch-list due to limited distribution throughout its range (CNPS, 2014). Suitable habitat for this species includes chaparral and coastal sage habitats. In a natural setting, this species commonly occupies previously burned areas, as the disturbance allows seeds to sprout and establish with minimal competition from surrounding species. The species was observed along the fence located along the perimeter of the project site during the reconnaissance survey. While characteristic plant communities known to support this species are not located within or adjacent to the project site, the presence of coastal scrub and chaparral component species were observed during surveys. Additionally, Coulter's Matilija poppy is commonly grown as an ornamental and may occur in the area due to dissemination from nearby landscape plantings. While this species was observed during project surveys, it was observed outside of the limits of the proposed project site.

Special-Status Wildlife

A great blue heron (*Ardea herodias*) was observed during the reconnaissance survey. Although not observed, western burrowing owl (*Athene cunicularia*), western pond turtle (*Emys marmorata*), and California horned lark (*Eremophila alpestris actia*) were determined to have a medium or high potential to occur based on the presence of suitable habitat and known distribution of these species. Three additional special-status wildlife species were determined to have a low potential to occur and 19 other special-status species were determined to be unlikely to occur due to lack of suitable habitat (**Table 2**).

TABLE 2
SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR

Species	Status[1] Federal/State	Habitat Requirements	Potential to Occur
Amphibians			
Coast Range newt (*Taricha torosa*)	-- / SSC	Known to occur in cismontane forest or valley and foothill grassland habitats. Microhabitats include moist areas, commonly near drainages and seeps.	**Low**. Marginal microhabitat is present in small pockets within the project area; however the large-scale habitat requirements are not met.
Crustaceans			
San Diego fairy shrimp (*Branchinecta sandiegonensis*)	FE / --	Known to occur in areas of tectonic swales/earth slump basins in grassland, chaparral and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season.	**Unlikely**. Suitable habitat for this species is not present onsite.
Riverside fairy shrimp (*Streptocephalus woottoni*)	FE / --	Known to occur in areas of tectonic swales/earth slump basins in grassland, chaparral and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season.	**Unlikely**. Suitable habitat for this species is not present onsite.
Gastropods			
mimic tryonia (*Tryonia imitator*)	-- / --	Known to occur in brackish wetland environments.	**Unlikely**. Suitable habitat for this species is not present onsite.
Reptiles			
orangethroat whiptail (*Aspidoscelis hyperythra*)	-- / SSC	Species requires intact habitat within chaparral, cismontane woodland and coastal scrub plant communities.	**Unlikely**. Suitable habitat for this species is not present onsite.
red-diamond rattlesnake (*Crotalus ruber*)	-- / SSC	Known to occur in chaparral, Mojavean desert scrub and Sonoran desert scrub communities.	**Unlikely**. Suitable habitat for this species is not present onsite.
western pond turtle (*Emys marmorata*)	-- / SSC	Known to occur in slow-moving permanent or intermittent streams, ponds, small lakes, reservoirs with emergent basking sites; adjacent uplands used during winter.	**High**. Suitable habitat for this species is present throughout the project site. In addition, this species has been observed within tributaries converging with Peters Canyon Channel. No western pond turtles were observed during the reconnaissance survey.

TABLE 2
SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR

Coast horned lizard (*Phrynosoma blainvillii*)	-- / SSC	Known to occur in sandy washes with within chaparral or coastal scrub habitat. Requires loose soil for burial and abundant supply of harvester ants.	**Unlikely**. Suitable habitat for this species is not present onsite.
Birds			
Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)	-- / WL	Known to frequent relatively steep, often rocky hillsides with grass and forb species. Resident in southern California coastal sage scrub and mixed chaparral.	**Unlikely.** Suitable habitat for this species is not present within the study site.
grasshopper sparrow (*Ammodramus savannarum*)	-- / SSC	Known to occur in valley and foothill grassland habitats.	**Low.** Disturbed, marginal habitat for this species is present onsite.
great blue heron (*Ardea herodias*)	-- / --	Known to occur in and around freshwater and brackish water bodies.	**Present**. Suitable foraging habitat is present along Peters Canyon Channel and nesting habitat exists adjacent to the channel in ornamental trees. This species was also seen foraging onsite during surveys.
western burrowing owl (*Athene cunicularia*)	-- / SSC	Known to occur within open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. A subterranean nester dependent upon burrowing mammals, particularly the California ground squirrel.	**Medium**. Marginal habitat for this species is present adjacent to the project site within the ruderal/disturbed habitat. No sign of this species observed during project surveys.
coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*)	BCC / SSC	Known to occur in coastal scrub habitats; often found in habitats with *Opuntia* cactus.	**Unlikely**. Suitable habitat for this species is not present onsite.
white-tailed kite (*Elanus leucurus*)	-- / FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland.	**Medium**. Potentially suitable riparian habitat is present within the vicinity of the project site.
southwestern willow flycatcher (*Empidonax traillii extimus*)	FE / SE	Known to breed in southern California in willow-dominated riparian habitat.	**Unlikely**. Suitable habitat for this species is not present onsite.
California horned lark (*Eremophila alpestris actia*)	-- / WL	Known to occur within the vicinity of marine intertidal and splash zone communities, meadows and seeps.	**Medium**. Marginal nesting and foraging habitat is present within and adjacent to the project, both in the adjacent ruderal/disturbed habitat and portions of the channel bottom.

TABLE 2
SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR

yellow-breasted chat (*Icteria virens*)	-- / SSC	Known to occur within riparian forest, scrub and woodland habitats.	**Low**. Marginal habitat for this species present. An occasional migrate could pass through the project site; however, this species is not expected to nest in the project area.
California black rail (*Laterallus jamaicensis coturniculus*)	BCC / ST, FP	Known to occur in brackish and freshwater marshes	**Unlikely**. While freshwater marsh habitat is present within the immediate vicinity of the project site, it is of low quality due to existing management practices and limited distribution, and thus it is unlikely to support this species.
Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)	-- / SE	Known to occur primarily along the Southern California coast within brackish marsh habitats.	**Low**. The project site does not support suitable salt marsh habitat. An occasional migrate could pass through the project site; however, this species is not expected to nest in the project area.
coastal California gnatcatcher (*Polioptila californica californica*)	FT / SSC	Species is an obligate, permanent resident of coastal sage scrub in southern California. Low, coastal sage scrub in arid washes, on mesas and slopes.	**Unlikely**. Suitable habitat for this species is not present onsite.
light-footed clapper rail (*Rallus longirostris levipes*)	FE / SE, FP	Known to occur within Coastal California brackish marshes.	**Unlikely**. Suitable habitat for this species is not present onsite.
California least tern (*Sternula antillarum browni*)	FE / SE, FP	Known to occur in alkali playas and coastal dune and beach habitats.	**Unlikely**. Suitable habitat for this species is not present onsite.
least Bell's vireo (*Vireo bellii pusillus*)	FE / SE	Known to occur in riparian forest, scrub, and woodland habitats. Nests primarily in willow riparian habitats.	**Low**. The habitat within and adjacent to the project site is sparse and not suitable for this species to be present. An occasional migrate could pass through the project site.
Mammals			
pallid bat (*Antrozous pallidus*)	-- / SSC	Known to occur in a wide variety of habitats, but particularly associated with buildings and bridges.	**Medium**. Although not recorded in the vicinity of the project site, suitable habitat for the species may be present underneath roadway bridges located in the vicinity of the project.
Mexican long-tongued bat (*Choeronycteris mexicana*)	-- / SSC	Typically restricted to pinyon-juniper woodland, riparian scrub and Sonoran thorn woodland habitats. Not generally associated with concrete bridges.	**Unlikely**. Suitable habitat for this species is not present onsite.

TABLE 2
SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR

western mastiff bat (*Eumops perotis californicus*)	-- / SSC	Known to occur throughout California and occupies a wide variety of habitats including grasslands, shrublands, cismontane woodland's; most common in open, dry habitats with rocky areas for roosting. Not generally associated with concrete bridges.	**Unlikely**. Suitable habitat for this species is not present onsite.
Pacific pocket mouse (*Perognathus longimembris pacificus*)	FE / SSC	Known to occur in coastal scrub habitats.	**Unlikely**. Habitat for this species is not present onsite.

[1] Description of status codes:

FE = Listed as endangered under the FESA
FT = Listed as threatened under the FESA
BCC = Bird of Conservation Concern
WL= Watch listed
SE = Listed as endangered under the CESA
SSC = Species of Special Concern
FP = Listed as fully protected under CDFG code

Western Pond Turtle

Western pond turtle is afforded protection as a CDFW Species of Special Concern. Suitable habitat for this species includes slow-moving or intermittent streams, reservoirs, ponds or small lakes with basking sites along edges. The perennial water source and intermittent marsh habitat present within the channel provides suitable habitat for the species. In addition, the database review identified several recorded occurrences of the species within the vicinity of the project site. While the species was not observed during field reconnaissance, western pond turtle was determined to have a high potential to occur within the extent of Peters Canyon Channel, San Diego Creek, and portions of associated tributaries that occur within and adjacent to the project site.

Great Blue Heron

The great blue heron is protected as a migratory species by the federal MBTA and is a CDFW Species of Special Concern. The species was observed foraging within Peters Canyon Channel during the field reconnaissance. Suitable habitat for this species generally includes fresh or saltwater marshes and swamps or other areas of permanent or intermittent water inundation with available prey species for foraging. This species is also commonly observed utilizing man-made ponds, channelized drainages and other artificial or altered water sources. Great blue herons often nest in colonies, but not always, and typically within tall trees such as Mexican fan palm and blue gum (*Eucalyptus globules*), but can also nest in shorter trees such as pines (*Pinus* spp.) and on man-made structures and rooftops as low as eight feet from the ground. Peters Canyon Channel and San Diego Creek are heavily altered perennial water sources; however, they support numerous prey species for the great blue heron including fish, amphibians, and insects. In addition, there is potential for this species to utilize the ornamental trees in the vicinity of the project site as nesting habitat.

Western Burrowing Owl

Western burrowing owl is a CDFW Species of Special Concern and is also afforded protection under the MBTA. Suitable habitat for the species includes low growing vegetation areas of non-native annual grassland, shrub lands, and agricultural areas which contain small mammal burrows often constructed by ground squirrels. Western burrowing owls are also known to utilize man-made structure (e.g., culverts, etc.) as nesting habitat. Suitable habitat exists within the vicinity of the project site consists of ruderal/disturbed habitat where small mammal burrows are present. While no western burrowing owls or sign (e.g., feathers, white wash, pellets, etc.) were observed during the project surveys, there is potential for the species to occupy the project area based on observations of several small mammal burrows and nearby recorded occurrences (CDFW, 2014a). All potentially suitable burrows observed were investigated for sign of the species; however, focused western burrowing owl surveys were not conducted.

White-Tailed Kite

White-tailed kite (*Elanus leucurus*) is a California Fully Protected species, and is also afforded protection under the MBTA. Suitable nesting habitat for the species includes medium to high density forest habitats, including willow riparian forest. Disturbed and grassland habitats offer optimum foraging habitat for the species. Suitable nesting habitat exists within the vicinity of the project, specifically in areas with mature trees. Suitable foraging habitat for the species is present within and adjacent to the project site in areas of ruderal/disturbed habitats supporting sufficient prey populations (e.g., small mammals) for the species. Although no white-tailed kites were observed during the reconnaissance survey, there is potential for the species to nest and forage on or immediately adjacent to the project site.

California Horned Lark

California horned lark is a CDFW Species of Special Concern, and is also afforded protection under the MBTA. Suitable habitat for this species includes the intertidal splash zone along the Pacific Coast, valley and foothill grasslands, and meadows and seeps. The ruderal/disturbed areas located within and adjacent to the project site provide moderately suitable nesting and foraging habitat. The California horned lark nests in small depressions directly on the ground, lined with grasses and forbs. While not observed during surveys, there is a medium potential for the species to nest and forage within and adjacent to the project site based on the presence of moderately suitable habitat.

Nesting Birds

Several nesting bird species, protected under the MBTA and Fish and Game Code, have the potential to occur within the project area. The ruderal/disturbed vegetation alongside the banks of the watercourses and within the ornamental tree species located along the perimeter of the project site provide nesting habitat for a number of species, and mud nesters such as swallows (*Hirundinidae*) and black phoebe (*Sayornis nigricans*) can nest under the bridges that cross Peters Canyon Channel and San Diego Creek. While conducting surveys, biologists observed multiple stick and mud nests under bridge crossings, likely utilized in the past by raptors (*Accipitradae, Falconidae,* and *Strigidae*) and swallows, respectively.

Pallid Bat

Pallid bat (*Antrozous pallidus*) is a CDFW Species of Special Concern. The species is known to occur with a wide range of habitats, including coniferous forests, woodlands, scrub communities; and is known to commonly roost within concrete bridges. The species typically feeds on large insects caught on the ground or captured from vegetation. Suitable roosting habitat exists within the vicinity of the project within the concrete roadway bridges that span over Peters Canyon Channel and San Diego Creek. Although no recorded occurrences of this species were identified within the vicinity of the project area, there is potential for the species to occupy the project area for roosting and foraging purposes.

4.7 Jurisdictional Resources

Peters Canyon Channel converges with San Diego Creek south of Barranca Parkway. Upstream of the convergence, Peters Canyon Channel is fed by Como Channel, Edinger Circular Drain, and Valencia Drain, among other minor tributaries. The portion of Peters Canyon Channel and San Diego Creek extending through the project site has been lined along the banks with concrete and riprap throughout; however, the streambed is soft-bottom and supports low-density herbaceous forbs and grasses, while cattail marsh is present in isolated patches.

Peters Canyon Channel transports approximately seven cfs of dry weather flow through the project area, and San Diego Creek transports approximately 12 cfs through the portion of the project area below the confluence of the two drainages, which eventually empty into Upper Newport Bay (ESA, 2014). Representative photographs of these waterways are included in Appendix C.

Although a formal jurisdictional delineation was not conducted, Peters Canyon Channel, San Diego Creek, Como Channel, Edinger Circular Drain, and Valencia Drain were assessed for their potential to be regulated by the USACE, RWQCB, CDFW, and/or local regulatory authorities. The following section provides a discussion of the federal, state and local jurisdiction pertaining to Peters Canyon Channel, San Diego Creek, Como Channel, Edinger Circular Drain, and Valencia Drain.

United States Army Corps of Engineers Jurisdiction

Although a formal delineation of federal wetlands was not conducted, no federal wetlands are anticipated to occur within the watercourse indicated above, due to the limited presence of hydrophytic vegetation and lack of mapped hydric soils. Peters Canyon Channel, San Diego Creek, Como Channel, Edinger Circular Drain, and Valencia Drain are all considered perennial drainages, and thus considered relatively permanent waters. These drainages transport water to the San Joaquin Marsh and Upper Newport Bay and there is therefore a significant nexus with the Pacific Ocean; therefore, they would be considered non-wetland waters of the U.S, under the jurisdiction of the USACE. The limits of USACE jurisdiction would extend between the identified OHWM on both banks of the drainages.

California Department of Fish and Wildlife Jurisdiction

Due to the presence of a distinguishable bed and bank, Peters Canyon Channel, San Diego Creek, Como Channel, Edinger Circular Drain, and Valencia Drain are likely to fall under CDFW jurisdiction. Additionally, areas where riparian vegetation exists above the limits of USACE jurisdiction (i.e., OHWM) are also likely to fall under CDFW jurisdiction if a hydrologic connection can be determined. The limits of CDFW jurisdiction generally include the full extent of the stream zone, defined as the top of bank or outside extent of riparian vegetation, whichever area is greatest.

Regional Water Quality Control Board Jurisdiction

Due to the hydrological connectivity between Peters Canyon Channel, San Diego Creek, Como Channel, Edinger Circular Drain, and Valencia Drain with the Pacific Ocean, these drainages are likely to fall under the jurisdiction of the RWQCB. The limits of RWQCB jurisdiction are most often consistent with the limits of USACE jurisdiction.

City of Irvine Priority Conservation Areas

The City of Irvine General Plan includes a Conservation and Open Space Element that outlines priority areas for conservation of natural resources (City of Irvine, 2012). Element L within this section outlines resource areas of concern considered important due to their functions and values (e.g., ability to transport water, support wildlife and plants, etc.). Because Peters Canyon Channel and San Diego Creek transport water and provide habitat for plant and wildlife species, the portions of the drainages within the City of Irvine are likely to be considered priority conservation areas in accordance with the City's General Plan. The tributaries of Peters Canyon Channel and San Diego Creek associated with the proposed project (i.e., Como Channel, Edinger Circular Drain, and Valencia Drain) are not located within the City of Irvine.

City of Tustin Natural Resource Areas

The City of Tustin General Plan includes a Conservation and Open Space Element, which outlines the preservation of natural and cultural resources (City of Tustin, 2013). Included in the Element are guidelines that prioritize the protection of water resources and riparian habitats. As Peters Canyon Channel, San Diego Creek, Como Channel, Edinger Circular Drain, and Valencia Drain are considered water resources, some of which support riparian habitats, the portions of the drainages within the limits of the City of Tustin are likely to be considered natural resource areas designated for preservation.

4.8 Wildlife Movement and Habitat Linkages

The project site does not lie within a recognized habitat linkage corridor as identified by the generally-accepted *California Essential Habitat Connectivity Project* (Spencer et al., 2010). However, the channel and creek may provide movement opportunities for wildlife traveling from the Upper Newport Bay to open space habitats to the north and east in the Cleveland National Forest, Casper Wilderness Park, and Limestone Canyon Regional Park. Species with the potential to utilize these waterways for movement include northern raccoon and coyote, which were both identified during project surveys; however, other animals such as striped skunk may also move through the channel and creek as well. The project site and immediate vicinity are not likely to serve as a significant wildlife movement corridor connecting the upland open spaces to the north and east to the maritime habitat within Upper Newport Bay.

The project site is within the vicinity of the Pacific Flyway, a significant avian migration route. The IRWD San Joaquin Marsh and Upper Newport Bay, located downstream of the project area, are a recognized stopover location for migratory birds travelling along the Pacific Flyway, and many of the birds that utilize the Marsh and Bay could wade and forage within the Peters Canyon Channel and San Diego Creek (and associated tributaries) when water is present.

4.9 Critical Habitat

Under the FESA, to the extent feasible, the USFWS is required to designate critical habitat for endangered and threatened species. Critical habitat is defined as areas of land, water, and air space containing the physical and biological features essential for the survival and recovery of endangered and threatened species. Designated critical habitat includes sites for breeding and rearing, movement or migration, feeding, roosting, cover, and shelter. Designated critical habitats require special management and protection of existing resources, including water quality and quantity, host animals and plants, food availability, pollinators, sunlight, and specific soil types. Critical habitat designation delineates all suitable habitat, occupied or not, essential to the survival and recovery of the species.

The project site does not occur within any USFWS-designated critical habitats (USFWS, 2014). The nearest identified critical habitat is specified for coastal California gnatcatcher (*Polioptila californica californica*) and occurs approximately two miles southeast of the project area (Figure 6).

Additionally, in cooperation with the CDFW and USFWS, the County of Orange has prepared a NCCP/HCP. This NCCP/HCP was intended to develop a conservation strategy for natural resources within designated areas and prevent unregulated development. This NCCP/HCP specifically addresses the protection of coastal sage scrub as well as other habitats and associated species throughout the central and coastal portions of Orange County. The project site is located outside of the NCCP/HCP, approximately one half-mile north of the coastal portion and approximately three miles south of the central portion.

5. Regulatory Framework

The following provides a general description of the applicable regulatory requirements for the Project, including federal, state, and local policies and guidelines.

5.1 Federal

Endangered Species Act (USC, Title 16, § 1531 through 1543)

The FESA and subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. In addition, the FESA defines species as threatened or endangered and provides regulatory protection for listed species. The FESA also provides a program for the conservation and recovery of threatened and endangered species as well as the conservation of designated critical habitat that USFWS determines is required for the survival and recovery of these listed species.

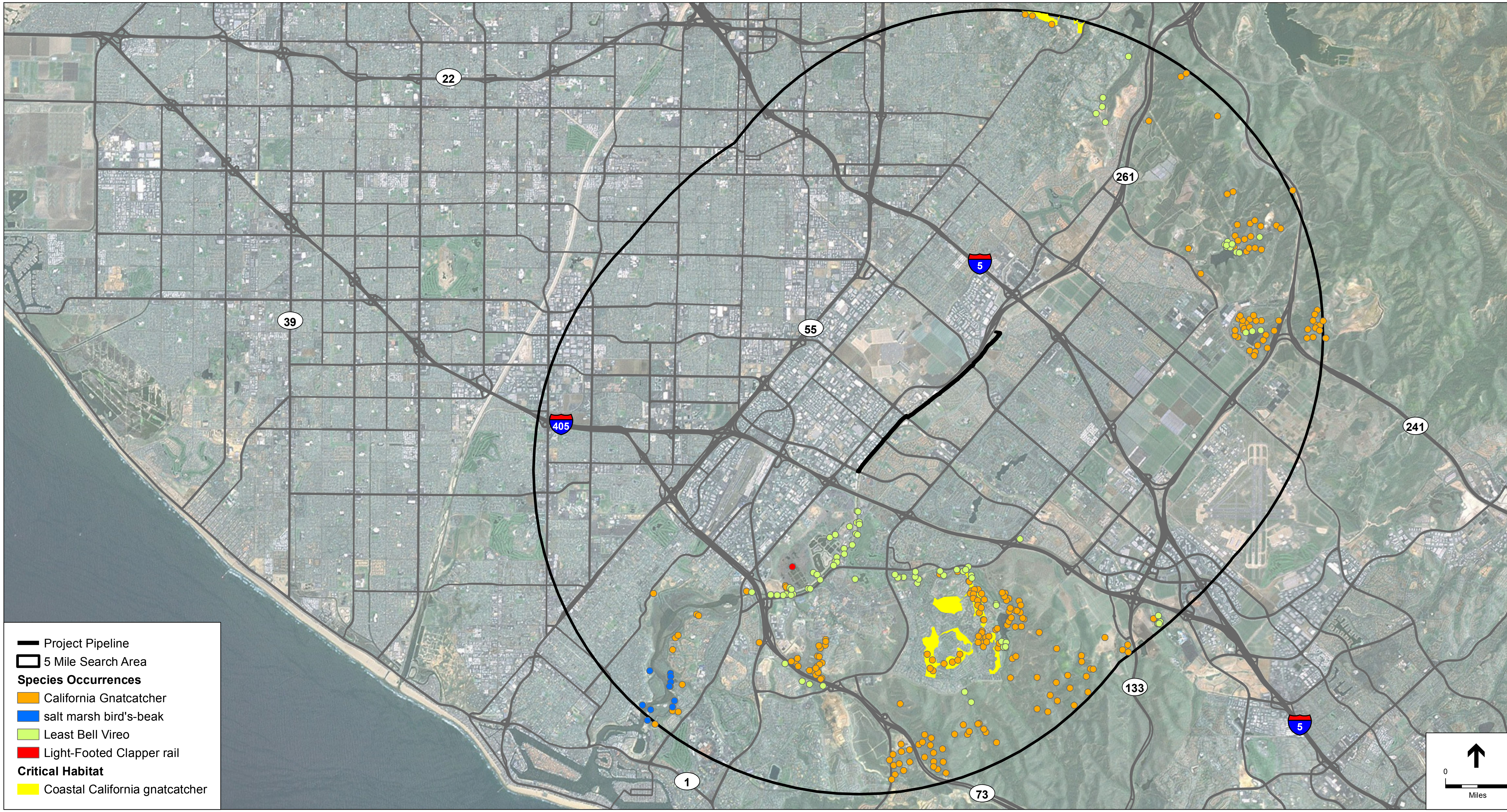
Section 7 of the FESA requires federal agencies, in consultation with and assistance from the Secretary of the Interior or the Secretary of Commerce, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. The USFWS and National Marine Fisheries Service (NMFS) share responsibilities for administering the FESA. Regulations governing interagency cooperation under Section 7 are found in CCR Title 50, Part 402. The opinion issued at the conclusion of consultation will include a statement authorizing "take" (i.e., to harass, harm, pursue, hunt, wound, kill, etc.) that may occur incidental to an otherwise legal activity.

Section 9 lists those actions that are prohibited under the FESA. Although take of a listed species is prohibited, it is allowed when it is incidental to an otherwise legal activity. Section 9 prohibits take of listed species of fish, wildlife, and plants without special exemption. The definition of "harm" includes significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns related to breeding, feeding, or shelter. "Harass" is defined as actions that create the likelihood of injury to listed species by disrupting normal behavioral patterns related to breeding, feeding, and shelter significantly.

Section 10 provides a means whereby a nonfederal action with the potential to result in take of a listed species can be allowed under an incidental take permit. Application procedures are found at 50 CFR 13 and 17 for species under the jurisdiction of USFWS and 50 CFR 217, 220, and 222 for species under the jurisdiction of NMFS.

Migratory Bird Treaty Act (16 USC 703 through 711)

The MBTA is the domestic law that affirms, or implements, a commitment by the U.S. to four international conventions (with Canada, Mexico, Japan, and Russia) for the protection of a shared migratory bird resource. The MBTA makes it unlawful at any time, by any means, or in any manner to pursue, hunt, take, capture, or kill migratory birds. The law also applies to the removal of nests occupied by migratory birds during the breeding season. The MBTA makes it unlawful to take, pursue, molest, or disturb these species, their nests, or their eggs anywhere in the United States.



SOURCE: ESRI Imagery, USFWS

Peters Canyon Channel Water Capture and Reuse Pipeline . 130993

Figure 6

USFWS Critical Habitat and Special-Status Species Occurrences

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Federal Clean Water Act (33 USC 1251 through 1376)

The CWA provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 401 requires a project operator for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. to obtain state certification, thereby ensuring that the discharge will comply with provisions of the CWA. The RWQCB administers the certification program in California. Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the United States. Section 404 establishes a permit program administered by USACE that regulates the discharge of dredged or fill material into waters of the United States, including wetlands. USACE implementing regulations are found at 33 CFR 320 and 330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, which were developed by the United States Environmental Protection Agency (EPA) in conjunction with USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

Wetlands and Other Waters of the United States

Aquatic resources, including riparian areas, wetlands, and certain aquatic vegetation communities, are considered sensitive biological resources and can fall under the jurisdiction of several regulatory agencies. USACE exerts jurisdiction over waters of the United States, including all waters that are subject to the ebb and flow of the tide; wetlands and other waters such as lakes, rivers, streams (including intermittent or ephemeral streams), mudflats, sandflats, sloughs, prairie potholes, vernal pools, wet meadows, playa lakes, or natural ponds; and tributaries of the above features. The extent of waters of the United States is generally defined as that portion that falls within the limits of the OHWM. Typically, the OHWM corresponds to the two-year flood event.

Wetlands, including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas, are defined by USACE as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland parameters (i.e., hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for a site to be classified as a wetland by USACE (USACE, 1987).

5.2 State

California Endangered Species Act (California Fish and Game Code § 2050 et seq.)

The CESA establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. The CESA mandates that state agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. There are no state agency consultation procedures under the CESA. For projects that would affect a listed species under both the CESA and the FESA, compliance with the FESA would satisfy the CESA if CDFW determines that the federal incidental take authorization is "consistent" with the CESA under California Fish and Game Code Section 2080.1. For projects that would result in take of a species listed under the CESA only, the project operator would have to apply for a take permit under Section 2081(b).

California State Fish and Game Code § 1600 et seq.

Under these sections of the California Fish and Game Code, the project operator is required to notify CDFW prior to any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Pursuant to the code, a "stream" is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Based on this definition, a watercourse with surface or subsurface flows that supports or has supported riparian vegetation is a stream and is subject to CDFW jurisdiction. Altered or artificial watercourses valuable to fish and wildlife are subject to CDFW jurisdiction. CDFW also has jurisdiction over dry washes that carry water during storm events.

Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement, which becomes part of the plans, specifications, and bid documents for the project.

California State Fish and Game Code §§ 2080 and 2081

Section 2080 of the California Fish and Game Code states that "No person shall import into this state [California], export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the Commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter, or the Native Plant Protection Act, or the California Desert Native Plants Act." Pursuant to Section 2081 of the code, CDFW may authorize individuals or public agencies to import, export, take, or possess State-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or Memoranda of Understanding if the take is incidental to an otherwise lawful activity, impacts of the authorized take are minimized and fully mitigated, the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and the project operator ensures adequate funding to implement the measures required by CDFW, which makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

California State Fish and Game Code §§ 3503 and 3503.5

Under these sections of the California Fish and Game Code, the project operator is not allowed to conduct activities that would result in the taking, possessing, or destroying of any birds of prey; the taking or possessing of any migratory nongame bird as designated in the MBTA; the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or nongame birds protected by the MBTA; or the taking of any nongame bird pursuant to California Fish and Game Code Section 3800.

California Environmental Quality Act Guidelines, § 15380

Although threatened and endangered species are protected by specific federal and state statutes, *CEQA Guidelines* § 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in CEQA primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a candidate species that has not been listed by either USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agencies have an opportunity to designate the species as protected, if warranted. CEQA also calls for the protection of other locally or regionally significant resources, including natural communities. Although natural communities do not at present have legal protection of any kind, CEQA calls for an assessment of whether any such resources would be affected, and requires findings of significance if there would be substantial losses. Natural communities listed by CNDDB as sensitive are considered by CDFW to be significant resources and fall under the *CEQA Guidelines* for addressing impacts. Local planning documents such as general plans often identify these resources as well.

Native Plant Protection Act (California Fish and Game Code §§ 1900 through 1913)

California's NPPA requires all state agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provisions of the NPPA prohibit the taking of listed plants from the wild and require notification of CDFW at least 10 days in advance of any change in land use. This allows CDFW to salvage listed plant species that would otherwise be destroyed. The project operator is required to conduct botanical inventories and consult with CDFW during project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants.

California Wetland Definition

Unlike the federal government, California has adopted the Cowardin et al. (1979) definition of wetlands. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes (at least 50 percent of the aerial vegetative cover); (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and saturated with water or covered by shallow water at some time during the growing season of each year.

Under normal circumstances, the federal definition of wetlands requires all three wetland identification parameters to be met, whereas the Cowardin definition requires the presence of at least one of these parameters. For this reason, identification of wetlands by state agencies consists of the union of all areas that are periodically inundated or saturated or in which at least seasonal dominance by hydrophytes may be documented or in which hydric soils are present.

Regional Water Quality Control Board

Under Section 401 of the CWA, the RWQCB must certify that actions receiving authorization under Section 404 of the CWA also meet state water quality standards. The RWQCB also regulates waters of the state under the Porter-Cologne Act Water Quality Control Act (Porter Cologne Act). The RWQCB requires projects to avoid impacts to wetlands if feasible and requires that projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. The RWQCB typically requires compensatory mitigation for impacts to wetlands and/or waters of the state. The RWQCB also has jurisdiction over waters deemed 'isolated' or not subject to Section 404 jurisdiction under the SWANCC decision. Dredging, filling, or excavation of isolated waters constitutes a discharge of waste to waters of the state and prospective dischargers are required obtain authorization through an Order of Waste Discharge or waiver thereof from the RWQCB and comply with other requirements of Porter-Cologne Act.

5.3 Local

City of Irvine General Plan

The City of Irvine General Plan includes provisions which are designed to protect natural resources occurring within the city. Specifically, the general plan identifies areas with the ability to transport water and nutrients, and area providing habitat for wildlife species as of special concern within the jurisdiction of the city. When conducting a project within the city limits, proper consultation is required to ensure that proposed construction activities do not cause unregulated impacts.

City of Tustin General Plan

The City of Tustin General Plan includes provisions which designate that certain natural resources are of particular significance to the culture of the city. Specifically, water resources, riparian habitats, and two plant groups: coastal sage scrub vegetation and imported trees, specifically eucalyptus (*Eucalyptus* spp.) and cedar (*Cedrus* spp.) stands have been called out by the City of Tustin as playing an important role in the natural ecosystems located within the city limits, and coastal southern California in general.

Orange County Natural Community Conservation Plan/Habitat Conservation Plan

The Orange County NCCP/HCP includes provisions which designate protection sensitive biological resources within the planning area. Although the project site does lie within the planning area, Peters Canyon Channel and San Diego Creek have a hydrologic connection with the IRWD San Joaquin Marsh located downstream, which is located within the Orange County NCCP/HCP covered area. Specifically, special-status species, including Coulter's Matilija poppy and least Bell's vireo (*Vireo bellii pusillus*), and plant communities, including riparian and marsh habitats are covered under the HCCP/NCP.

6. Potential Impacts

A number of direct and indirect impacts to biological resources may occur as a result of construction and operation of the proposed project. The potential downstream indirect impacts that could occur during the operation of the project that are related to decreased flows within San Diego Creek and increased residence time within San Joaquin Marsh, will be reported in Volume 2 of this Biological Resources Technical Report. The following discussion describes the potential direct impacts of the project on biological resources that may occur as a result of construction of the project.

Under the stipulations of CEQA, potential impacts to biological resources could be considered significant if actions associated with the proposed project:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the CDFW or USFWS.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan.

6.1 Special-Status Species

The proposed project has the potential to impact special-status species plants and wildlife during construction through the loss of habitat as well as direct and indirect impacts on plants and wildlife, such as mortality of individuals or interference with reproductive success.

Special-Status Plants

Habitat within and adjacent to Peters Canyon Channel and San Diego Creek, including upland areas within the project site where the backbone reuse pipeline would be installed, has the potential to support special-status plant species. One special-status plant species, Coulter's Matilija poppy, was observed within the immediate vicinity of the project site during project surveys; however, no individuals were identified within the proposed limits of project construction. Therefore, the project is not anticipated to directly impact the species. However, there is the potential for this species' distribution to expand or new plants may emerge prior to implementation of the project. If present, plants could be impacted during the installation of the proposed pipeline, diversions and pump stations. Plants may be removed during excavation or crushed by heavy equipment during construction activities; therefore, measures are recommended to avoid impacts. Mitigation Measures BIO-1 and BIO-5 include avoidance measures and preconstruction surveys to avoid impacts to this species to the greatest extent feasible; therefore, construction-related impacts to the Coulter's Matilija poppy would be less-than-significant.

Southern tarplant and mud nama have been previously recorded in close proximity to the project site (Figure 5-B). These two species were determined to have a high potential to occur within the area because of the nearby known occurrences and the presence of suitable habitat. Installation of the proposed pipeline, diversions, and pump stations has the potential to impact both the mud nama and southern tarplant by incidental removal during excavation or from being crushed by heavy equipment during construction activities. Impacts to these species are potentially significant if present; however, recommended Mitigation Measures BIO-1 and BIO-5 include avoidance measures and preconstruction surveys to avoid impacts to these species to the greatest extent feasible; therefore, construction-related impacts to southern tarplant and mud nama would be less-than-significant.

Special-Status Wildlife

Three special-status avian species: western burrowing owl, white-tailed kite, and California horned lark, may overwinter or nest on and adjacent to the project site. Additionally, several other resident or migratory birds and raptors protected under California Fish and Game Code and/or the MBTA, including great blue heron, have the potential to forage and/or nest within the immediate project area as well. While most potentially-occurring special-status wildlife species were not observed during the field reconnaissance, suitable habitat does exist and the construction of the project could result in adverse effects if a protected species were to be present during construction. Construction activities could result in the direct loss of active nests of both common and special-status bird species or the abandonment of active nests as a result of noises and/or vibrations generated by temporary construction activities. Swallows are known to nest under bridges within the project area, based on the observation of old mud nests. In order to avoid impacts to bird nests, it is recommended that construction of the project be conducted outside of the nesting season, which is generally recognized as February 1 through August 31. The MTBA and the California Fish and Game Code Section 3503 and 3503.5 consider the loss of active nests (i.e., nests with eggs or young) of all native bird species as unlawful. Consequently, the loss or abandonment of active bird nests as a result of construction-related activities would be considered a significant impact. Impacts to nesting birds are potentially significant; however, implementation of avoidance and monitoring measures would reduce these impacts to less-than-significant levels, as described in recommended Mitigation Measures BIO-1 through BIO-3.

Pallid bat has the potential to roost, particularly under with concrete bridges in the area, as well as forage over the watercourses located within and adjacent to the project site. Construction activities, particularly noise and vibration, could result in roost abandonment. Foraging behavior could be disrupted if nighttime construction occurs that requires nighttime lighting; however, because there is similar creek/channel habitat found in the area, this impact would be temporary and limited to the project site. As indicated in Mitigation Measure BIO-6, it is recommended that construction near bridges occur outside of the roosting season, which is recognized as April 1 through July 31; otherwise, avoidance measures should be implemented. The abandonment of a roost as a result of construction-related activities would be considered a significant impact; however, implementation of this recommended mitigation measure would reduce these impacts to less-than-significant levels.

The western pond turtle has a high potential to occur within Peters Canyon Channel, San Diego Creek, and associated tributaries when water is present. Construction activities will not directly impact Peters Canyon Channel or San Diego Creek; however, portions of tributaries associated with the project that provide potential habitat for the species may be impacted during the installation of diversion structures. Additionally, indirect impacts to western pond turtle may occur through increased siltation or release of pollutants by construction equipment and construction activities adjacent to the channels. However, compliance with the Statewide Construction General Permit would require implementation of erosion and sediment controls best management practices to reduce the discharge of sediment to the maximum extent practicable into the channels. Impacts to western pond turtle could be potentially significant during construction; however, recommended Mitigation Measures BIO-1 and BIO-4 would reduce these impacts to less-than-significant levels.

6.2 Critical Habitat

Construction of the proposed project would not impact any designated critical habitat, including that of coastal California gnatcatcher, which is identified approximately two miles south of the project site. No impacts to designated critical habitat would occur as a result of the proposed project.

6.3 Jurisdictional Resources

Although a jurisdictional delineation was not conducted for the project, it is likely that federal, state, and local agencies (e.g., CDFW, USACE, RWQCB, County of Orange, City of Irvine, and/or the City of Tustin) would apply jurisdiction over Peters Canyon Channel, San Diego Creek, Como Channel, Edinger Circular Drain, and Valencia Drain. If any direct impacts to potentially jurisdictional areas occur as a result of the project, including those associated with the installation of diversion structures, acquisition of a Clean Water Act Section 404 permit, Section 401 Water Quality Certification, and Streambed Alteration Agreement may be required. IRWD would be required to comply with the terms and conditions of such permits, which may include preparing a wetland delineation or mitigation/compensation measures to reduce any potentially significant impacts to jurisdictional features. Compliance with permit conditions would ensure impacts to jurisdictional features are less than significant. No additional mitigation is required..

6.4 Wildlife Movement and Habitat Linkages

Both the Peters Canyon Channel and San Diego Creek are likely utilized by local wildlife populations for small-scale (i.e., non-migratory) movements and dispersal. Neither of these watercourse support regional wildlife movement opportunities, nor do their tributaries. Construction of the proposed project is not anticipated to significantly restrict the movement of wildlife, as much of the existing width of the channel areas is anticipated to remain open during the course of construction; therefore, potential impacts associated with the proposed project are considered less than significant.

6.5 Habitat Conservation Plans

The construction phase of the project would not have an effect on an adopted NCCP/HCP, since none are present in the immediate vicinity of the project site. However, habitats potentially affected by the operation of the proposed project downstream within the San Joaquin Marsh are within the Orange County NCCP/HCP. Potential impacts to habitats located within the boundaries of the NCCP/HCP will be addressed in Volume 2 of this Biological Resources Technical Report.

6.6 Mitigation Measures

MM BIO-1: The following Best Management Practices (BMPs) are recommended:

- Sediment and erosion control measures should be developed and implemented in accordance with RWQCB Construction General Permit requirements in order to reduce the potential for the project to result in increased siltation of, or release of pollutants into, Peters Canyon Creek, San Diego Creek, and their tributaries.
- The footprint of disturbance should be limited to the maximum extent feasible, such as limiting access to the project site via pre-existing access routes to the greatest extent possible. Parking areas, new roads, staging, storage, excavation, and disposal site locations should be confined to the smallest areas possible and be positioned at previously disturbed areas to the greatest extent practical.
- To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than two-feet deep should be covered with tarp, plywood or similar materials at the close of each working day to prevent animals from being trapped. Ramps may be constructed of earth fill or wooden planks within deep walled trenches to allow for animals to escape, if necessary. Before such holes or trenches are backfilled, they should be thoroughly inspected for trapped animals. If trapped animals are observed, escape ramps or structures should be installed immediately to allow escape. If the trapped animal is injured and cannot use escape ramps or structures, a qualified biologist should be contacted to identify the appropriate next steps.
- All construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods should be thoroughly inspected for burrowing owls and

nesting birds before the pipe is subsequently buried, capped, or otherwise used or moved. An option is to cap the ends of any stored pipes to prevent any animals from entering. If an animal is discovered inside a pipe, that section of pipe should not be moved until the project biologist or designated representative has been consulted and the animal has either moved from the structure on its own accord or until the animal has been captured and relocated out of harm's way by an approved biologist.

MM BIO-2: A pre-construction survey shall be conducted for burrowing owls 14 to 30 days prior to initiation of ground disturbance by a qualified biologist in accordance with the most recent CDFW protocol, currently the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). Surveys shall cover suitable burrowing owl habitat disturbed by construction including a 500-foot buffer. The survey would identify adult and juvenile burrowing owls and signs of burrowing owl occupation. If occupied burrowing owl habitat is detected on the proposed project site, measures to avoid, minimize, or mitigate impacts shall be incorporated into the proposed project and shall include, but not be limited to, the following:

- Construction monitoring will occur throughout the duration of ground-disturbing construction activities to ensure no impacts occur to burrowing owl. The frequency of monitoring will be determined by IRWD through consultation with the qualified biologist.
- Construction exclusion areas shall be established around the occupied burrows in which no disturbance shall be allowed to occur while the burrows are occupied. Buffer areas shall be determined by IRWD through consultation with a qualified biologist based on the recommendations outlined in the most recent *Staff Report on Burrowing Owl Mitigation* (CDFW 2012).
- If burrow avoidance is infeasible, a qualified biologist should implement a passive relocation program in accordance with the *Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans* of the CDFW 2012 Staff Report on Burrowing Owl Mitigation (CDFW, 2012).

MM BIO-3: Prior to the commencement of construction activities, the following are recommended to minimize potential impacts to nesting birds.

- If construction is scheduled to commence outside of the nesting season (i.e., generally September 1 to January 31), no preconstruction surveys or additional measures are required. Potential nesting habitat should be removed prior to the bird nesting season.
- Otherwise, within 15 days of ground disturbing activities, a qualified biologist shall conduct a preconstruction survey migratory bird nesting survey. The biologist must be qualified to determine the status and stage of nesting by migratory birds and all locally breeding raptor species without causing intrusive disturbance. The survey shall include species protected under the Migratory Bird Treaty Act. The survey shall cover all reasonably potential nesting locations for the relevant species on or closely adjacent to the project area of disturbance.
- If active nests are found during surveys then IRWD through consultation with a qualified biologist shall determine whether construction activities have the potential to disturb the

nest(s) and determine appropriate construction limitations, which may include but are not limited to erection of sound barriers, full-time monitoring by a qualified biologist or establishment of no-construction buffers (usually 300 ft for nesting song birds and 500 ft for nesting raptors and special-status bird species). In addition, a qualified biologist shall serve as the construction monitor during those periods when construction activities will occur near the active nest areas to ensure that no inadvertent impacts to the nest occur. If necessary, limits of construction to avoid active nest shall be established in the field with flagging, fencing, or other appropriate barriers and construction personnel shall be instructed on the sensitivity of the nest areas.

MM BIO-4: Any western pond turtles observed within the boundaries of construction impact areas should be collected and relocated outside of the project area by a qualified biologist with possession of a Memorandum of Understanding (MOU) and Scientific Collection Permit (SCP) from the CDFW. Relocation procedures and communication responsibilities should be carried out in accordance with the requirements of both the MOU and SCP. Generally, western pond turtles should be relocated only if they do not move out of the construction area on their own accord within one-day following the observation.

MM BIO-5: Prior to the commencement of construction activities, the following are recommended to minimize impacts to special status plant species:

- Where vegetation is present within the project area of disturbance, a qualified biologist shall conduct a preconstruction survey no more than 30 days prior to the commencement of ground-disturbing activities to identify any special-status or locally protected plant species. The biologist should have knowledge of the identification and life history of target species.
- If a special-status plant species is observed within the project impact area, the qualified biologist should clearly delineate the individuals with flagging so that the area can be avoided. The flagging will retain a buffer of at least five feet around any herbaceous protected plant. If any protected trees are located, temporary fencing should be installed to delineate an appropriate buffer around the tree as determined by the biologist, typically five feet from the dripline or 15 feet from the trunk of the tree, whichever distance is greater. The biologist will notify construction crews of the buffer areas and educate them on the importance of avoiding these resources.
- If a special-status plant species is identified within an area of impact and cannot be avoided, then the qualified biologist should notify the IRWD. IRWD, in consultation with qualified biologist, shall determine whether consultation with regulatory agencies (e.g., CDFW, U.S. Fish and Wildlife Service [USFWS], U.S. Army Corps of Engineers [USACE], City of Irvine, City of Tustin) is appropriate to determine mitigation requirements.

MM BIO-6: Prior to the commencement of construction activities, the following are recommended to minimize impacts to special-status bat species:

- If construction is proposed outside of the bat roosting season (i.e., generally April 1 to July 31), no focused surveys for bats are recommended. If construction is proposed within the bat roosting season, a qualified biologist should conduct focused day and night emergence surveys of all suitable roosting habitat within the project area. Surveys should be conducted no more than 14 days prior to construction activities. Surveys need not be conducted for the entire project site at one time; they may be focused on specific project areas that will be impacted, if the entire project boundary will not be impacted at the same time. If an active roost is found, a suitable buffer should be established around active roosts as determined by IRWD through consultation with the qualified biologist. No construction or intrusion into the buffer should be allowed until a qualified biologist has determined that the roost is no longer active. Encroachment into the buffer may occur at the discretion of a qualified biologist. Moreover, nighttime lighting should be avoided to the greatest extent feasible if an active roost is found to avoid impacts to the roost, as well as, to avoid impacts to juvenile bats that may be foraging within the watercourses.

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ATTACHMENT A
Flora Species Compendia

PETER'S CANYON FLORA SPECIES COMPENDIUM

Scientific Name	Common Name	Listing Status/Notes
*Acacia retinoides**	ever blooming acacia	
Acmispon glaber	deerweed	
Ambrosia artemisiifolia	common ragweed	
*Anthemis cotula**	mayweed	
Artemisia californica	California sagebrush	
*Avena fatua**	common wild oats	
Baccharis salicifolia	mulefat	
Bromus madritensis ssp. *rubens**	red brome	
Chamaesyce albomarginata	rattlesnake weed	
*Centaurea melitensis**	tocalote	
Datura stratamonium	Jimson weed	
Descurania pinnata	tansy mustard	
Distichlis spicata	salt grass	
Erigeron canadensis	horseweed	
Eriodictyon crassifolium	thickleaf yerba santa	
Eriogonum fasciculatum	California buckwheat	
Erodium cicutarium	red stemmed filaree	
*Erodium moschatum**	white stemmed filaree	
*Eucalyptus citriodora**	lemon scented gum	
*Helminthotheca echioides**	bristly ox-tongue	
Hesperocnide tenella	western stinging nettle	
Heterotheca grandiflora	telegraph weed	
*Hirschfeldia incana**	shortpod mustard	
Lemna minuta	least duckweed	
Malosma laurina	laurel sumac	
*Malva neglecta**	common mallow	
*Medicago poymorpha**	California burclover	
*Melilotus indicus**	annual yellow sweetclover	
Nasturtium officinale	watercress	
*Nerium oleander**	oleander	
*Nicotina glauca**	tree tobacco	
*Olea europa**	olive	
*Passiflora caerulea**	bluecrown passionflower	
Persicaria lapanthifolia	common knotweed	
*Pinus halepensis**	Aleppo pine	
*Plantago major**	common plantain	
*Polypogon monspeliensis**	rabbitsfoot grass	
Psuedognaphalium californicum	California everlasting	
Quercus agrifolia	coast live oak	
*Ricinus communis**	castor bean	

PETER'S CANYON FLORA SPECIES COMPENDIUM

Scientific Name	Common Name	Listing Status/Notes
Romneya coulteri	matilija poppy	CNPS 4.2
Salix gooddingii	Goodding's willow	
Salix laevigata	red willow	
Salix lasiolepis	arroyo willow	
*Salsola tragus**	Russian thistle	
*Shinus molle**	Peruvian pepper	
*Sonchus asper**	spiny sowthistle	
*Spartium junceum**	Spanish broom	
*Strelitza reginae**	bird-of-paradise	
Typha sp.	cattail	
*Washingtonia robusta**	Washington fan palm	

Legend
* = Non-native species

ATTACHMENT B

Fauna Species Compendia

PETER'S CANYON FAUNA SPECIES COMPENDIUM

Scientific Name	Common Name	Listing Status/Notes
Fish		
*Cyprinus carpio**	common carp	
Reptiles		
*Apalone spinifera emoryi**	Texas spiny softshell	
Sceloporus occidentalis	western fence lizard	
Birds		
Actitis macularius	spotted sandpiper	
Agelaius phoeniceus	red-winged blackbird	
Anas americana	American wigeon	
Anas platyrhynchos	mallard	
Anas cyanoptera	cinnamon teal	
Ardea alba	great egret	
Ardea herodias	great blue heron	
Bucephala albeola	bufflehead	
Buteo jamaicensis	red-tailed hawk	
Calidris minutilla	least sandpiper	
Carduelis psaltria	lesser goldfinch	
Carduelis tristis	American goldfinch	
Carpodacus mexicanus	house finch	
Cathartes aura	turkey vulture	
Ceryle alcyon	belted kingfisher	
Charadrius vociferus	killdeer	
*Columba livia**	rock pigeon	
Corvus brachyrhynchos	American crow	
Dendroica coronata	yellow-rumped warbler	
Egretta thula	snowy egret	
Falco sparverius	American kestrel	
Fulica americana	American coot	
Gallinago delicata	Wilson's snipe	
Geothlypis trichas	common yellowthroat	
Himantopus mexicanus	black-necked stilt	
Melospiza melodia	song sparrow	

PETER'S CANYON FAUNA SPECIES COMPENDIUM

Scientific Name	Common Name	Listing Status/Notes
Mimus polyglottos	northern mockingbird	
Podilymbus podiceps	pied-billed grebe	
Plegadis chihi	white-faced ibis	
Psaltriparus minimus	bushtit	
Recurvirostra americana	American avocet	
Sayornis nigricans	black phoebe	
Sayornis saya	Say's phoebe	
Selasphorus rufus	rufous hummingbird	
Sialia mexicana	western bluebird	
Stelgidopteryx serripennis	northern rough-winged swallow	
*Sturnus vulgaris**	European starling	
Tringa flavipes	lesser yellowlegs	
Tyrannus vociferans	Cassin's kingbird	
Zenaida macroura	mourning dove	
Zonotrichia leucophrys	white-crowned sparrow	
Mammals		
Canis latrans	coyote	
Procyon lotor	northern raccoon	
Spermophilus beecheyi	California ground squirrel	

Legend
* = Non-native species

ATTACHMENT C
Photo Log

Photograph 1. Photograph highlights existing swallow mud nests observed during project surveys located beneath a bridge crossing Peters Canyon Channel.

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Photograph 2. Photograph depicts an existing stick nest observed during project surveys located on the underside of a bridge crossing Peters Canyon Channel.

Photograph 3. Peters Canyon Channel near the upstream extent of the project area. Note cattails present within channel. Facing generally southeast.

Photograph 4. Photograph shows a recently dredged portion of the Peters Canyon Channel with disturbed cattail marsh emerging along the southwestern side of the channel bed. Facing generally southwest.

Photograph 5. Photograph depicts the developed/ornamental habitat located along the perimeter of the upstream portion of the project alignment. Note lemon scented gum (*Eucalyptus citriodora*) is background. Facing generally north.

Photograph 6. Photograph depicts the ruderal/disturbed plant community located alongside the banks of Peters Canyon Channel throughout the Study Area. Facing generally west.

Photograph 7. Photograph shows streambed present throughout the Study Area. Herbaceous upland and hydrophytic species are present within the channel. Facing generally northwest.

Photograph 8. Photograph shows riparian habitat downstream of the project area. Note mature tree species present on upper banks of the channel. Facing generally north.

PETERS CANYON CHANNEL WATER CAPTURE AND REUSE PIPELINE PROJECT

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PETERS CANYON CHANNEL WATER CAPTURE AND REUSE PIPELINE PROJECT

Biological Resources Technical Report Volume 2

Executive Summary

This Volume 2 of the Biological Resources Technical Report has been prepared to document biological resources that could be affected downstream of the limits of the Peters Canyon Channel Water Capture and Reuse Pipeline Project (project). Volume 1 of the Biological Resources Technical Report describes the environmental setting of the area to be directly affected during project construction and evaluates impacts to biological resources associated with construction activities. This Volume 2 describes the environmental setting downstream of this project site that could be affected by project operation, which includes diversion of up to 2.6 cubic feet per second (cfs) of high selenium nuisance surface and groundwater flows during dry weather conditions. This Volume 2 evaluates impacts to biological resources associated with project operation.

Areas downstream of the project site (herein referred to as the “downstream Area of Potential Affect [APE]”) within San Diego Creek and the IRWD San Joaquin Marsh include relatively undisturbed riparian and wetland plant communities, including southern black willow forest, southern black willow scrub, mule fat scrub, southern willow scrub, freshwater marsh, cattail marsh, riparian herb, and open water habitats. A literature review and various biological surveys were conducted by ESA to determine the presence and/or likelihood for special-status species and other sensitive biological resources to occur within the areas downstream of the project.

Four special-status plant species were determined to have a moderate or high potential to occur based on the presence of suitable habitat within the downstream APE and previously recorded occurrences – southern tarplant (*Centromadia parryi* ssp. *australis*), mud nama (*Nama stenocarpum*), white rabbit-tobacco (*Psuedognaphalium leucocephalum*), and Coulter’s Matilija poppy (*Romneya coulteri*), which was observed within the vicinity of the project site, but outside of the project boundaries during surveys. None of these species were observed within the downstream APE.

One special-status wildlife species was observed on the project site during the biological surveys – great blue heron (*Ardea herodias*). Ten species have been determined to have a moderate or high potential to occur in the potentially affected downstream APE: western pond turtle (*Emys marmorata*), western burrowing owl (*Athene cunicularia*), white-tailed kite (*Elanus leucurus*), southwestern willow flycatcher (*Empidonax traillii extimus*), California horned lark (*Eremophila

alpestris actia), yellow breasted chat (*Icteria virens*), California black rail (*Laterallus jamaicensis coturniculus*), least Bell's vireo (*Vireo bellii pusillus*), Mexican long-tongued bat (*Choeronycteris mexicana*), and western mastiff bat (*Eumops perotis californicus*).

The downstream APE was also analyzed for the presence of aquatic and riparian resources that could potentially fall under the jurisdiction of U.S. Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), Regional Water Quality Control Board (RWQCB), and the Cities of Irvine and Tustin. While a formal delineation was not conducted, it was found that San Joaquin Marsh, Peters Canyon Channel, San Diego Creek, Como Channel, Edinger Circular Drain, and Valencia Drain are all likely to fall under the jurisdiction of USACE, CDFW, and RWQCB. The portions of these features that fall within the Cities of Tustin and Irvine are also likely under the jurisdiction of those respective cities.

The downstream APE does not fall within a recognized habitat linkage corridor, but it does provide movement opportunities for wildlife traveling from the Upper Newport Bay to open space habitats to the north and east in the Cleveland National Forest, Casper Wilderness Park, and Limestone Canyon Regional Park. The San Joaquin Marsh, which is part of the downstream APE, is a recognized stopover location for migratory birds travelling along the Pacific Flyway. Additionally, many of the birds that utilize the marsh could wade and forage within the Peters Canyon Channel and San Diego Creek (and associated tributaries) when water is present.

No USFWS critical habitat occurs within the downstream APE.

Operation of the proposed project has the potential to affect special-status plants and wildlife and natural communities within Peters Canyon Channel, San Diego Creek, and IRWD's San Joaquin Marsh due to reduced flow during dry weather periods. There is little in-stream vegetation or aquatic habitat within Peters Canyon Channel and the portion of San Diego Creek between the confluence with Peters Canyon Channel and approximately the I-405 Freeway bridge crossing. These are managed for flood control and are periodically cleared through either planned maintenance activity or scour floods; and the banks are comprised of rip-rap or concrete and generally devoid of riparian vegetation. There are no special-status plant or wildlife species or natural communities in these areas; thus project operation would have no effect on resources in this area. Downstream of the I-405 bridge, within San Diego Creek, there are three sediment basins. These basins are characterized by riparian and freshwater marsh vegetation, and as such have the potential to support special-status plant and wildlife species. Operation of the project is not expected to affect water levels in the ponds in San Joaquin Marsh or the basins within San Diego Creek, but operation is anticipated to result in increased residence time of water flowing through these areas. This could affect water quality and in turn adversely affect sensitive riparian communities and vegetation utilized by special-status wildlife. However, with implementation of an Impact Avoidance Framework during critical dry weather periods, impacts to water quality would be avoided or mitigated, reducing potential impacts to special-status plants and wildlife species to less than significant levels. Furthermore, operation of the proposed project has the potential to benefit biological resources due to improvements to water quality through removal of selenium and nitrogen in upstream diversions and reductions in the concentrations of these constituents downstream.

PETERS CANYON CHANNEL WATER CAPTURE AND REUSE PIPELINE PROJECT

Biological Resources Technical Report
Volume 2

1. Introduction

This Volume 2 of the Biological Resources Technical Report has been prepared to document biological resources that could be affected downstream of the limits of the Peters Canyon Channel Water Capture and Reuse Pipeline Project (project). Volume 1 of the Biological Resources Technical Report describes the environmental setting of the area to be directly affected during project construction and evaluates impacts to biological resources associated with construction activities. This Volume 2 describes the environmental setting downstream of this project site that could be affected by project operation, which includes diversion of up to 2.6 cubic feet per second (cfs) of high selenium nuisance surface and groundwater flows during dry weather conditions. Currently this flow discharges into Peters Canyon Channel and then flows into San Diego Creek. This Volume 2 describes the downstream plant communities, habitats, and sensitive biological resources determined to be present, as well as those that have a potential to be present; and the applicable regulatory framework. Impacts to sensitive biological resources are categorized based on biological resource issues that are required to be analyzed in accordance with the California Environmental Quality Act (CEQA), including sensitive plant species, wildlife species, natural communities, jurisdictional resources, local policies and ordinances, wildlife movement corridors, and conservation areas. Potential impacts related to operation of the proposed project are described herein.

2. Project Description and Location

Irvine Ranch Water District (IRWD), Orange County Flood Control District (OC Flood), City of Irvine, City of Tustin, California Department of Transportation (Caltrans), and Transportation Corridor Agency (TCA) are collectively seeking a cost-effective solution for the disposal of Peters Canyon Channel flows that contain high nitrate and selenium concentrations. The proposed project would divert nuisance surface and groundwater flows to the Orange County Sanitation District (OCSD) for treatment and reuse. Currently, these flows are discharged into either Peters Canyon Channel or into IRWD's sewer system under a temporary special discharge permit.

The proposed project includes diversion of dewatered groundwater and surface storm drain flows into a backbone pipeline conveyance system that would connect to OCSD's sewer system. The project would be located in the Cities of Tustin and Irvine along Peters Canyon Channel and San

Diego Creek Channel (Figure 1, Volume 1 BRTR). The project components are described in the Section 2 of Volume 1 of the Biological Resources Technical Report.

The area of potential effect (APE) downstream of the project site includes the San Diego Creek and IRWD's San Joaquin Marsh. Upper Newport Bay is not expected to be affected by project operation. The hydrology of the bay is overwhelmingly tidal, and is not anticipated to be affected by the reduction in dry weather flows associated with the operation of the project. This has been documented in the Reduced Discharge Technical Study prepared for the project (ESA, 2014b). Therefore Upper Newport Bay is not included in the APE evaluated herein related to operational effects of the project.

3. Methodology

The same methodology used and described in Volume 1 of this Biological Resources Technical Report applies to this analysis as described below.

3.1 Literature and Database Review

Appropriate resources were reviewed by Environmental Science Associates (ESA) that included aerial photographs of the project site and surrounding area, United States Geological Survey (USGS) topographic maps and National Wetland Inventory (NWI) maps. Biological resource databases were also queried, which included the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB), California Native Plant Society (CNPS) On-line Inventory of Rare and Endangered Vascular Plants of California, and the United States Fish and Wildlife Service (USFWS) Information, Planning, and Conservation System (IPaC). Monthly bird counts by the Sea and Sage Audubon Society for the neighboring San Joaquin Wildlife Sanctuary also were reviewed (Sea and Sage Audubon, 2014). These databases helped to identify which special-status species have been previously recorded downstream of the project site, which includes San Diego Creek and IRWD's San Joaquin Marsh.

"Special-status" species analyzed included plants and animals that are legally protected (i.e., listed) under the California Endangered Species Act (CESA) or Federal Endangered Species Act (FESA), or other regulations, and species that are considered sufficiently rare or sensitive by the scientific community to qualify for such listing. Special-status species are categorized as follows:

- Species listed or proposed for listing as threatened or endangered, or are candidates for possible future listing as threatened or endangered, under CESA or FESA;
- Species protected under the federal Bald and Golden Eagle Protection Act;
- Species that meet the definitions of rare or endangered under CEQA (*CEQA Guidelines* § 15380);
- Plants listed as rare under the California Native Plant Protection Act (NPPA; Fish and Game Code § 1900 et seq.);
- Plants considered by the CNPS to be rare, threatened, or endangered in California;

- Species covered under an adopted Natural Community Conservation Plan (NCCP)/Habitat Conservation Plan (HCP);
- CDFW Special Animals and wildlife species of special concern;
- Wildlife fully protected in California (Fish and Game Code § 3511, 4700, and 5050); and/or
- Avian species protected by the federal Migratory Bird Treaty Act (MBTA).

Additionally, the CNDDB (CDFW, 2014c) was queried for the purposes of identifying sensitive natural communities that have been recorded downstream of the project site. Sensitive natural communities are designated as such by various resource agencies, such as the CDFW, or in local policies and regulations, and are generally considered to have important functions or values for wildlife and/or are recognized as declining in extent or distribution, and are considered threatened enough to warrant some level of protection. Sensitive natural communities include those that are identified in the CDFW *List of California Terrestrial Communities* (CDFW, 2010).

From these queries, a list of target special-status species and sensitive natural communities was developed for areas downstream of the project site. Potentially-occurring special-status species were defined as having a geographic range and habitat similar to those found downstream of the project site.

Available background information, including USGS topographic maps and current and historical aerial photographs were used in conjunction with geographic information system (GIS) data to characterize soils and to map vegetation communities, and to identify any USFWS-designated or local county critical habitat boundaries or CDFW Natural Community Conservation Planning areas.

3.2 Biological Resource Surveys

A biological reconnaissance survey was conducted by ESA biologists on April 1, 2014 within Peters Canyon Channel and San Diego Creek, within and downstream of the project site for purposes of evaluating the potential operational effects of the project. The reconnaissance surveys were conducted on foot by two biologists to identify potential biological resource constraints associated with the implementation of the proposed project. Special attention was paid to habitats having potential to support sensitive biological resources (e.g., special-status species, sensitive natural communities and riparian habitats), including features potentially subject to U.S. Army Corps of Engineers (USACE), CDFW, and Regional Water Quality Control Board (RWQCB) jurisdiction regulations.

All plant species observed during the field reconnaissance surveys were identified to the species or subspecies level. Plant taxonomy followed Hickman (1993), as updated in Baldwin, et al. (2012). Plant community descriptions were characterized in the field Sawyer et al. (2009) and Baldwin et al. (2012). Vegetation and land uses not effectively described within the manuals were characterized based on field observations of dominant species.

Wildlife species were identified during the field reconnaissance by sight, call, tracks, nests, scat, remains, or other sign, with use of binoculars and taxonomic keys where appropriate. Vertebrate taxonomy in this report follows Stebbins (1985) for amphibians and reptiles, the American Ornithologists' Union (1983, as supplemented) for birds, and Jones et al. (1997) for mammals.

The analysis of potential wildlife habitat linkages on the project site or immediate vicinity was based on information compiled from literature and analysis of physical barriers observed on aerial photographs and during the field reconnaissance. This information was used to identify whether the area downstream of the project site could be used as an important wildlife movement corridor.

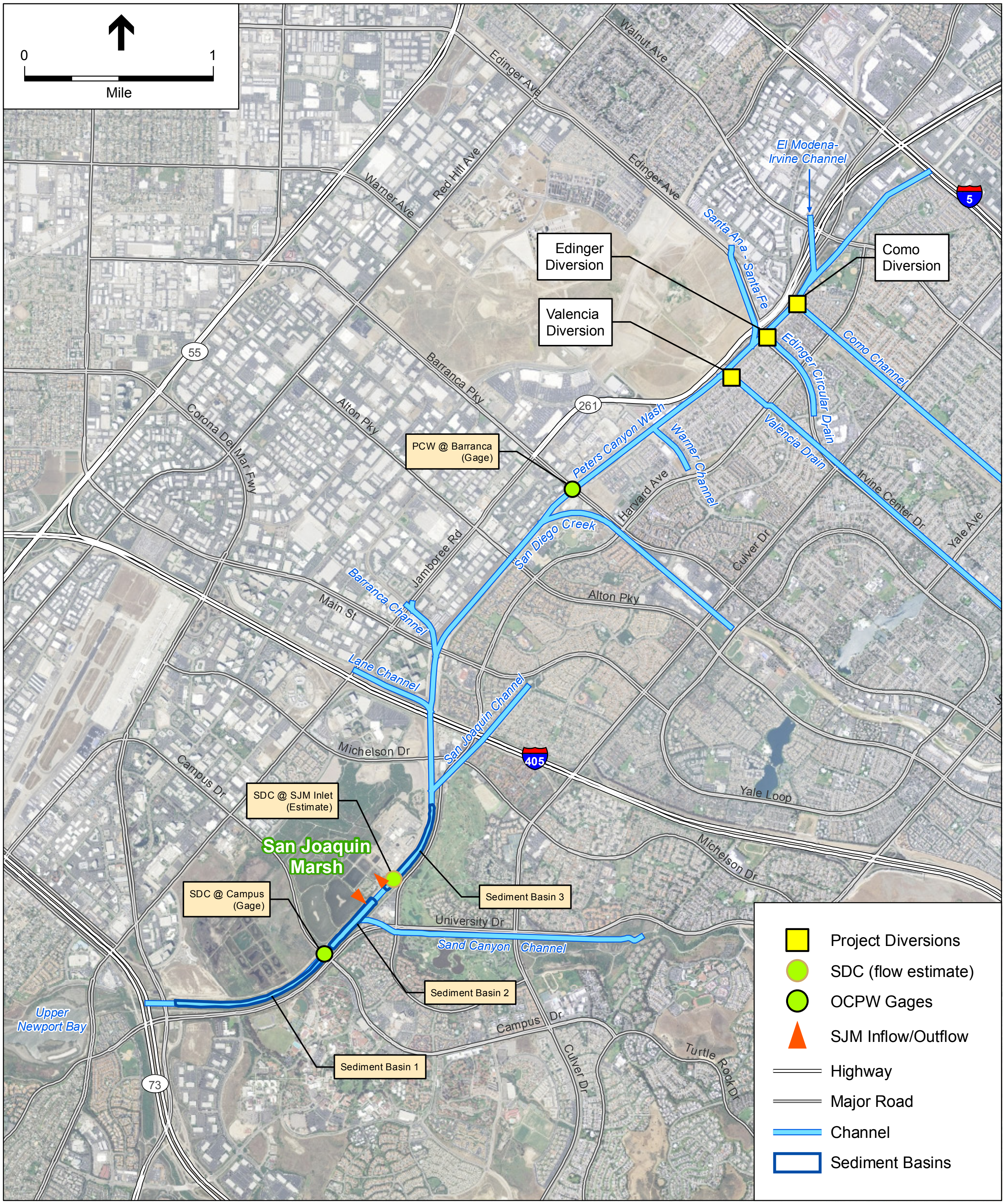
3.3 Jurisdictional Assessment

To identify if Peters Canyon Channel, San Diego Creek, and associated tributaries located around and downstream of the project site are potentially jurisdictional waters, a review of available background information pertaining to these waterways was conducted prior to the reconnaissance survey. Site maps were generated on aerial photographs and potentially jurisdictional water features were identified in ArcGIS to assist in field verification. The project site, including areas upstream and downstream, were assessed for potentially jurisdictional wetlands or waters of the U.S. and/or state-protected waters based on the presence of hydrophytic vegetation, stream geomorphology, ordinary high water mark (OHWM), connectivity to traditionally navigable waters, and other appropriate hydrologic indicators.

A general jurisdictional assessment was conducted to determine features likely under the jurisdiction of federal, state, and local resource agencies. The following resources distributed by the USACE were referenced where necessary during the assessment to determine any areas of USACE jurisdiction: The *U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987), the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Arid West Region (Version 2.0)*, as well as the *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE, 2008a; USACE, 2008b).

4. Environmental Setting

Currently, the Como Channel, Edinger Circular Drain and Valencia Drain empty into the Peters Canyon Channel. Peters Canyon Channel converges with San Diego Creek, which is the primary surface water input to Upper Newport Bay, and receives surface flows from a 119 square mile watershed that includes the Santiago and San Joaquin Hills, as well as much of the Tustin Plain. Lower San Diego Creek, downstream of the confluence with Peters Canyon Channel, is part of the downstream APE for the project. This portion of the creek includes three Sediment Basins; the downstream end Sediment Basin 1 generally coincides with extent of tidal influence (see **Figure 1**).



SOURCE: NAIP (Aerial), 2012

Peters Canyon Channel Water Capture and Reuse Pipeline . 130993

Addendum Figure 1
Project Area and Drainage Channel Overview

Since the late 1970s, excess sediment entering Newport Bay from San Diego Creek has been identified as creating impairment to the beneficial uses of the Bay, impacting habitat, recreation and navigational uses (RBF Consulting, 2012). As a result, three in-channel Sediment Basins were constructed in the channel to trap sediment before discharging into Upper Newport Bay (see Figure 1). Thus, like Peters Canyon Channel, lower San Diego Creek is an urbanized, trapezoidal channel that has developed into a multi-purpose facility that provides flood control protection, sediment capture, and nutrient removal. Riparian and aquatic habitat within the Sediment Basins reach is generally of higher quality than the project site upstream, having more wetted and open water habitat, more emergent vegetation (e.g., cattails [*Typha* spp.]), and a riparian corridor/buffer (approximately 40 feet wide) that is maintained along the east bank area of the basins. The Sediment Basin No. 1 downstream of Campus Drive has not been recently maintained and the channel bottom supports a significant area of riparian habitat.

Adjacent to lower San Diego Creek, the approximately 300-acre IRWD San Joaquin Marsh is one of the largest inland freshwater marsh systems in southern California. The San Joaquin Marsh receives freshwater from a diversion from San Diego Creek located within Sediment Basin No. 2. Formerly degraded by years of urban runoff and the isolation of San Diego Creek into a flood control channel, the marsh was the epicenter of a major wetland restoration effort in the 1990s and early 2000s. The marsh is owned and operated by IRWD and is split roughly equally between more natural riparian wetlands to the north and engineered stormwater treatment wetlands to the south. Both the riparian and treatment wetlands were designed to provide habitats for a broad range of wildlife, but the treatment wetlands were also designed to reduce eutrophication in Newport Bay by removing pollutants – especially nitrogen – from San Diego Creek before they enter the Bay. Pollutant removal/transformation is achieved via a number of physical (e.g., sedimentation) and biogeochemical processes. Selenium and other trace metals are also monitored in the influent and effluent of San Joaquin Marsh though the marsh was not designed with selenium reduction explicitly in mind.

4.1 Plant Communities and Land Uses

Areas downstream of the project site within San Diego Creek include open water habitats and undisturbed cattail marsh along the banks of San Diego Creek. These areas are dominated by cattails, and also contain several willow species (*Salix* spp.), as depicted in the photographs in Appendix A of this Volume 2.

Areas downstream of the project site within the IRWD San Joaquin Marsh are generally characterized by relatively undisturbed riparian and wetland plant communities, including southern black willow forest, southern black willow scrub, mule fat scrub, southern willow scrub, freshwater marsh, riparian herb, and open water habitats. Detailed descriptions of these vegetation communities are included in the *Biological Resources Technical Report for the Michelson Water Reclamation Plan Phase 2 and 3 Capacity Expansion Project* (Dudek, 2005). A complete list of plant species observed is included in Appendix A of the BRTR. Representative photographs of the downstream riparian habitat within San Diego Creek are included in Appendix A of this Volume 2.

4.2 Wildlife Species

The project area supports a variety of common wildlife species typically found within the urban environments of Southern California; however, the presence of perennial water sources in Peters Canyon Channel and San Diego Creek, and associated tributaries provides foraging and wading habitat for shorebirds and waterfowl, and breeding habitat for several aquatic wildlife species.

Common avian species detected or observed during the reconnaissance survey, or expected to occur in and around the project area, include (but are not limited to) western grebe (*Aechmorphus occidentalis*), cinnamon teal (*Anas cyanoptera*), green-winged teal (*Anas crecca*), mallard (*Anas platyrhynchos*), bufflehead (*Bucephala albeola*), yellow-rumped warbler (*Dendroica coronata*), American coot (*Fulica americana*), black-necked stilt (*Himantopus mexicanus*), and bushtit (*Psaltriparus minimus*). Several raptor were observed soaring within the vicinity of the project area, including red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), and turkey vulture (*Cathartes aura*). Additionally, areas within the San Joaquin Marsh provide habitat for more than 200 bird species (20 nesting), including two resident federal and state endangered bird species: the light-footed clapper rail (*Rallus longirostris levipes*) and the California least tern (*Sternula antillarum browni*)(NRS 2014).

Additional wildlife species observed or expected to occur in the project area include coyote (*Canis latrans*), striped skunk (*Mephitis mephitis*), northern raccoon (*Procyon lotor*), western fence lizard (*Sceloporus occidentalis*), and California ground squirrel (*Spermophilus beecheyi*). One fish species, common carp (*Cyprinus carpio*), and one turtle species, Texas spiny softshell (*Apalone spinifera* ssp. *emoryi*), were observed within Peters Canyon Channel and San Diego Creek during the reconnaissance survey. A complete list of all wildlife species identified during the reconnaissance survey can be found in Appendix B of the BRTR.

4.3 Special-Status Species

Based on the literature/database review and field reconnaissance, several special-status species have the potential to occur in the project site or immediate vicinity. Special-status wildlife and plant species previously recorded within the vicinity of the project site, including the downstream APE, are depicted in Figures 5-A and 5-B, respectively (see Volume 1 of Biological Resources Technical Report). Such special-status plant and wildlife species were analyzed based on the following ‘potential to occur’ definitions:

- **Unlikely:** The project area does not support suitable habitat for a particular species, and therefore the species is unlikely to occur within the downstream APE.
- **Low Potential:** The project area only provides limited habitat for a particular species. In addition, the known range for a particular species may be outside of the downstream APE.
- **Moderate Potential:** The project area provides suitable habitat for a particular species.

- **High Potential:** The project area provides ideal habitat conditions for a particular species. Additionally, known populations of the species may occur in the downstream APE.

- **Present:** The species was observed within the project area during relevant biological surveys or other project visits.

Special-Status Plant Species

Four CNPS special-status plant species were determined to have a moderate or high potential to occur based on the presence of suitable habitat within the downstream APE and previously recorded occurrences (See BRTR Figure 5-B) – southern tarplant (*Centromadia parryi* ssp. *australis*), mud nama (*Nama stenocarpum*), white rabbit-tobacco (*Psuedognaphalium leucocephalum*), and Coulter's Matilija poppy (*Romneya coulteri*), which was observed within the vicinity of the project site, but outside of the project boundaries during surveys. None of these species were observed within the downstream APE. Coulter's saltbush (*Atriplex coulteri*), south coast saltscale (*Atriplex pacifica*), Davidson's saltscale (*Atriplex serenana* var. *davidsonii*), salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*), and San Bernardino aster (*Symphyotrichum defoliatum*) were determined to have a low potential to occur within areas potentially affected by the project based on the presence of marginal habitat. Six additional special-status plant species were determined have an unlikely potential to occur due to a lack of suitable habitat. Table 1 lists the special-status plant species that have been recorded in the area, including their potential to occur within areas potentially affected by the proposed project. Species with a moderate or high potential to occur within the downstream APE are discussed further below.

TABLE 1
SPECIAL-STATUS PLANT SPECIES WITH POTENTIAL TO OCCUR

Species	Status[1] Federal/State/ CRPR	Habitat Requirements	Potential to Occur
Coulter's saltbush (*Atriplex coulteri*)	-- / -- / 1B.2	Found on alkaline or clay substrate within coastal bluff scrub, coastal dune, coastal scrub and valley and foothill grassland habitats. Blooms from March to October at elevations from 10 to 1509 feet (3 to 460 meters) amsl.	**Low**. Marginally suitable habitat exists within and adjacent to the downstream APE along the channel banks and within the San Joaquin Marsh.
South Coast saltscale (*Atriplex pacifica*)	-- / -- / 1B.2	Found within chenopod scrub, coastal bluff and coastal scrub habitats. Blooms from March to October at elevations up to 459 feet (140 meters) amsl.	**Low**. Marginally suitable habitat exists within and adjacent to the downstream APE along the channel banks and within the San Joaquin Marsh.
Davidson's saltscale (*Atriplex serenana* var. *davidsonii*)	-- / -- / 1B.2	Found on alkaline substrate within coastal bluff scrub and coastal scrub habitats. Blooms from April to October at elevations from 33 to 656 feet (10 to 200 meters) amsl.	**Low**. Marginally suitable habitat exists within and adjacent to the downstream APE along the channel banks and within the San Joaquin Marsh.

TABLE 1
SPECIAL-STATUS PLANT SPECIES WITH POTENTIAL TO OCCUR

Species	Status[1] Federal/State/ CRPR	Habitat Requirements	Potential to Occur
thread-leaved brodiaea (*Brodiaea filifolia*)	FT / SE / 1B.1	Found on clay substrate within chaparral, cismontane woodland, coastal scrub, and valley and foothill habitats. Microhabitats for the species include playas and vernal pools. Blooms from March to June at elevations from 82 to 3,675 feet (25 to 1,120 meters) amsl.	**Unlikely.** Suitable habitat for this species is not present within the areas potentially affected by the proposed project.
southern tarplant (*Centromadia parryi* ssp. *australis*)	-- / -- / 1B.1	Found in the margins of marshes and swamps, vernally mesic valley and foothill grasslands, and vernal pool habitats. This species is commonly found in disturbed areas, in relatively close proximity to a seasonal or perennial water source. Blooms from May to November at elevations up to 1,394 feet (425 meters) amsl.	**High**. Suitable habitat is present onsite along unchannelized portions of the drainage as well as the upland portion of the alignment. Three occurrences of this species have been previously reported immediately adjacent to Peters Canyon Channel and San Diego Creek.
salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*)	FE / SE / 1B.2	Found within coastal dune, salt marsh, and swamp habitats. Blooms from May to October, at elevations up to 4,593 feet (1,400 meters).	**Low**. Marginally suitable habitat exists within and adjacent to the downstream APE along the channel banks and within the San Joaquin Marsh.
many-stemmed dudleya (*Dudleya multicaulis*)	-- / -- / 1B.2	Found on clay substrate within chaparral, coastal scrub and valley and grassland habitats. Blooms from April to July at elevations from 49 to 2,592 feet (15 to 790 meters) amsl.	**Unlikely**. Suitable habitat for the species is not present within the areas potentially affected by the proposed project.
Laguna beach liveforever (*Dudleya stolonifera*)	FT / ST / 1B.1	Found on rocky substrate within chaparral, cismontane woodland, coastal scrub and valley and grassland habitats. Blooms from May to July at elevations from 33 to 853 feet (10 to 260 meters) amsl.	**Unlikely**. Suitable habitat for the species is not present within the areas potentially affected by the proposed project.
Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*	-- / -- / 1B.1	Found in wetland habitats. Microhabitats include playas and vernal pools. Blooms from February to June at elevations up to 4,002 feet (1,220 meters) amsl.	**Unlikely**. Suitable habitat for the species is not present within the areas potentially affected by the proposed project.
Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)	-- / -- / 1B.2	Found within chaparral and coastal scrub habitats. Blooms from January to July at elevations up to 2,903 feet (885 meters) amsl.	**Unlikely**. Suitable habitat for the species is not present within the areas potentially affected by the proposed project.
mud nama (*Nama stenocarpum*)	-- / -- / 2B.2	Found along freshwater lake margins, riverbanks, marshes and swamps. Blooms from January to July at elevations from 16 to 1,640 feet (5 to 500 meters) amsl.	**High**. Suitable habitat is present within unchannelized portions of Peter's Canyon Creek and within the San Joaquin Marsh. One occurrence of this species reported that two individuals were observed within the vicinity of the project site in 1998.
white rabbit-tobacco (*Psuedognaphalium leucocephalum*)	-- / -- / 2B.2	Found within riparian woodland, coastal scrub and chaparral habitats. Blooms from August to November at elevations up to 4,593 feet (1,400 meters) amsl.	**Moderate**. Suitable habitat is present within the San Joaquin Marsh and portions of San Diego Creek downstream of the project alignment. Species was not observed during project surveys.

TABLE 1
SPECIAL-STATUS PLANT SPECIES WITH POTENTIAL TO OCCUR

Species	Status[1] Federal/State/ CRPR	Habitat Requirements	Potential to Occur
Coulter's Matilija poppy (*Romneya coulteri*)	-- / -- / 4.2	Found within chaparral and coastal scrub habitats. Blooms from March to July at elevations from 66 to 3,937 feet (20 to 1,200 meters) amsl.	**High.** Species was observed within vicinity of the project site during surveys, however none were observed in the downstream APE.
San Bernardino aster (*Symphotrichum defoliatum*)	-- / -- / 1B.2	Found near ditches, streams and springs within cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and valley and foothill grassland. Blooms from July to November at elevations up to 6,693 feet (2,040 meters) amsl.	**Low**. Marginally suitable habitat exists within and adjacent to the project site along the channel banks and within the San Joaquin Marsh.
big-leaved crownbeard (*Verbesina dissita*)	FT / ST / 1B.1	Found within chaparral and coastal scrub habitats. Blooms from April to July at elevations from 148 to 673 feet (45 to 205 meters) amsl.	**Unlikely**. Suitable habitat for the species is not present within the areas potentially affected by the proposed project.

[1] Description of status codes:

FE = Listed as endangered under the FESA

FT = Listed as threatened under the FESA

ST= Listed as threatened under the CESA

SE = Listed as endangered under the CESA

CRPR = California Rare Plant Rank (CNPS, 2014)

CRPR 1B.1 = Seriously threatened in California and elsewhere

CRPR 1B.2 = Fairly threatened in California and elsewhere

CRPR 2B.2 = Fairly threatened in California, but more common elsewhere

CRPR 4.2 = Fairly threatened in California, placed on a watch-list due to limited distribution throughout its range

Southern Tarplant

Southern tarplant has a rare plant rank of 1B.1, as recognized by the CNPS, indicating that the species is seriously endangered in California and elsewhere (CNPS, 2014). Suitable habitat for this species includes marsh and swamp margins and vernally mesic valley and foothill grassland habitats. Due to its growth habits, this species thrives in areas of temporary soil disturbance (Baldwin et al., 2012). Through wind dispersion of fertile seeds, this annual herb will sprout, flower and seed within one growing season. The seeds that are produced will spread throughout the general vicinity of the mother plant and establish a seed bank. Disturbance tends to unearth this seed bank, assisting in the persistence of the species.

The ongoing annual maintenance occurring within and adjacent to San Diego Creek and impacts to surrounding upland areas may assist in this species establishing and persisting in the immediate vicinity of the downstream APE, if a seed source is present in the soil. However, southern tarplant was not detected during project surveys; therefore, only the potential for occurrence exists based on the presence of suitable soils and overall habitat conditions. Ten recorded occurrences of the species within three miles of the project site have been reported to the CNDDB. A substantial population was recorded directly adjacent to Peters Canyon Channel in an open field on the Marine Corps Air Station Tustin property. Additionally, two other occurrences of the species were recorded along San Diego Creek, upstream from the convergence with Peters Canyon Channel, hence the high potential for this species to be present in the downstream APE.

Mud Nama

Mud nama has a rare plant rank of 2B.2, as recognized by the CNPS, indicating that the species is fairly endangered in California, but more common elsewhere (CNPS, 2014). Suitable habitat for the species includes freshwater lake margins, riverbanks, marshes, and swamps. Habitat for this species is present along the bed and banks of the Peters Canyon Channel and San Diego Creek in areas that support vegetation, as well as the San Joaquin Marsh. Mud nama is commonly found in areas of human disturbance as this species annual growth pattern lends to its ability to benefit and perpetuate in these conditions. While not observed during surveys, the database review indicated that two individuals of this species were previously recorded within the vicinity of the project site, adjacent to Peters Canyon Channel; therefore, this species has a high potential to be present within the downstream APE.

White Rabbit-Tobacco

White rabbit-tobacco has a rare plant rank of 2B.2, as recognized by the CNPS, indicating that the species is fairly endangered in California, but more common elsewhere (CNPS, 2014). Suitable habitat for the species includes riparian woodland, coastal scrub and chaparral habitats at elevations up to 4,593 feet amsl. Habitat for this species is present within San Joaquin Marsh and portions of San Diego Creek downstream of the project alignment; therefore, this species has a high potential to be present within the downstream APE.

Coulter's Matilija Poppy

Coulter's Matilija poppy has a rare plant rank of 4.2, as recognized by the CNPS, indicating that the species is fairly threatened in California, and is recommended to be placed on a watch-list due to limited distribution throughout its range (CNPS, 2014). Suitable habitat for this species includes chaparral and coastal sage habitats. In a natural setting, this species commonly occupies previously burned areas, as the disturbance allows seeds to sprout and establish with minimal competition from surrounding species. The species was observed along the fence located along the perimeter of the project site during the reconnaissance survey. While characteristic plant communities known to support this species are not located within or adjacent to the project site or downstream APE, the presence of coastal scrub and chaparral component species were observed during surveys. Additionally, Coulter's Matilija poppy is commonly grown as an ornamental and may occur in the area due to dissemination from nearby landscape plantings. While this species was observed during project surveys, it was observed outside of the limits of the proposed project site.

Sensitive Natural Communities

Riparian and marsh habitats identified as CDFW Sensitive Natural Communities, including Southern Willow Scrub, Southern Riparian Scrub, Southern Cottonwood Riparian Forest, and

Cattail Marsh, were determined to have the potential to occur within the San Joaquin Marsh and portions of San Diego Creek downstream of the project site.

Special-Status Wildlife

One special-status wildlife species was observed on the project site during the biological surveys – great blue heron (*Ardea herodias*). As shown in Table 2, 10 species have been determined to have a moderate or high potential to occur in the potentially affected downstream APE: western pond turtle (*Emys marmorata*), western burrowing owl (*Athene cunicularia*), white-tailed kite (*Elanus leucurus*), southwestern willow flycatcher (*Empidonax traillii extimus*), California horned lark (*Eremophila alpestris actia*), yellow breasted chat (*Icteria virens*), California black rail (*Laterallus jamaicensis coturniculus*), least Bell's vireo (*Vireo bellii pusillus*), Mexican long-tongued bat (*Choeronycteris mexicana*), and, western mastiff bat (*Eumops perotis californicus*). Eight additional species were determined to have a low potential to occur based on the presence of marginal habitat, and eight additional special-status wildlife species were determined have an unlikely potential to occur within the downstream APE due to a lack of suitable habitat. Species that were present during the biological surveys and species with a moderate or high potential to occur in the downstream APE are discuss further below.

TABLE 2
SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR

Species	Status[1] Federal/State	Habitat Requirements	Potential to Occur
Amphibians			
Coast Range newt (*Taricha torosa*)	-- / SSC	Known to occur in cismontane forest or valley and foothill grassland habitats. Microhabitats include moist areas, commonly near drainages and seeps.	**Low**. Marginal microhabitat is present in small pockets within the immediate vicinity of the project site; however the large-scale habitat requirements are not met.
Crustaceans			
San Diego fairy shrimp (*Branchinecta sandiegonensis*)	FE / --	Known to occur in areas of tectonic swales/earth slump basins in grassland, chaparral and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season.	**Unlikely**. Suitable habitat for the species is not present within the downstream APE.
Riverside fairy shrimp (*Streptocephalus woottoni*)	FE / --	Known to occur in areas of tectonic swales/earth slump basins in grassland, chaparral and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season.	**Unlikely**. Suitable habitat for the species is not present within the downstream APE.

TABLE 2
SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR

Gastropods			
mimic tryonia (*Tryonia imitator*)	-- / --	Known to occur in brackish wetland environments.	**Unlikely**. Suitable habitat for the species is not present within the downstream APE.
Reptiles			
orangethroat whiptail (*Aspidoscelis hyperythra*)	-- / SSC	Species requires intact habitat within chaparral, cismontane woodland and coastal scrub plant communities.	**Unlikely**. Suitable habitat for the species is not present within the downstream APE.
red-diamond rattlesnake (*Crotalus ruber*)	-- / SSC	Known to occur in chaparral, Mojavean desert scrub and Sonoran desert scrub communities.	**Unlikely**. Suitable habitat for the species is not present within the downstream APE.
western pond turtle (*Emys marmorata*)	-- / SSC	Known to occur in slow-moving permanent or intermittent streams, ponds, small lakes, reservoirs with emergent basking sites; adjacent uplands used during winter.	**High**. Suitable habitat for this species is present within the downstream APE. In addition, this species has been observed within tributaries converging with Peters Canyon Channel. No western pond turtles were observed during the reconnaissance survey.
Coast horned lizard (*Phrynosoma blainvillii*)	-- / SSC	Known to occur in sandy washes with within chaparral or coastal scrub habitat. Requires loose soil for burial and abundant supply of harvester ants.	**Unlikely**. Suitable habitat for the species is not present within the downstream APE.
Birds			
Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)	-- / WL	Known to frequent relatively steep, often rocky hillsides with grass and forb species. Resident in southern California coastal sage scrub and mixed chaparral.	**Unlikely**. Suitable habitat for the species is not present within the downstream APE.
grasshopper sparrow (*Ammodramus savannarum*)	-- / SSC	Known to occur in valley and foothill grassland habitats.	**Low.** Disturbed, marginal habitat for this species is present within the vicinity of the San Joaquin Marsh. One recorded occurrence of the species within upland habitat near the San Joaquin Marsh. Species was not observed during the reconnaissance survey.
great blue heron (*Ardea herodias*)	-- / --	Known to occur in and around freshwater and brackish water bodies.	**Present**. Suitable foraging habitat is present along Peters Canyon Channel and nesting habitat exists adjacent to the channel in ornamental trees. This species was also seen foraging onsite during surveys.

TABLE 2
SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR

western burrowing owl (*Athene cunicularia*)	-- / SSC	Known to occur within open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. A subterranean nester dependent upon burrowing mammals, particularly the California ground squirrel.	**Moderate**. Marginal habitat for this species is present along the banks of San Diego Creek, downstream of the project site. No sign of this species observed during project surveys.
coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*)	BCC / SSC	Known to occur in coastal scrub habitats; often found in habitats with *Opuntia* cactus.	**Low.** Suitable habitat may exist in the upland portions of the San Joaquin Marsh and along the banks of San Diego Creek
white-tailed kite (*Elanus leucurus*)	-- / FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland.	**Moderate**. Species has been recorded near the San Joaquin Marsh. Not observed during the reconnaissance survey.
southwestern willow flycatcher (*Empidonax traillii extimus*)	FE / SE	Known to breed in southern California in willow-dominated riparian habitat.	**Moderate**. **S**uitable habitat is present within the San Joaquin Marsh and downstream portions of San Diego Creek.
California horned lark (*Eremophila alpestris actia*)	-- / WL	Known to occur within the vicinity of marine intertidal and splash zone communities, meadows and seeps.	**Moderate**. Marginal nesting and foraging habitat is present within and adjacent to the downstream APE.
yellow-breasted chat (*Icteria virens*)	-- / SSC	Known to occur within riparian forest, scrub and woodland habitats.	**High**. Suitable habitat is present within the San Joaquin Marsh and downstream portions of San Diego Creek. Additionally, the species has been recorded within the vicinity of San Diego Creek downstream of the project alignment.
California black rail (*Laterallus jamaicensis coturniculus*)	BCC / ST, FP	Known to occur in brackish and freshwater marshes.	**High**. High quality habitat for the species exists within portions of the San Joaquin Marsh. The species has been previously recorded within Upper Newport Bay.
Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)	-- / SE	Known to occur primarily along the Southern California coast within brackish marsh habitats.	**Low**. The species is not expected to nest in the downstream APE.
coastal California gnatcatcher (*Polioptila californica californica*)	FT / SSC	Species is an obligate, permanent resident of coastal sage scrub in southern California. Low, coastal sage scrub in arid washes, on mesas and slopes.	**Low.** Suitable habitat may exist in the upland portions of the San Joaquin Marsh and along the banks of San Diego Creek.

TABLE 2
SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR

light-footed clapper rail (*Rallus longirostris levipes*)	FE / SE, FP	Known to occur within Coastal California brackish marshes.	**Low**. While the species has been previously recorded within Upper Newport Bay, the marsh habitat within the downstream APE is freshwater.
California least tern (*Sternula antillarum browni*)	FE / SE, FP	Known to occur in alkali playas and coastal dune and beach habitats.	~~**Unlikely**. Suitable habitat for the species is not present within the downstream APE.~~ **Present**. Suitable habitat for foraging for this species is present at the SDC sediment basins.
least Bell's vireo (*Vireo bellii pusillus*)	FE / SE	Known to occur in riparian forest, scrub, and woodland habitats. Nests primarily in willow riparian habitats.	**High**. Suitable habitat is present within the San Joaquin Marsh and downstream portions of San Diego Creek. Several previously recorded occurrences of the species were identified within the vicinity of the project site.
Mammals			
Mexican long-tongued bat (*Choeronycteris mexicana*)	-- / SSC	Typically restricted to pinyon-juniper woodland, riparian scrub and Sonoran thorn woodland habitats. Not generally associated with concrete bridges.	**Moderate**. Suitable habitat is present within the San Joaquin Marsh and downstream portions of San Diego Creek.
western mastiff bat (*Eumops perotis californicus*)	-- / SSC	Known to occur throughout California and occupies a wide variety of habitats including grasslands, shrublands, cismontane woodland's; most common in open, dry habitats with rocky areas for roosting. Not generally associated with concrete bridges.	**Moderate**. Suitable habitat is present within the San Joaquin Marsh and downstream portions of San Diego Creek. Species has been previously recorded near the San Joaquin Marsh.
Pacific pocket mouse (*Perognathus longimembris pacificus*)	FE / SSC	Known to occur in coastal scrub habitats.	**Low**. Suitable habitat may exist in the upland portions of the San Joaquin Marsh and along the banks of San Diego Creek.
Southern California saltmarsh shrew (*Sorex ornatus salicornicus*)	-- / SSC	Known to occur in salt marsh habitat within Southern California.	**Low**. The marsh habitat within the downstream APE is freshwater.

[1] Description of status codes:

FE = Listed as endangered under the FESA

FT = Listed as threatened under the FESA

BCC = Bird of Conservation Concern

WL= Watch listed

SE = Listed as endangered under the CESA

SSC = Species of Special Concern

FP = Listed as fully protected under CDFG code

Great Blue Heron

The great blue heron is protected as a migratory species by the federal MBTA and nesting colonies are afforded a level of protection by CDFW. The species was observed foraging within Peters Canyon Channel during the field reconnaissance. Suitable habitat for this species generally includes fresh or saltwater marshes and swamps or other areas of permanent or intermittent water inundation with available prey species for foraging. This species is also commonly observed utilizing man-made ponds, channelized drainages and other artificial or altered water sources. Great blue herons often nest in colonies, but not always, and typically within tall trees such as Mexican fan palm and blue gum (*Eucalyptus globulus*), but can also nest in shorter trees such as pines (*Pinus* spp.) and on man-made structures and rooftops as low as eight feet from the ground. Peters Canyon Channel and San Diego Creek are heavily altered perennial water sources; however, they support numerous prey species for the great blue heron including fish, amphibians, and insects. In addition, there is potential for this species to utilize the ornamental and riparian trees in the vicinity of the downstream APE as nesting habitat.

Western Pond Turtle

Western pond turtle is afforded protection as a CDFW Species of Special Concern. Suitable habitat for this species includes slow-moving or intermittent streams, reservoirs, ponds or small lakes with basking sites along edges. The perennial water source and intermittent marsh habitat present within the channel provides suitable habitat for the species. In addition, the database review identified several recorded occurrences of the species within the vicinity of the project site. While the species was not observed during field reconnaissance, western pond turtle was determined to have a high potential to occur within the extent of Peters Canyon Channel, San Diego Creek, and portions of associated tributaries that occur within and adjacent to the downstream APE.

Western Burrowing Owl

Western burrowing owl is a CDFW Species of Special Concern and is also afforded protection under the MBTA. Suitable habitat for the species includes low growing vegetation areas of non-native annual grassland, shrub lands, and agricultural areas which contain small mammal burrows often constructed by ground squirrels. Western burrowing owls are also known to utilize man-made structure (e.g., culverts, etc.) as nesting habitat. Suitable habitat exists within downstream APE along the banks of San Diego Creek and the more upland areas adjacent to San Joaquin Marsh. While no western burrowing owls or sign (e.g., feathers, white wash, pellets, etc.) were observed during the project surveys, there is potential for the species to occupy the downstream APE based on observations of several small mammal burrows and recorded occurrences near the project site (CDFW, 2014a). All potentially suitable burrows observed were investigated for sign of the species; however, focused western burrowing owl surveys were not conducted.

White-Tailed Kite

White-tailed kite is a California Fully Protected species, and is also afforded protection under the MBTA. Suitable nesting habitat for the species includes medium to high density forest habitats, including willow riparian forest. Disturbed and grassland habitats offer optimum foraging habitat for the species. Suitable nesting habitat exists within the downstream APE, specifically in areas with mature trees. Suitable foraging habitat for the species is present within and adjacent to the project site in areas of ruderal/disturbed habitats supporting sufficient prey populations (e.g., small mammals) for the species. Although no white-tailed kites were observed during the reconnaissance survey, there is potential for the species to nest and forage on or immediately adjacent to the project site.

Southwestern Willow Flycatcher

Southwestern fly catcher is a state and federally listed endangered species. Suitable habitat for this species includes dense riparian tree and brush scrub such as willows and cottonwoods; this species is also commonly found in non-native riparian vegetation such as tamarisk. Habitats need to be at least one-quarter of an acre and 30 feet wide to satisfy this species. The southwestern fly catcher builds its nests amongst dense bushes or small trees 6 to 23 feet above the ground. **S**uitable habitat is present within the San Joaquin Marsh and downstream portions of San Diego Creek.

California Horned Lark

California horned lark is a CDFW Species of Special Concern, and is also afforded protection under the MBTA. Suitable habitat for this species includes the intertidal splash zone along the Pacific coast, valley and foothill grasslands, and meadows and seeps. The upland areas adjacent to the San Joaquin Marsh and San Diego Creek provide moderately suitable nesting and foraging habitat. The California horned lark nests in small depressions directly on the ground, lined with grasses and forbs. While not observed during surveys, there is a moderate potential for the species to nest and forage within the downstream APE based on the presence of moderately suitable habitat.

Yellow-Breasted Chat

Yellow-breasted chat is a CDFW Species of Special Concern, and is afforded protection under the MBTA. Suitable habitat for this species includes riparian woodland, forest, and scrub dominated by willow, cottonwood, tamarisk, and mulefat. The yellow-breasted chat nests within the dense shrubs in the understory, often amongst vines and thorny plants such as blackberry and California wild grape. Taller trees are required within the nesting area to be used as song perches. Suitable habitat is present within the San Joaquin Marsh and downstream portions of San Diego Creek. Additionally, the species has been recorded within the vicinity of San Diego Creek downstream of the project alignment.

California Black Rail

California black rail is a CDFW Fully Protected species. This species requires marsh habitat and prefers tidal salt marshes with dense pickleweed (*Salicornia* sp.) cover. However, freshwater marshes with larger vegetation such as cattails and bulrush are suitable as well. During high tides, the California black rail relies on upland vegetation for cover. This species nests in pickleweed and tall grasses at the high end of the tidal flooding zone. Nests are built at ground level or within several inches of ground level. High quality habitat for the species exists within portions of the San Joaquin Marsh. The species has been previously recorded within Upper Newport Bay, south of the downstream APE.

Least Bell's Vireo

Least Bell's vireo is state and federally listed endangered species. Suitable habitat for this species is primarily lowland riparian areas with dense shrub cover; this species is most often found in vegetation that contains both canopy and shrub layers. Nests are located in areas that are high in willow, mulefat, and tamarisk-dense areas, and are typically within three feet of the ground. Suitable habitat is present within the San Joaquin Marsh and downstream portions of San Diego Creek. Several previously recorded occurrences of the species were identified within the vicinity of the project site.

Mexican Long-Tongued Bat

Mexican long-tongued bat is a CDFW Species of Special Concern and a High Priority for the Western Bat Working Group. This species is found in a variety of habitats including canyons, cliffs, mines, tunnels, and rock fissures. The Mexican long-tongued bat is most frequently found in high desert canyons. Suitable habitat is present within the San Joaquin Marsh and downstream portions of San Diego Creek.

Western Mastiff Bat

Western mastiff bat is a CDFW Species of Special Concern and the Western Bat Working Group lists it as a High Priority. Suitable habitats for roosting include crevices in nearly vertical canyons or cliffs, tunnels, trees, granite rock, and sandstone. These roosting areas need to be at least 6 feet from the ground to allow for adequate take-off; however, roosting sites located 12 feet or higher from the ground is most commonly observed. This species had also adapted to roosting in the rafters and awnings of buildings. Western mastiff bats forage in a variety of habitats including coastal scrub, desert scrub, chaparral, and coniferous and deciduous woodlands. Suitable habitat is present within the San Joaquin Marsh and downstream portions of San Diego Creek. Species has been previously recorded near the San Joaquin Marsh.Nesting Birds

Several nesting bird species, protected under the MBTA and Fish and Game Code, have the potential to occur within the downstream APE. This includes mud nesters such as swallows (*Hirundinidae*) that can nest under the bridges that cross Peters Canyon Channel and San Diego Creek, ground nesting species such as killdeer (*Charadrius vociferus*), and raptors (*Accipitradae, Falconidae,* and *Strigidae*) that can build nests in trees, large shrubs, and infrastructure.

4.4 Jurisdictional Resources

Peters Canyon Channel converges with San Diego Creek south of Barranca Parkway. Upstream of the convergence, Peters Canyon Channel is fed by Como Channel, Edinger Circular Drain, and Valencia Drain, among other minor tributaries. The portion of Peters Canyon Channel and San Diego Creek extending through the project site has been lined along the banks with concrete and riprap throughout; however, the streambed is soft-bottom and supports low-density herbaceous forbs and grasses, while cattail marsh is present in isolated patches.

Within the immediate vicinity of the project site, Peters Canyon Channel transports approximately seven cfs of dry weather flow, and San Diego Creek transports approximately 12 cfs below the confluence of the two drainages, which eventually empty into Upper Newport Bay (ESA, 2014). The San Joaquin Marsh is fed by an existing diversion from San Diego Creek downstream of the project alignment and upstream of Upper Newport Bay. Representative photographs of these features are included in Appendix A of this Volume 2.

Although a formal jurisdictional delineation was not conducted, Peters Canyon Channel, San Diego Creek, San Joaquin Marsh, Como Channel, Edinger Circular Drain, and Valencia Drain were assessed for their potential to be regulated by the USACE, RWQCB, CDFW, and/or local regulatory authorities. The following section provides a discussion of the federal, state and local jurisdiction pertaining to the assessed features.

United States Army Corps of Engineers Jurisdiction

Although a formal delineation of federal wetlands was not conducted, no federal wetlands are anticipated to occur within the immediate vicinity of the project alignment, due to the limited presence of hydrophytic vegetation and lack of mapped hydric soils. However, the San Joaquin Marsh is likely to be considered federal wetlands, due to the presence of extensive hydrophytic vegetation and perennial inundation. Peters Canyon Channel San Diego Creek, Como Channel, Edinger Circular Drain, and Valencia Drain are all considered perennial drainages and thus relatively permanent waters. San Diego Creek flows to Newport Bay and thus a significant nexus with the Pacific Ocean exists; therefore, these perennial drainages would be considered non-wetland waters of the U.S under the jurisdiction of the USACE. The limits of USACE jurisdiction would extend between the identified Ordinary High Water Marsh (OHWM) on both banks of the drainages. These drainages transport water to the San Joaquin Marsh, and thus a significant nexus with the Pacific Ocean exists.

California Department of Fish and Wildlife Jurisdiction

Due to the presence of a distinguishable bed and bank and/or riparian vegetation, Peters Canyon Channel, San Diego Creek, the San Joaquin Marsh, Como Channel, Edinger Circular Drain, and Valencia Drain are likely to fall under CDFW jurisdiction. Additionally, areas where riparian vegetation exists above the limits of USACE jurisdiction (i.e., OHWM) are also likely to fall under CDFW jurisdiction if a hydrologic connection can be determined. The limits of CDFW jurisdiction generally include the full extent of the riparian zone, defined as the top of bank or outside extent of riparian vegetation, whichever area is greatest.

Regional Water Quality Control Board Jurisdiction

Due to the hydrological connectivity between Peters Canyon Channel, San Diego Creek, the San Joaquin Marsh, Como Channel, Edinger Circular Drain, and Valencia Drain with the Pacific Ocean, these features are likely to fall under the jurisdiction of the RWQCB. The limits of RWQCB jurisdiction are most often consistent with the limits of USACE jurisdiction.

City of Irvine Priority Conservation Areas

The City of Irvine General Plan includes a Conservation and Open Space Element that outlines priority areas for conservation of natural resources (City of Irvine, 2012). Element L within this section outlines resource areas of concern considered important due to their functions and values (e.g., ability to transport water, support wildlife and plants, etc.). Because Peters Canyon Channel, San Diego Creek, and the San Joaquin Marsh, transport water and provide habitat for plant and wildlife species, the portions of these features within the City of Irvine are likely to be considered priority conservation areas in accordance with the City's General Plan. The tributaries of Peters Canyon Channel and San Diego Creek associated with the proposed project (i.e., Como Channel, Edinger Circular Drain, and Valencia Drain) are not located within the City of Irvine.

City of Tustin Natural Resource Areas

The City of Tustin General Plan includes a Conservation and Open Space Element, which outlines the preservation of natural and cultural resources (City of Tustin, 2013). Included in the Element are guidelines that prioritize the protection of water resources and riparian habitats. As Peters Canyon Channel, San Diego Creek, Como Channel, Edinger Circular Drain, and Valencia Drain are considered water resources, some of which support riparian habitats, the portions of the drainages within the limits of the City of Tustin are likely to be considered natural resource areas designated for preservation. The San Joaquin Marsh is not located within the City of Tustin.

4.5 Wildlife Movement and Habitat Linkages

The downstream APE does not lie within a recognized habitat linkage corridor as identified by the generally-accepted *California Essential Habitat Connectivity Project* (Spencer et al., 2010). However, the Peters Canyon Channel and San Diego Creek may provide movement opportunities for wildlife traveling from the Upper Newport Bay to open space habitats to the north and east in the Cleveland National Forest, Casper Wilderness Park, and Limestone Canyon Regional Park. Species with the potential to utilize these waterways for movement include northern raccoon and coyote, which were both identified during project surveys; however, other animals such as striped skunk may also move through these areas.

The project area is located within the vicinity of the Pacific Flyway, a significant avian migration route. The San Joaquin Marsh, which is part of the downstream APE, is a recognized stopover location for migratory birds travelling along the Pacific Flyway. Additionally, many of the birds that utilize the marsh could wade and forage within the Peters Canyon Channel and San Diego Creek (and associated tributaries) when water is present.

4.6 Critical Habitat

Under the FESA, to the extent feasible, the USFWS is required to designate critical habitat for endangered and threatened species. Critical habitat is defined as areas of land, water, and air space containing the physical and biological features essential for the survival and recovery of endangered and threatened species. Designated critical habitat includes sites for breeding and rearing, movement or migration, feeding, roosting, cover, and shelter. Designated critical habitats require special management and protection of existing resources, including water quality and quantity, host animals and plants, food availability, pollinators, sunlight, and specific soil types. Critical habitat designation delineates all suitable habitat, occupied or not, essential to the survival and recovery of the species.

The project site and the downstream APE do not occur within any USFWS-designated critical habitats (USFWS, 2014). The nearest identified critical habitat is specified for coastal California gnatcatcher (*Polioptila californica californica*) and occurs approximately two miles southeast of the project alignment (see Figure 6 in the BRTR).

5. Regulatory Framework

The regulatory framework described in Volume 1 of the Biological Resources Technical Report similarly applies to this analysis. The following supplemental information is provided.

Orange County Natural Community Conservation Plan/Habitat Conservation Plan

The Orange County Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP), of which IRWD is a signatory, sets forth a proposed Conservation Strategy that would be implemented by the County of Orange in cooperation with state and federal agencies and Participating Landowners in Orange County. The proposed Conservation Strategy focuses on long-term protection and management of multiple natural communities that provide habitat essential to the survival of a broad array of wildlife and plant species.

The NCCP for the Central and Coastal subregion (Subarea Plan) was adopted in July 1996, establishing the 37,380-acre Nature Reserve of Orange County (NROC). Twelve major vegetation types are preserved by the Subarea Plan, in return for authorization of incidental “take” (*i.e.*, harass, harm, pursue, hunt, shoot, wound, kill trap, capture, or collect) of 39 species of sensitive plants and wildlife within the remaining portions of the 208,000 acre planning area. In addition to the NROC, the Subarea Plan designates Special Linkages and Existing Use Areas, with certain usage restrictions. Signatories of the Subarea Plan, including IRWD, agree to abide by its restrictions (County of Orange 1995a).

The project site is not a part of the NROC. The San Joaquin Marsh and portions of the San Diego Creek downstream of the project site are within the NCCP/HCP covered area, mapped as Non-reserve Open Space (County of Orange 1995b). Specifically, special-status species, including Coulter’s Matilija poppy and least Bell’s vireo, and plant communities, including riparian and coastal marsh habitats are covered under the HCCP/NCP.

6. Potential Impacts

Potential of direct and indirect impacts to biological resources may occur as a result of operation of the proposed project. Under the stipulations of CEQA, potential impacts to biological resources could be considered significant if actions associated with the proposed project:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the

CDFW or USFWS.

- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan.

6.1 Special-Status Species

Operation of the proposed project has the potential to affect special-status plants and wildlife and natural communities within Peters Canyon Channel, San Diego Creek, and IRWD's San Joaquin Marsh due to reduced flow during dry weather periods. Operation of the proposed project has the potential to benefit biological resources due to improvements to water quality through removal of selenium and nitrogen in upstream diversions and reductions in the concentrations of these constituents downstream.

Special-Status Plants

The proposed project would reduce dry weather flow in Peters Canyon Channel downstream of the diversion structures and in San Diego Creek downstream of the confluence with Peters Canyon Channel. As described in the BRTR, there are no special-status plant species or natural communities in Peters Canyon Channel; thus project operation would have no effect on resources in this area. There is little in-stream vegetation or aquatic habitat under existing conditions since the channel is managed for flood control and is periodically cleared through either planned maintenance activity or scour floods; and the banks are comprised of rip-rap or concrete and generally devoid of riparian vegetation (ESA, 2014b).

Similarly, there are no special-status plant species or natural communities in the portion of San Diego Creek between the confluence with Peters Canyon Channel and approximately the I-405 Freeway bridge crossing. Downstream of the I-405 bridge, within San Diego Creek, there are three sediment basins that are operated and maintained by OCFCD [confirm]. These basins are characterized by riparian and fresh water marsh vegetation, and as such have the potential to support special-status plant species. Riparian and aquatic habitat within the sediment basins reach is generally of higher quality than the project area reaches upstream, having more wetted and open water habitat, more emergent vegetation (e.g., cattails), and a riparian corridor/buffer (approximately 40 feet wide) that is maintained along the east bank area of the basins (ESA, 2014b). The sediment basin downstream of Campus Drive has not been recently maintained and the channel bottom supports a significant area of riparian habitat (ESA, 2014b). As described in the Reduced Discharge Technical Study (ESA, 2014b), operation of the project would reduce flow in these sediment basins; however, even during the driest of years, such as 2013 or the period between 1973 to 1977, flow would not be completely eliminated in the basins. Even though flow may be temporarily reduced relative to historic baseline conditions, surface flow and groundwater would remain available to support in-channel vegetation. In addition, the wetted perimeter of the channel and the extent of riparian vegetation would not likely change substantially due to the shape of the sediment basins and their operation and maintenance. Modifications to flow through the basins are buffered as basins fill before spilling over to the next basin. The Reduced Discharge Technical Study demonstrated that as a result of project operation, average depth in the sediment basins would be reduced by 0.44, 0.45, and 0.40 feet for basins 1, 2, and 3, respectively. This represents an average depth reduction of approximately 16 percent during dry season months (April through September, Water Years (WY) 2009-2013). Such a reduction in depth would not have a significant adverse effect on special-status plant species or natural communities that may be present within downstream portions of San Diego Creek.

Additionally, as reported in the Reduced Discharge Technical Study (ESA, 2014b), operation of the project is not expected to affect water levels in the ponds in San Joaquin Marsh, but operation is anticipated to result in increased residence time of water flowing through the ponds. This is due to a potential reduction in available dry-weather flow at the San Joaquin Marsh intake in San Diego Creek. Under existing conditions, approximately 5.7 cfs is currently pumped into the marsh from the creek during normal operations (ESA, 2014b). The diversion rate from the creek into the marsh does not appear to be dependent upon flow conditions within the creek (e.g., generally, at least 5 cfs is diverted into the marsh regardless of the flow rate in San Diego Creek). On average, the proposed project would result in an approximately 19% reduction in San Joaquin Marsh influent from the San Diego Creek, such that the average inflow rate would be reduced from approximately 5.7 cfs to 4.6 cfs (ESA, 2014b). On an average volume basis, the proposed project would reduce the annual influent to the San Joaquin Marsh by approximately 260 million gallons per year (MGY), from 1,345 MGY under existing conditions to 1,085 MGY for project conditions (based on WY 2009-2013). Increased residence time may affect water quality due to changes in parameters such as dissolved oxygen, temperature, total dissolved solids (TDS), etc. Decreases in dissolved oxygen could result in algae blooms and growth of algal mats, and otherwise create conditions that could adversely affect special-status plant species and natural communities. Therefore, mitigation measures are recommended to avoid impacts. As described in the Reduced Discharge Technical Study (ESA, 2014b), an Impact Avoidance Framework (IAF) would be implemented that would include a water quality monitoring program and a series of management actions that would ensure water quality in the San Joaquin Marsh is maintained, including reducing project diversions if and when recirculation and modifications to pond operation do not succeed in maintaining target water quality criteria. With implementation of the IAF during critical dry weather periods, adverse impacts to water quality would be avoided or mitigated, reducing potential impacts to special-status plant species to less than significant levels.

Special-Status Wildlife

As stated above, there is no habitat or natural communities in Peters Canyon Channel downstream of the project diversion points that would support special-status wildlife species; thus project operation would have no effect on resources in this area. Similarly, there is no habitat or natural communities to support special-status wildlife in the portion of San Diego Creek between the confluence with Peters Canyon Channel and approximately the I-405 Freeway bridge crossing. Downstream of the I-405 bridge, there is riparian vegetation, freshwater marsh, and some open water that could potentially support special-status wildlife species (e.g., western pond turtle, great blue heron, southwestern willow flycatcher, least Bell's vireo, yellow breasted chat, and California black rail). As described above, operation of the proposed project would reduce flow in this portion of San Diego Creek, which includes the three sediment basins. Even though flow may be temporarily reduced relative to historic baseline conditions, surface flow and groundwater would remain available to support in-channel vegetation, although the wetted perimeter of the channel and the extent of riparian vegetation may temporarily change. Therefore, operation of the project is not anticipated to impact habitat for special-status wildlife species that may be present within downstream portions of San Diego Creek (e.g., western pond turtle, great blue heron, southwestern willow flycatcher, least Bell's vireo, yellow breasted chat, and California black rail).

As reported in the Reduced Discharge Technical Study (ESA, 2014b), operation of the project is not expected to affect water levels in the ponds in San Joaquin Marsh, but operation is anticipated to result in increased residence time of water flowing through the ponds. This could affect water quality, which in turn could adversely affect vegetation and other habitat features utilized by special-status wildlife. For example, reduction in dissolved oxygen concentrations could result in algae blooms, adverse impacts to benthic communities that form a foraging base for aquatic and avian species, and fish kills. However, with implementation of the IAF during critical dry weather periods, impacts to water quality would be avoided or mitigated to ensure dissolved parameters remain within an acceptable established range. This would reduce potential impacts to special-status wildlife species to a less than significant level (e.g., western pond turtle, great blue heron, southwestern willow flycatcher, least Bell's vireo, yellow breasted chat, and California black rail).

Furthermore, operation of the proposed project has the potential to benefit biological resources due to improvements to water quality through removal of selenium and nitrogen in upstream diversions and reductions in the concentrations of these constituents downstream.

Critical Habitat

Operation of the proposed project would not impact any designated critical habitat. The closest critical habitat to the project site and downstream APE is that for coastal California gnatcatcher, which is identified approximately two miles south.

Jurisdictional Resources

Although a jurisdictional delineation was not conducted for the project, it is likely that federal, state, and local agencies (e.g., CDFW, USACE, RWQCB, County of Orange, City of Irvine, and/or the City of Tustin) would apply jurisdiction over Peters Canyon Channel, San Diego Creek, and the San Joaquin Marsh. As described within the Reduced Discharge Technical Study (ESA, 2014b), operation of the project is anticipated to result in a reduction in dry weather flows within Peters Canyon Channel and San Diego Creek. However, this reduction is not anticipated to cause a reduction in OHWM as the project will not affect wet weather flows which generally characterize the OHWM. Additionally, as described above, the project is not expected to have significant adverse effects on riparian habitat located within Peters Canyon Channel or San Diego Creek. With implementation of the IAF, the project is not expected to have significant adverse effects on riparian or wetland habitat located within San Joaquin Marsh. Therefore, operational impacts to jurisdictional features are considered less than significant with mitigation.

Wildlife Movement and Habitat Linkages

The San Joaquin Marsh is a recognized stopover location for migratory birds travelling along the Pacific Flyway. Many of the birds that utilize the marsh could wade and forage within the Peters Canyon Channel and San Diego Creek (and associated tributaries) when water is present. San Diego Creek and Peters Canyon Channel can be considered movement corridors for these wading bird species, as well as many other common or rare species dependent on water or moisture, such as fish species, amphibians, and certain reptiles (e.g., pond turtles). As described above, operation of the project has the potential to affect water quality in the San Joaquin Marsh, during critical dry years and dry weather periods. Such potential impacts to the marsh would be mitigated through implementation of the IAF as described in the Reduced Discharge Technical Study (ESA, 2014b), ensuring that available habitat at the San Joaquin Marsh is maintained. Thus, the ability of the marsh to function as a migratory stopover also would be maintained with implementation of the IAF. Potential impacts to wildlife movement and habitat linkages associated with the operation of the project would be considered less than significant with mitigation.

Habitat Conservation Plans

Portions of San Diego Creek and the San Joaquin Marsh potentially affected by the operation of the project are within the Orange County NCCP/HCP. As discussed above, the reduction in dry weather flows associated with the operation of the project is not anticipated to have a significant impact upon special-status biological resources within San Diego Creek, including those covered under the Orange County NCCP/HCP. However, operation of the project is anticipated to result in increased residence time for flows through the San Joaquin Marsh during certain dry weather periods. As described above, increased residence time may affect water quality, which in turn could potentially affect biological resources covered by the NCCP/HCP. With implementation of the IAF, however, potential impacts would be reduced to less than significant levels.

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Appendix A
Photographic Log

Photograph 1. Photograph shows riparian habitat within San Diego Creek downstream of the project area, just south of Michelson Drive and east of the San Joaquin Marsh. Note mature tree species present on upper banks of the channel. Facing generally north.

Photograph 2. Photograph shows riparian habitat within San Diego Creek downstream of the project area, just south of Michelson Drive and east of the San Joaquin Marsh. Note mature tree species present on upper banks of the channel. Facing generally northeast.

Photograph 3. Photograph shows riparian habitat within San Diego Creek downstream of the project area, just south of Michelson Drive and east of the San Joaquin Marsh. Note mature tree species present on upper banks of the channel. Facing generally east.

Photograph 4. Photograph shows riparian habitat within San Diego Creek downstream of the project area, just south of Michelson Drive and east of the San Joaquin Marsh. Note mature tree species present on upper banks of the channel. Facing generally southeast.

Photograph 5. Photograph shows riparian habitat within San Diego Creek downstream of the project area, just south of Michelson Drive and east of the San Joaquin Marsh. Note mature tree species present on upper banks of the channel. Facing generally south.

APPENDIX C

Reduced Discharge Technical Study

PETERS CANYON CHANNEL WATER CAPTURE AND REUSE PIPELINE PROJECT

Reduced Discharge Technical Study

Prepared for
Irvine Ranch Water District

December 2014
Revised April 2015

PETERS CANYON CHANNEL WATER CAPTURE AND REUSE PIPELINE PROJECT

Reduced Discharge Technical Study

Prepared for
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December 2014

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REDUCED DISCHARGE TECHNICAL STUDY

Executive Summary

This study assesses the potential benefits and impacts of the Peters Canyon Channel Water Capture and Reuse Pipeline Project's (Project's) proposed diversion of non-storm flows in the Como Channel, Edinger Circular Drain, and Valencia Drain from Peters Canyon Wash (PCW). The purpose of the Project is to remove selenium contributed by these channels to PCW and lower San Diego Creek (SDC) below the confluence with PCW as part of a coordinated effort to comply with a number of discharge permits and anticipated Selenium Total Daily Maximum Loads (TMDLs) issued by the Santa Ana Regional Water Quality Control Board. The channel flows contain selenium due to groundwater seepage impacted by marine geologic formations, which have naturally high selenium content. The Project would have the beneficial effect of reducing selenium loading to PCW and SDC by approximately 40 to 43 percent; the Project would also reduce nitrate loading to PCW by approximately 70 percent.

The proposed channel diversions would also reduce stream flow in PCW, in lower SDC, and to Upper Newport Bay (where SDC drains). Irvine Ranch Water District (IRWD) pumps water from lower SDC into its San Joaquin Marsh (SJM), which provides freshwater wetland habitat and water quality treatment functions including nutrient removal. This assessment shows that the potential impacts of reduced discharge on the extent of aquatic and riparian habitat in PCW and lower SDC are less than significant. The Project would, however, reduce the flow in SDC available for intake to SJM by approximately 19 percent. This impact assessment indicates that SJM water levels, habitat extents, and water quality treatment functions could likely be maintained with this reduced inflow; however, the Project would increase the residence time of water flowing through the marsh, which could increase the potential for reduced water quality conditions that may result in increased algal growth and potentially sustained low dissolved oxygen conditions that may impact the benthic and fish communities.

An Impact Avoidance Framework (IAF) is recommended as the mitigation measure to avoid potentially significant impacts to SJM water quality, thereby avoiding potentially significant impacts to benthic and fish communities and maintaining habitat conditions. We present a conceptual framework for the IAF, which includes an existing water quality sampling program, a trigger for management action, and a description of potential management actions.

An IAF would be developed by IRWD that uses an existing water quality sampling program and implements different management actions or responses to rectify a trend, if observed, towards reduced SJM water quality conditions that could affect habitat conditions. We recommend using average dissolved oxygen measurements as the metric to assess water quality conditions that may

potentially impact algal growth and the benthic and fish communities of SJM. The dissolved oxygen levels will then be compared to baseline levels for the critical conditions (summer dry period) to determine if management actions are needed. Sustained average and daily dissolved oxygen levels that indicate reduced water quality compared to baseline conditions (sustained lower dissolved oxygen levels that are both below and longer in duration than the baseline conditions) from which a trigger will be established to implement temporary management actions until water quality conditions return to the baseline. Temporary management measures to address water quality reductions may include:

- Temporarily modify SJM management/operations to increase the re-circulation of water through SJM and compensate for reduced intake. Re-circulation has the potential to maintain acceptable water quality conditions, but may require increased pumping within SJM.
- Temporarily reduce Project diversions. In this case, a minimum Project diversion rate would be established such that the portion of the diversion required by the City of Irvine's NPDES permit (e.g., 0.06 to 0.23 cfs) would still be met.
- Temporarily modify the way in which ponds within SJM are managed; this would involve manipulating flows and water levels in the ponds (within historic ranges of variability and operations and maintenance) to increase the flow-through rate and reduce residence time.
- Temporarily offset the Project diversion with a supplemental water source, such as potable water, water from Sand Canyon Channel or the University of California at Irvine (UCI) Box Culvert, or water from the Michelson Water Reclamation Plant (MWRP) dewatering wells.

These temporary management actions are only expected to be required during critical periods of low flow such as drought conditions and summer months. Management actions would only be implemented when needed, and are therefore temporary actions that would cease once water quality conditions are determined to be within the baseline conditions for these critical periods. Implementation of the IAF would reduce to less than significant or avoid the potential Project diversion impacts to water quality and habitat conditions within the SJM.

Finally, potential impacts to the UC Irvine (UCI) Marsh adjacent to SJM and Upper Newport Bay are expected to be less than significant. Water transfers from SJM to UCI Marsh, which occur at IRWD's discretion only over approximately 15 to 20 days during the winter, ~~are expected to be maintained~~ would remain unchanged if the project is approved and implemented. SJM water quality mitigation measures are expected to address any potential water quality impact for water transferred to UCI Marsh. Potential impacts to Upper Newport Bay are also expected to be less than significant because flows within the Bay estuary are largely dominated by tidal saltwater flows from the ocean.

1. Introduction

The Irvine Ranch Water District (IRWD), in coordination with the partner agencies of Orange County Flood Control District (OC Flood), City of Irvine, City of Tustin, California Department of Transportation (Caltrans), and the Transportation Corridor Agency (TCA), are collectively seeking a cost-effective solution for the collection, transport, and treatment of nuisance groundwater and surface water flows with high nitrate and selenium concentrations that discharge into Peters Canyon Channel (also referred to as Peters Canyon Wash or PCW). The Peters Canyon Channel Water Capture and Reuse Pipeline ("proposed project") would divert such flows to Orange County Sanitation District (OCSD) for treatment and reuse, and to protect and maintain local water quality. The proposed project would convey flows from four sources to OCSD: Caltrans Groundwater Treatment Facility (GWTF), Como Channel, Edinger Circular Drain, and Valencia Drain, and would include installation of a pipeline conveyance system, diversion structures and pump stations, and ancillary support infrastructure in the cities of Irvine and Tustin, California. The OCSD Dry Weather Urban Runoff Program allows for acceptance of dry weather urban runoff from stormwater pump stations and storm channels. Diversions from the Caltrans GWTF would continue to be sent to OCSD year round, regardless of weather conditions (i.e., this diversion is part of the existing condition). OCSD will not accept nuisance surface flows during wet weather conditions from the Como Channel, Edinger Circular Drain, and Valencia Drain. Consequently, the project proposes to shut down the pump stations at these three sources during wet weather conditions, allowing flows to bypass the diversion pumps and flow into PCW. Therefore, this Reduced Discharge Technical Study focuses on the diversion of flow from the Como Channel, Edinger Circular Drain, and Valencia Drain, and the subsequent reduction in flow to PCW and areas downstream, during non-storm periods.

This report provides some background information on the regional and local hydrologic setting, and presents an analysis of how the proposed reduction in discharge to PCW may impact downstream areas and resources.

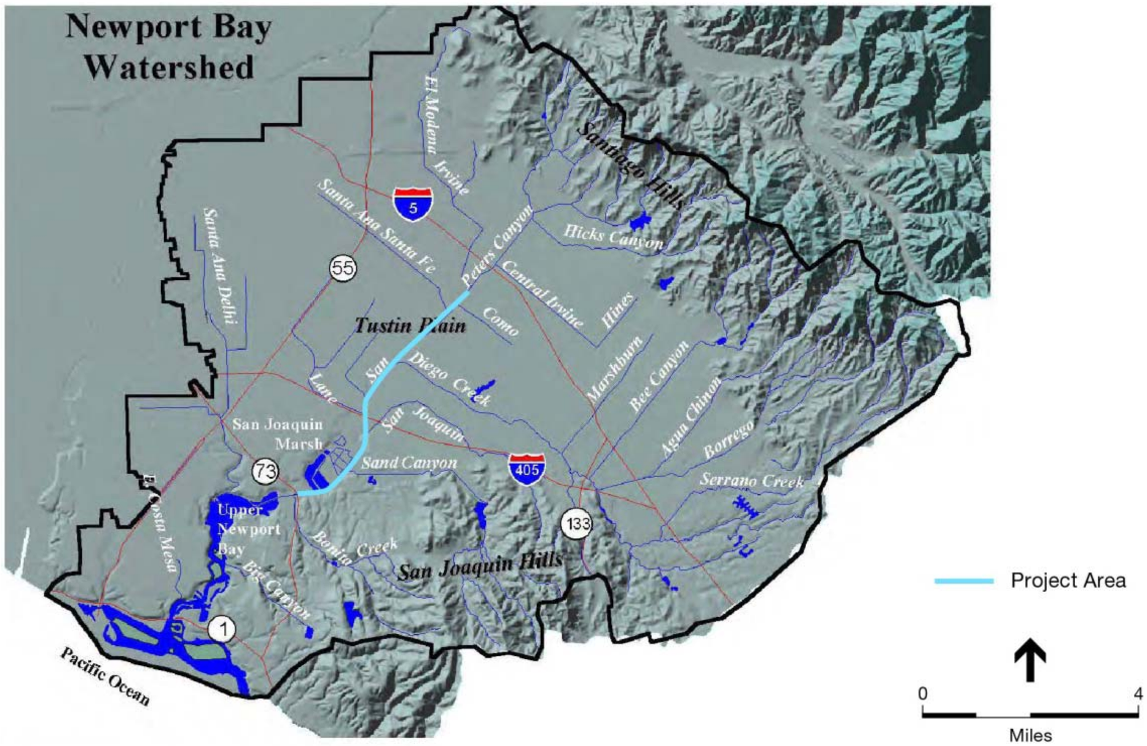
2. Regional Watershed Setting

The project is located within central Orange County, California, within the Newport Bay watershed (watershed; **Figure 1**). The watershed covers an area of approximately 152 square miles[1] and forms the southern end of the Coastal Plain that covers much of Los Angeles and Orange Counties. At the heart of the watershed is the low-lying Tustin Plain, which is bordered by the Loma Ridge and San Joaquin Hills to the southeast, and the Santa Ana Mountains to the northeast (Meixner et al., 2004). The watershed area has fairly flat topography that rises gradually in a northeast direction toward the alluvial fans emanating from the Santa Ana Mountains. Surface elevations within the watershed range from sea level at Upper Newport Bay, to 400 feet above mean sea level (amsl) just above the El Toro Marine Corp Air Station, to elevations exceeding 1000 feet amsl in the foothills (Hibbs, 2008).

Two principal surface channels, PCW and San Diego Creek (SDC), drain the watershed southwestward toward the Pacific Ocean. The majority of flow enters Upper Newport Bay

1 Excluding the Santa Ana Delhi channel watershed.

through SDC, while most of the remaining portion enters through the smaller Santa Ana-Delhi Channel. PCW is the primary tributary to SDC.



SOURCE: SARWQCB (2009)

Peters Canyon Channel Water Capture and Reuse Pipeline Project / 130993

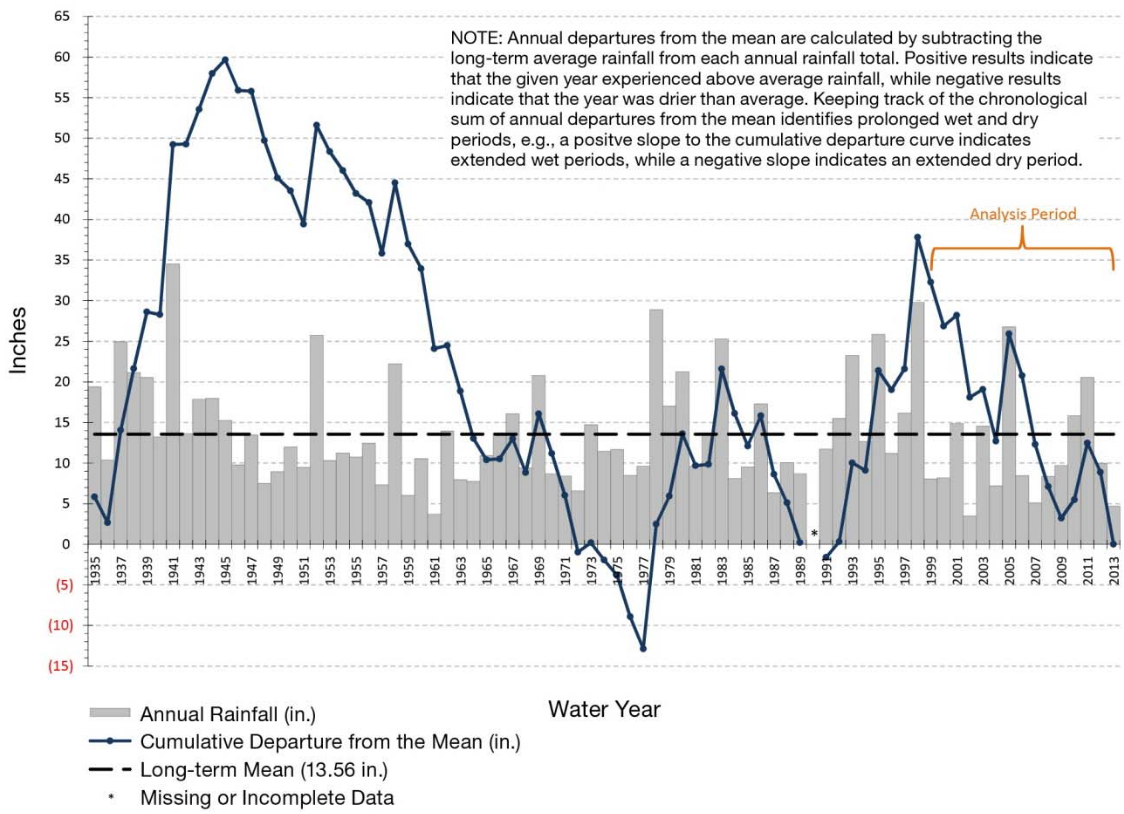
Figure 1
Newport Bay Watershed

2.1 Climate and Precipitation

The Newport Bay watershed is located in an area generally characterized by a Mediterranean to semi-arid climate, with hot, dry summers, and mild, wet winters. Based upon long-term (Water Year [WY][2] 1935-2013) records for Santa Ana, California, the average annual rainfall in the area is about 13.6 inches, most of it occurring between November and March (NCDC, 2014). **Figure 2** summarizes the long-term, annual precipitation history of the area as well as the cumulative departure from the mean. The cumulative departure plot is useful for identifying wet and dry climatic periods, and providing a context for the duration and variability of historical cycles. Negatively sloping line segments indicate periods with below average precipitation (i.e., generally dry periods), whereas positively sloping line segments indicate periods with above average precipitation (i.e., generally wet periods). For example, the period from WY 1946 through 1977 was generally a long, dry period, and the period from WY 1992 through 1998 was a relatively short, wet period. Although 2013 was one of the driest years on record, in a cumulative

2 A Water Year extends from October through September of the given year. For example, WY 2014 comprises October, 2013 through September, 2014.

sense, 1973 to 1977 was the driest collection of years as indicated by the greatest cumulative departure from the mean rainfall as shown in Figure 2.



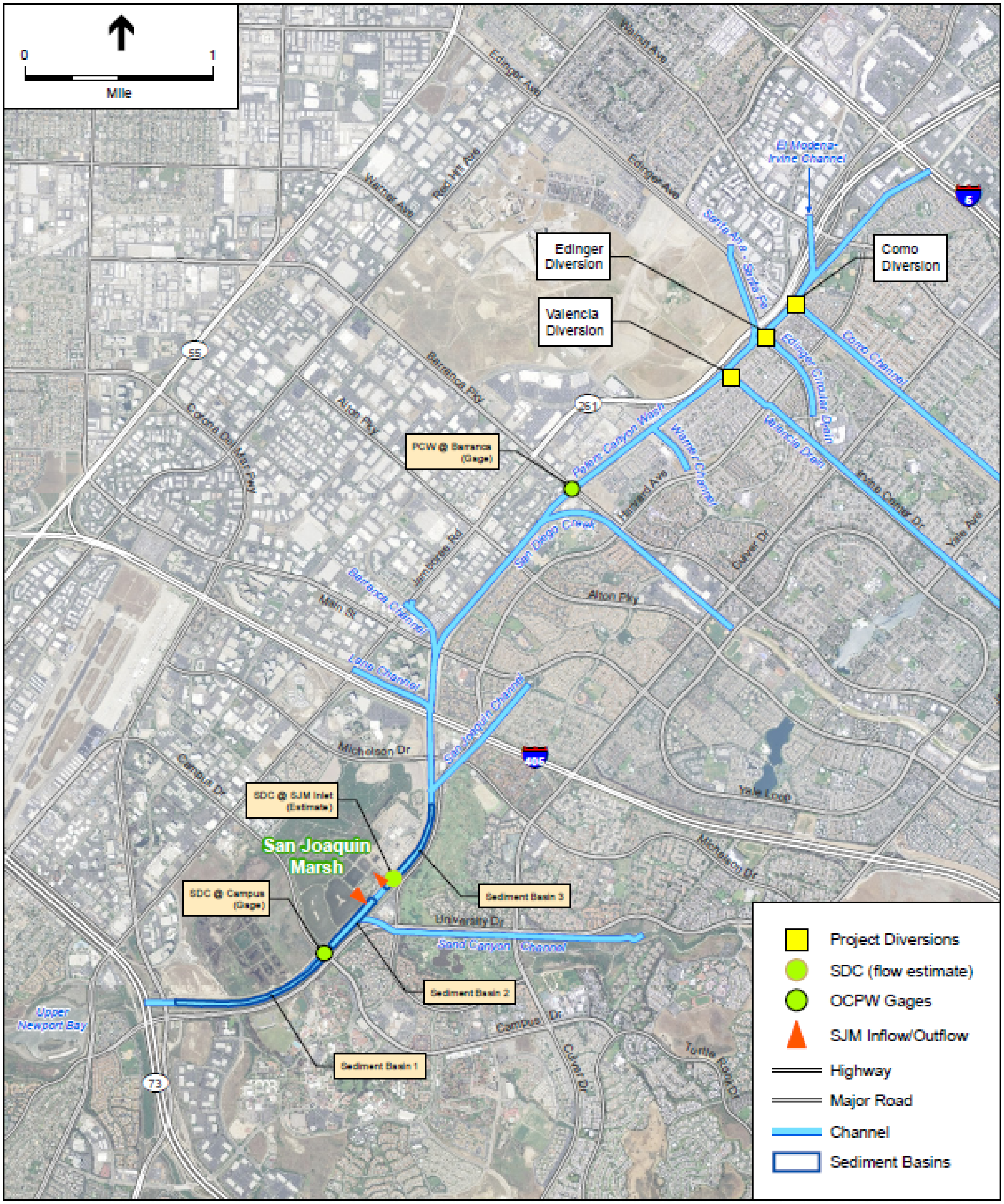
SOURCE: NCDC (2014)

Peters Canyon Channel Water Capture and Reuse Pipeline Project / 130993

Figure 2
Annual Rainfall, Santa Ana, California

2.2. Stream Flow

Continuous and field-measured stream flow data are available from Orange County Public Works (OCPW) for PCW (at Barranca Parkway) and SDC (at Campus Drive) (OCPW, 2014a, 2014b) (stream gages, see **Figure 3**), and from IRWD for the SJM (IRWD, 2014b) (measured inflow and outflow to and from SDC, see **Figure 3**). SJM operations began in 1997, and consistent flow and outflow records did not begin until the fall of 1998 (i.e., WY 1999).



SOURCE: NAIP (Aerial), 2012

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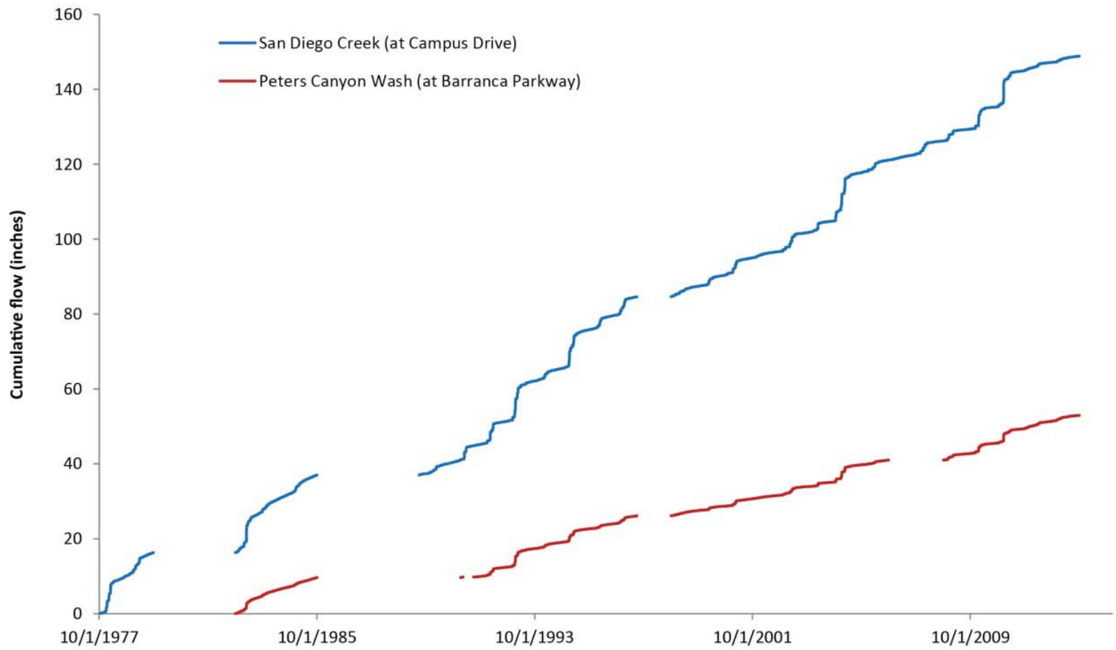
Figure 3

Project Area and Drainage Channel Overview

This section assesses stream flow in conjunction with precipitation data (from Section 2.1) to identify an appropriate analysis period for this study. **Figure 4** plots cumulative stream flow for PCW and SDC. The cumulative flow plot shows steep increases due to storm flow events, followed by periods of gradual increase due to low flows or base flows. This figure shows general trends in stream flow over time, such as the extended period of low flows from 2009 to present as indicated by a long and gently-sloping curve after 2009 compared to the prior period. The 2009 – 2013 period of low flow corresponds to an extended drought period with less than average precipitation (i.e., an increasing cumulative departure from mean precipitation as shown in **Figure 1**).



SOURCE: OCPW (2014a; USGS 2014a, 2014b)

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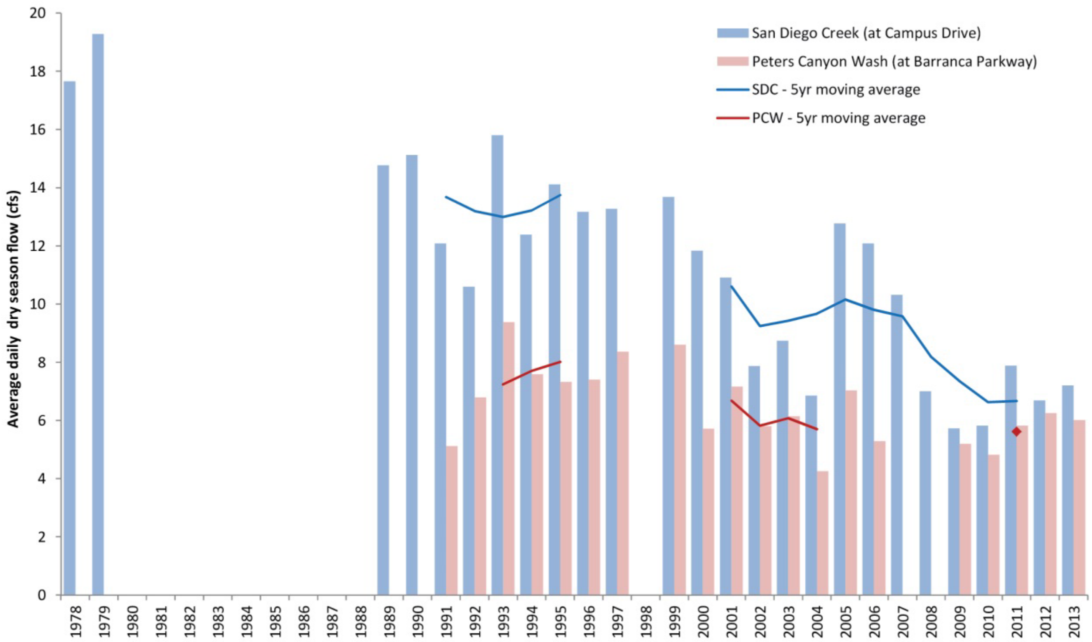
Figure 4
Cumulative Flow Summary

To further analyze periods of base flow separate from storm flows, **Figure 5** plots the average dry-season (April – September) flow by year, with a 5-year moving average. This figure shows that the period from 2009 – 2013 selected for the reduced discharge analysis represents the period with the lowest average dry-season flow over the period for which flow data is available (1977 – 2013). The 1973 – 1977 period was drier than 2009 – 2013 (see **Figure 2**); however, flow data is not available for 1973 – 1977. The period 1989 – 1991 represents a dry period comparable to 2009 – 2013 in terms of precipitation (**Figure 2**); however, **Figure 5** shows that dry-season low flow in SDC was generally greater during 1989 – 1991 than 2009 – 2013. This indicates that contemporary low flows are less than occurred historically for similar climate conditions. A possible explanation is that contemporary low flows are reduced due to water conservation efforts implemented in the 1990s and early 2000s (e.g., resulting in reduced irrigation runoff).



SOURCE: OCPW (2014a; USGS 2014a, 2014b)

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Figure 5
Average Low-Flow Summary

This study also analyzes the period from 1999 – 2013, which is the period over which the SJM has been in operation (and SJM operations data is available). The longer 1999 – 2013 period also includes wet years (with above average precipitation per **Figure 1**) in addition to an extended drought period. The 2009 – 2013 period likely represents both contemporary baseline conditions and the period with the lowest non-storm flows on record, and the period for which potential impacts of the project would be greatest.

In summary, this report analyzes two time periods:

1. 1999 – 2013 as a contemporary period/baseline condition that captures the period for which SJM has been operational (and SJM operations data is available for assessing impacts to SJM), and includes wet years in addition to an extended drought period.

2. 2009 – 2013 as a subset of the analysis period representing baseline conditions and a period of extended drought for which potential impacts of the project would be greatest.

2.3 Hydrogeology

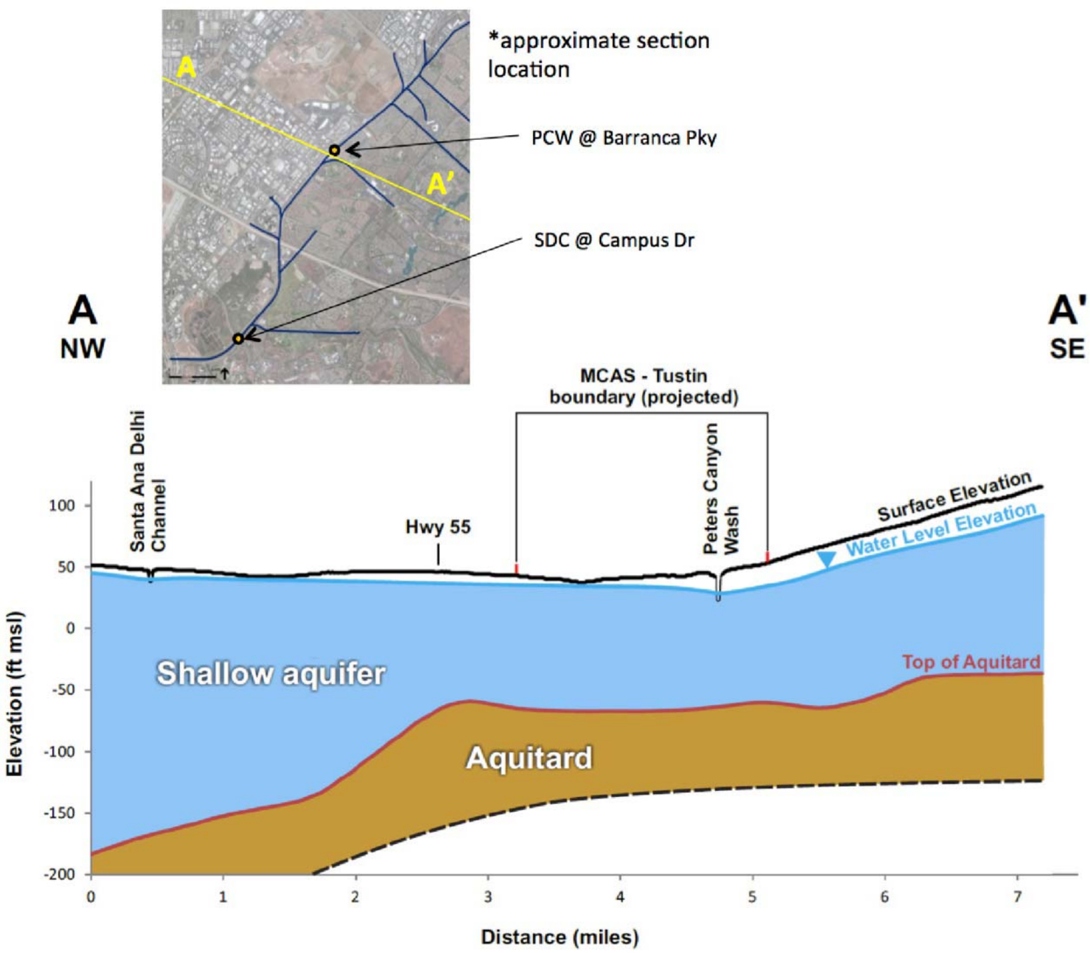
Historically, central Orange County had a marshland named the "La Cienaga de las Ranas," or "Swamp of the Frogs," until development of the area occurred in the early 20th century (DBSA, 2013). Concurrent with early agricultural development, surface and subsurface flow within the marsh area was largely drained by a constructed and/or altered surface channel network. Prior to development, surface water flowing into the marshland areas had no natural outlet for flow, other than during large flooding events. Evapotranspiration within the marsh was likely the greatest avenue for flux of water out of this area (DBSA, 2013). Under present conditions, groundwater discharge to surface water channels is the primary route for groundwater flow out of this area (e.g., Meixner et al., 2004). Limited stream gaging has confirmed that surface water channels generally or typically experience gaining conditions, and groundwater seeps are commonly observed on channel walls and within subsurface drains throughout this area (e.g., Meixner et al., 2004; Hibbs et al., 2008). Most recently, a hydrogeologic investigation was completed by Daniel B. Stephens & Associates, Inc. (DBSA) (2013) to better understand the regional selenium flux. DBSA (2013) studied the reaches of PCW and SDC between the 405 Freeway and Interstate 5. DBSA (2013) showed that the upwelling and discharge of groundwater into surface water channels is likely the pervasive condition in these reaches of PCW and SDC.

DBSA (2013) included a characterization of the shallow aquifer and a groundwater balance analysis. The shallow aquifer is the source of selenium-bearing groundwater discharging to surface water channels. The historical presence of the Swamp of Frogs, as well as the regional topography, indicates that the studied portion of the PCW and SDC watersheds (i.e., between the 405 Freeway and Interstate 5) is an area of shallow groundwater convergence (DBSA, 2013). The groundwater convergence zone is indicated by groundwater elevation contours that appear to "pinch in" around the surface water channels. DBSA (2013) used data from a number of active groundwater monitoring wells to show that a groundwater convergence zone exists in the direct vicinity of PCW and SDC (south of its confluence with PCW), with groundwater flowing into this area from several directions. Groundwater converging on this area appears to be generally discharging to PCW and SDC (**Figure 6**) during most conditions, consistent with previous stream flow measurements that indicated groundwater discharge in this area (e.g., Meixner et al., 2004). Elevated selenium in the shallow groundwater is due to leaching of up-gradient outcrops of marine geologic formations naturally high in selenium content, and subsequent sequestration and concentration by the Swamp (DBSA, 2013).

The approach utilized in the DBSA (2013) groundwater balance was to estimate, based on available data and hydrogeologic analyses, the magnitude of all groundwater inputs and outputs for the shallow aquifer within the bounds of their study area. On average, 80% of total groundwater input was estimated to originate from lateral groundwater inflow from up-gradient areas. Lateral inflow is a key component of the water balance that maintains relatively stable shallow groundwater elevations, flow direction, and dry-weather selenium transport over time (DBSA, 2013). The principal groundwater output component was determined to be passive discharge to surface water channels (i.e., 65% of groundwater output, on average). The passive discharge of groundwater to surface channels was estimated two ways:

1. Using the remaining components of the water balance to estimate groundwater discharge to surface channels, and

2. Using available surface water data to estimate the baseflow component of the hydrograph.



SOURCE: DBSA (2013)

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Figure 6
Hydrogeologic Cross-Section

For the second method, the daily flow records for SDC at Campus Drive were processed with digital filtering methods, which were used to estimate the baseflow component of the surface water flow hydrograph (Lim et al., 2005, *as cited by* DBSA, 2013). The estimated average (2005 - 2011) annual total baseflow components for SDC using the digital filtering method was 10,451 acre-feet per year, or 14.4 cubic feet per second (cfs).For the dry season, the average total baseflow component was 8.9 cfs, and for the wet season it was 19.9 cfs.

3. Project Area Setting

Our analysis is limited to the project area which, as defined herein, includes the reach of PCW from just upstream of the Como Channel, to the SDC confluence, and SDC from the PCW confluence to the mouth of SDC at Upper Newport Bay (**Figure 3**). This is the operational area of potential effect for the project (i.e., the area that would be affected by operation of the proposed diversion structures). Within the project area, our analysis is specifically focused on potential impacts to PCW, SDC, and the San Joaquin Marsh (SJM). Potential effects on Upper Newport Bay are discussed in Section 5.1. Since Upper Newport Bay is a tidal estuary with flows dominated by ocean tides, there is little potential for the reduced PCW discharge to affect Upper Newport Bay.

3.1 Peters Canyon Wash

The three project diversions drain directly to PCW, an urbanized channel that flows in a southwesterly direction through the Tustin Plain. In the project area, PCW receives surface flows from multiple tributary channels and drains (**Figure 3**) as well as inputs from shallow groundwater within the former Swamp of the Frogs. PCW is, for the most part, a trapezoidal flood control channel, comprised of a relatively wide, sandy bed (from 70 to 160 feet in width between the bank toes) and rip-rap or concrete banks, and generally lacking any notable riparian habitat. Within the project area, much of the channel is managed for multiple purposes.

PCW, from Barranca Parkway upstream to Interstate 5, is an Orange County Flood Control District (OCFCD) facility that is jointly used by IRWD for the purpose of building, operating, and maintaining facilities identified in the IRWD Natural Treatment System (NTS) Plan. The primary function of this reach is flood control, and vegetation and sediment within this section of the channel are periodically removed and/or maintained to provide adequate flood control and conveyance. Based on information provided by Orange County Public Works (OCPW, 2014), since 2003, sediment and/or vegetation removal has occurred several times.

3.2 San Diego Creek

SDC is the primary surface water input to Upper Newport Bay, and receives surface flows from a 119 square mile watershed that includes the Santiago and San Joaquin Hills, as well as much of the Tustin Plain. Lower SDC, from downstream of PCW confluence through the Sediment Basins (a series of three in-channel basins between the 405 Freeway and Upper Newport Bay built for sediment control purposes), is part of the project area. The downstream end of the Sediment Basins (Basin 1) is tidally influenced.

Like PCW, lower SDC is an urbanized, trapezoidal channel that has developed into a multi-purpose OCFCD facility that provides flood control protection, sediment capture, and nutrient removal. Riparian and aquatic habitat within the Sediment Basins is generally of higher quality than the project area reaches upstream (in SDC and PCW) owing to more wetted and open water habitat, more emergent vegetation (e.g., cattails), and a riparian corridor/buffer (approximately 40 feet wide) that is maintained along the east bank area of the basins.

3.3 San Joaquin Marsh

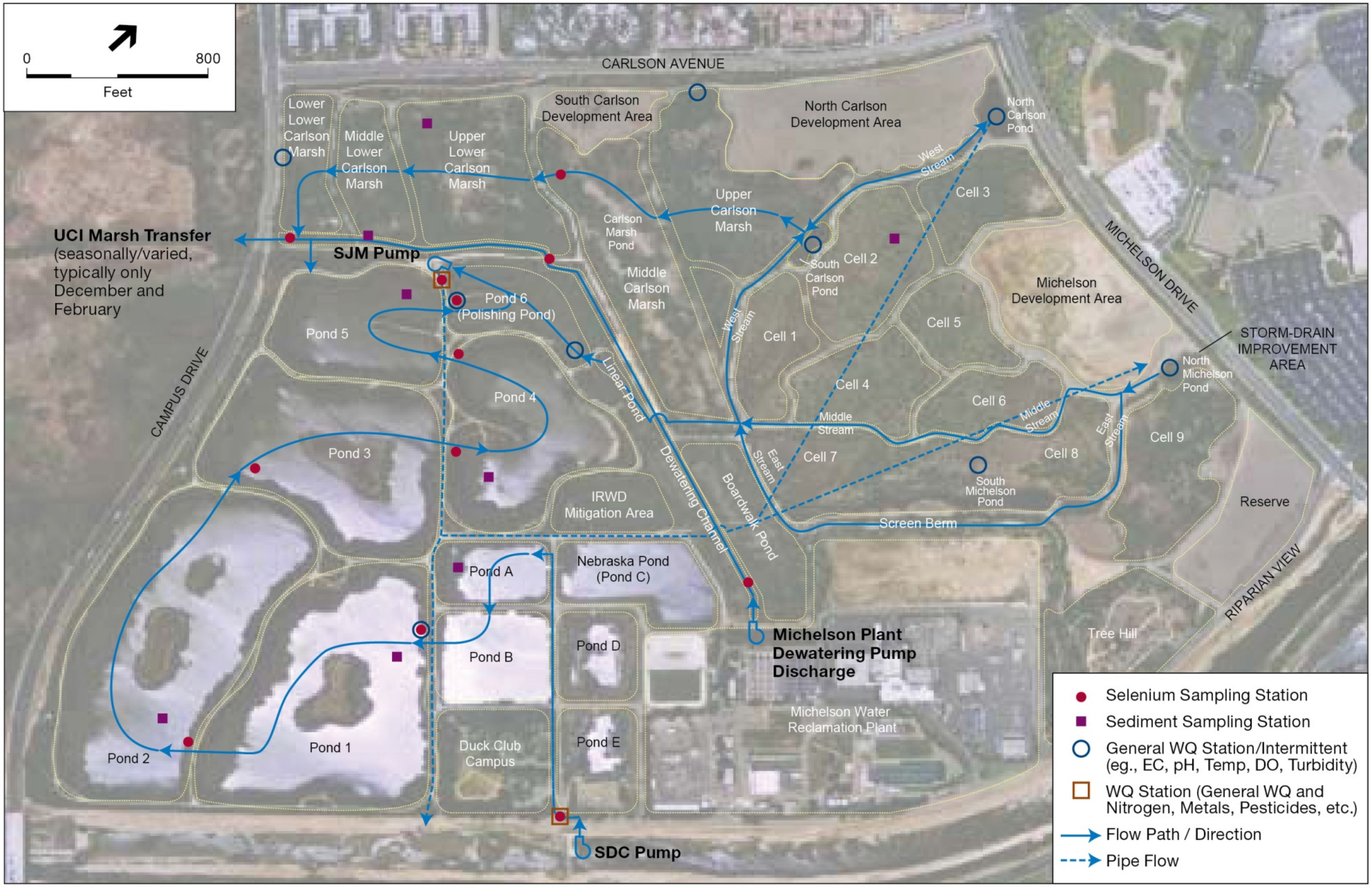
Adjacent to lower SDC (Figure 3), the approximately 300-acre IRWD SJM is one of the largest inland freshwater marsh systems in southern California. Located on land impacted by years of urban runoff and the construction of SDC into a flood control channel, the marsh was the epicenter of a major wetland restoration effort in the 1990s and early 2000s. The marsh is owned and operated by IRWD and is split roughly equally between more natural riparian wetlands to the north and engineered surface water treatment wetlands to the south. Both the riparian and treatment wetlands were designed to provide habitats for a broad range of wildlife, but the treatment wetlands were also designed to reduce eutrophication in Newport Bay by removing pollutants – especially nitrogen – from SDC before they enter the Bay. Pollutant removal/transformation is achieved via a number of physical (e.g., sedimentation) and biogeochemical processes. Selenium and other trace metals are also monitored in the influent and effluent of SJM per guidelines established by IRWD, the Santa Ana Regional Water Quality Control Board (SARWQCB), and other regulatory agencies, though the marsh was not designed with selenium reduction explicitly in mind.

3.3.1 Operations and Maintenance

IRWD established an operations and maintenance manual for the SJM in 2006 describing a water management plan, water quality sampling guidelines, a maintenance, monitoring, and mitigation management plan, and other related elements. The primary objectives of the water management plan are to balance influent and effluent flows, enhance water quality, maximize nutrient removal, provide constant flows, and accommodate the fall migration of, and provide mudflat and shallow water habitat for, shorebirds and waterfowl. The plan also describes the timing, depth, and duration of draw-down and flooding events that are meant to simulate more natural hydrologic phenomena (e.g. late summer draw-down, winter flooding) to improve habitat conditions for native plants and wildlife in riparian habitat areas of the Marsh.

The primary water supply to the SJM is flow diverted from SDC. IRWD has a permit from the State Water Resources Control Board (SWRCB) to divert up to 5 cubic feet per second (cfs) (max of 3,600 acre-feet annually) from SDC into the SJM (Permit #20979). Available data (IRWD, 2014b) indicate that, under existing conditions, approximately 5.7 cfs is currently pumped into the marsh from the creek and approximately 5.3 cfs is returned, on average, during normal operations (resulting in a net loss, or "use", of less than one half of a cubic foot per second). The diversion rate from the creek into the marsh does not appear to be dependent upon flow conditions within the creek (e.g., generally, at least 5 cfs is diverted into the marsh regardless of the flow rate in SDC). Other flow inputs to the SJM include storm runoff from the surrounding watersheds and the Michelson Water Reclamation Plant (MWRP) dewatering wells. The MWRP dewatering wells began discharging directly to the SJM (instead of to SDC) in 2006. Occasionally, the marsh returns more water than it diverts due to the influence of local groundwater interactions and surface water runoff (IRWD, 2011).

The management and movement of water through the SJM and adjoining areas are relatively complex. The discussion below provides a simplified overview with a focus on the areas and practices relevant to our analysis. **Figure 7** presents an overview of the SJM and a simplified depiction of normal operations. IRWD maintains two intake pumps to the SJM from SDC: one has a capacity of 3,200 of gallons per minute (gpm) (or 7.1 cfs) and the other has a capacity of 3,800 gpm (or 8.5 cfs). Usually only one pump is operating at any given time (typically the



SOURCE: IRWD (2014)

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Figure 7
San Joaquin Marsh
Normal Operations and
IRWD Sampling Stations

smaller one), and only very occasionally are both pumps operating (e.g., when IRWD has had to drain one or more of the Sediment Basins at the County's request so that the County could perform maintenance). The intake pump to the SJM generally operates 24 hours a day, 7 days a week, except during the summer. In the summer, generally from about June 1st through the first week of October (though it varies from year to year), the pumps are not operating during peak energy demand (from approximately 12 – 6 pm each day) and, as a result, are usually on for only about 18 hours per day, 7 days a week over this time period. When operating under this reduced schedule, IRWD typically uses the larger pump. On average, the pumps are shut down completely for about 6 to 8 days per year for one reason or another (e.g., maintenance, a large storm event, etc.).

Using the intake pump(s), water is diverted from SDC and moved through the SJM over approximately 10 to 14 days, generally flowing through Ponds A, B, and 1-6, before being discharged back into the creek. However, a portion of the effluent from Pond 6 is recirculated to the riparian wetlands located in the northern part of the marsh (e.g., Cells 1-9, Carlson Marsh; see **Figure 7**). The effluent from Pond 6 is effectively split at the SJM Pump Station, which currently pumps approximately 1,100 gpm (or 2.45 cfs) north to Cells 1 through 9 for re-circulation (see **Figure 7**), with the remaining effluent stream being discharged back to SDC.

For a short period of time (approximately 15 to 20 days) each winter (typically anywhere from mid-December through February), water is diverted from the SJM to the University of California at (UC) San Joaquin Marsh Reserve to the south in order to help fill it to capacity (see **Figure 7**). When this occurs, the rate at which water is diverted to Cells 1 through 9 (and subsequently to the UC's Marsh Reserve) is increased from 2.45 cfs to up to approximately 3.6 cfs, on average.

As described in the SJM operations and maintenance manual, water elevations in the SJM can be manipulated so long as the following objectives are met: constant water flow is maintained, and no damage to existing facilities (i.e., roads, trails, berms, observation areas, established vegetation, re-vegetation areas, mitigation sites, flow control structures, nesting sites, etc.) would be incurred. Ponds 1 and 2 are subject to periodic drawdowns lasting up to a maximum of eight weeks for routine maintenance. These ponds are presently drawn down once a year and the timing of pond drawdowns are coordinated to minimize the potential impacts to vegetation and ground nesting shorebirds and waterfowl. Typically Pond 1 will be drawn down early in the season (May, June) and Pond 2 later in the season (July, August). All ponds are typically full in October to accommodate the fall migration of shorebirds and waterfowl. Drawdowns to repair equipment malfunctions (for example, broken weir gates) are not common, but when they do occur they are as short as practicable. Water levels in ponds 1 through 5 are usually raised to flood the lower portions of willow and mulefat scrub and the islands for one to two week periods at least twice during the fall and winter rainy season. This simulates the effects of seasonal flooding; the decision to do so is based on the overall health and success of the lacustrine fringe within the SJM. In general, the maximum and normal levels (in feet) for the Ponds are as follows: Pond A (4.0, 3.4), Pond B (4.0, 3.4), Pond 1 (5.2, 3.3), Pond 2 (5.0, 3.2), Pond 3 (5.4, 2.6), Pond 4 (5.0, 4.0), Pond 5 (8.1, 5.2), and Pond 6 (9.7, 6.5) (IRWD, 2014).

3.3.2 Existing Water Quality Sampling

IRWD's Existing San Joaquin Marsh Water Quality Sampling

The existing water quality sampling performed by IRWD for the SJM is guided by the Natural Treatment System (NTS) Master Plan (Geosyntec, 2005). The NTS Master Plan was developed by the IRWD to address water quality issues in the San Diego Creek watershed within IRWD's jurisdiction, the SJM (specifically, Ponds A, B, and 1 through 6) is one of the main facilities within the NTS Master Plan. The primary objectives of the NTS Plan include assisting the County and Cities in meeting TMDL requirements, improving water quality, and, where feasible, enhancing habitat.

Under the existing sampling program, IRWD samples the water column for basic constituents (conductance, pH, dissolved oxygen, and temperature) as well as for nutrients and selenium, among a few others. Sediment samples, for selenium, are also taken every four years at locations throughout the SJM. The location and frequency of IRWD's and the Nitrogen and Selenium Management Program's (NSMP) existing SJM sampling program is summarized in **Table 1** and **Figure 7**. (The NSMP is discussed below.) Based on their water quality and flow data, IRWD provides the City of Irvine with annual estimates of the amount of selenium and nitrogen removed from San Diego Creek by the SJM, and the City in turn uses these estimates as a basis for acquiring water quality offset credits under their TMDL.

TABLE 1
EXISTING SAN JOAQUIN MARSH WATER QUALITY SAMPLING[(1)]

Constituent(s)	Matrix	# of Locations	Frequency
General Water Quality (e.g., electrical conductivity, pH, temperature, dissolved oxygen, turbidity)	Water	9	Intermittently
Water Quality (General Water Quality parameters, plus chlorophyll, nitrogen[(2)], metals, etc.)	Water	2 (inlet/outlet)	Monthly
Pesticides	Water	2 (inlet/outlet)	Twice a year
Selenium (total, dissolved, and speciation)	Water	12 (including marsh inlet/outlet)	Monthly
Selenium	Sediment	9	Every four years
Selenium (NSMP)	Tissue (fish and bird)	1 (Pond 2)	Annually

(1) All existing data collection described in the NTS Master Plan (Geosyntec 2005) except the selenium tissue monitoring that is described in the Nitrogen and Selenium Management Plan (2013)
(2) Includes nitrate, nitrite, and ammonia.

Nitrogen and Selenium Management Program

In addition to the existing water quality sampling undertaken by IRWD for the SJM, the Nitrogen and Selenium Management Program (NSMP), which included IRWD as a Funding Partner, also implements a monitoring program that includes San Diego Creek and the SJM among its monitoring sites. NSMP Funding Partners have committed to developing implementation tools for selenium and nitrogen reduction, and most of these are described in the 2013 NSMP BMP

Strategic Plan (hereinafter referred to as BMP Strategic Plan) (NSMP 2013). The BMP Strategic Plan is a phased plan to attain nitrogen reductions and selenium reductions to help meet selenium fish tissue and bird egg targets to protect beneficial uses in the Santa Ana-Delhi Channel and San Diego Creek watersheds. As part of the 2013 BMP Strategic Plan, the Selenium Regional Monitoring Program (Selenium RMP) is currently being implemented in the Newport Bay watershed.

The Selenium RMP includes monitoring stations at Peters Canyon Wash at Barranca Parkway, at San Diego Creek at Campus Drive, and at the SJM. Water and sediment sampling under the Selenium RMP includes a number of constituents (not just selenium), such as nitrogen and total dissolved solids. Sampling at the channel locations (i.e., Peters Canyon Wash and San Diego Creek) includes monthly water sampling and quarterly sediment sampling; annually, a more detailed, speciation analysis is carried out for the selenium samples. The SJM (Pond 2) is sampled annually under the Selenium RMP, and includes detailed water and sediments sampling (i.e., analyses which include selenium speciation) as well as fish tissue and bird egg sampling. The Selenium RMP is managed by Orange County Public Works (OCPW).

3.3.3 Nitrogen and Selenium Removal

The SJM provides nutrient removal (approximately 60%) as well as other water quality improvement functions, including about 30% selenium removal (NSMP Working Group, 2013). An analysis of SJM selenium dynamics (Geosyntec, 2003) indicated that selenium reduction occurs through sequestration (and possibly volatilization) within SJM. Since approximately 2002, IRWD has measured selenium concentrations in the SJM influent and effluent. Beginning in 2006, the MWRP dewatering wells discharged to SJM, contributing inflow and selenium to SJM. The average flow rate from these dewatering wells is generally less than 0.5 cfs (IRWD, 2014c). IRWD also periodically collects selenium and water quality data for the dewatering discharge.

Note that selenium's biogeochemistry allows it to transform between four different oxidation states: selenide (-2), elemental selenium (0), selenite (+4) and selenate (+6). From SARWQCB (2009):

> *In general, selenate (Se^{6+}) has a high solubility and is the most mobile in water. Selenite (Se^{4+}) is soluble in water but its strong affinity to be adsorbed to soil particles greatly reduces its mobility. Elemental selenium (Se^{0}) exists in a crystalline form and is usually incorporated in soil particles. Selenide can occur as metal selenides (similar to metal sulfides), which tend to be deposited in bottom sediments, or as organic selenides (primarily as dimethylselenide) through methylation and volatilization….While conversions from selenate to selenite and then to organic forms of selenium (via reduction or biological uptake) can occur fairly rapidly, conversion of organic selenium or selenite back to selenate may take thousands of years.*

Most of the selenium in local surface-and groundwater is in the form of selenate, while up to approximately 8 and 2 percent is in the form of selenite and organic selenium, respectively (Meixner at al. 2004). Under reducing, or anoxic, conditions in water, elemental selenium (Se0) and selenide may form and precipitate out of the water column and be sequestered within bottom sediments.

4. Reduced Discharge Analysis

The purpose of the reduced discharge analysis is to assess the potential impacts of the Project diversion on downstream aquatic resources, focusing on PCW, SDC, and the SJM. Implementation of the Project would reduce the amount of selenium delivered to PCW and areas downstream and provide an environmental benefit. It would, however, also reduce the amount of water in the channel, particularly during non-storm periods. Focusing on non-storm period impacts the reduced discharge analysis specifically includes quantifying the reduction in selenium loading, assessing potential impacts to in-channel habitat availability and quality in PCW and SDC, and assessing potential impacts to the SJM.

4.1 Approach and Methods

The reduced discharge analysis is based on available flow and water quality data. As discussed in Section 2.2, we have constrained our analysis to the period of WY 1999-2013 during which SJM was in operation and operational data is available. We also focus on the period of WY 2009-2013 as an extended drought period over which potential project effects would be greatest. Generally, our analysis looks at flow and habitat in PCW and SDC, as well as the flow available for diversion to SJM, under existing and project conditions. For analyzing the potential project impacts, WYs 2007 and 2008 were excluded, because no reliable flow data were available for this time period for the PCW gage.[3]

To analyze project conditions, we estimated (or recalculated) what the average, daily flow (non-storm) would be in PCW and SDC were the project diversions active (i.e., if all of the flow in the Como Channel, Edinger Circular Drain, and Valencia Drain were being diverted to the OCSD). We analyzed the change in flow at three locations along the main channels: PCW at Barranca, SDC at the SJM inlet, and SDC at Campus, as well as for the SJM inlet and outlet (from and to SDC). In short, on a daily time step, we recalculated the flow record over the analysis period to account for the effect of the project diversion. However, this first required some key adjustments to the existing data as described in Section 4.1.1 below.

Note that, as discussed in Section 3.3.1, the SJM intake pumps are typically operated for about 18 hours per day during the summer. During these times, the actual inflow pumping rate is greater than pumping rate averaged over the full day. However, data are not readily available with respect to pumping and intake rate changes during the course of a day, and the variations in flow rates within a day are averaged out in the analysis, which is performed on a daily time step using daily average flow data. During periods when the SJM pump is run for 18 hours per day, the SDC intake basin (Sediment Basin 3) water level may be drawn down temporarily when the pump is running and then fill back up with continuous flow from SDC. These daily variations are not

3 Due to construction projects within Peters Canyon Wash over this time period (WY 2007-2008), the gage at Barranca Parkway was not in operation and/or the data were not reliable.

analyzed; however, the daily average flow rates and volumes used within the analysis would be unchanged and are valid.

4.1.1 Stream Flow Data and Adjustments

In order to analyze the potential impact of the project diversion, we needed to make some adjustments to the existing data to better account for the project diversion rate, flow gains and losses within the project area, and the flow potentially available just upstream of the SJM inlet.

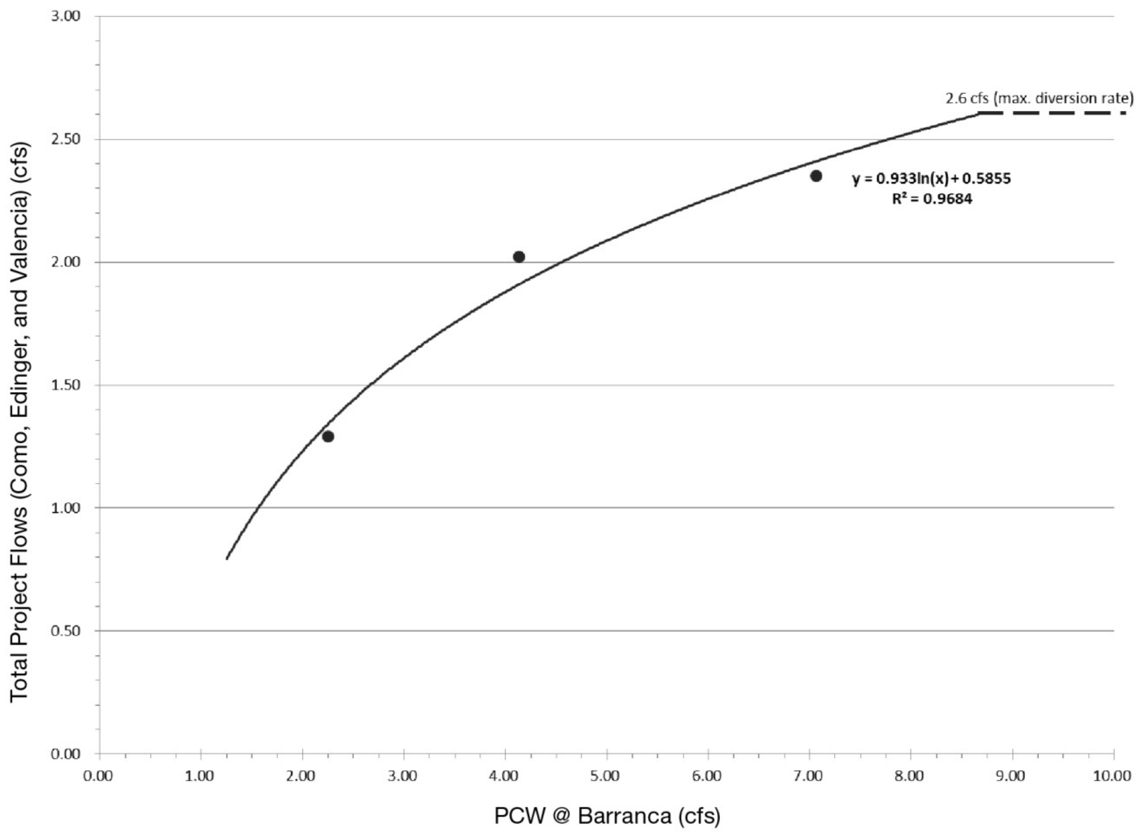
4.1.1.1 Calculating Project Diversions

The project would divert the flows in the Como Channel, Edinger Circular Drain, and the Valencia Drain. Combined, the total project diversion capacity would be approximately 2.6 cfs (i.e., the total design pump capacity). However, the actual combined flow of these channels is often less than 2.6 cfs based on the limited number of measurements or estimates available for all three channels (**Table 2**). Based on available data, we derived a relationship between the flow in PCW at Barranca and the total combined flow of the project diversions (**Figure 8**). We used this relationship and the daily flow data for PCW at Barranca Parkway to estimate the project diversion flow on a daily basis over the analysis period. For purposes of this analysis, when the measured flow at PCW at Barranca was greater than approximately 8.6 cfs, we estimate that the project diversion would be at full design capacity (i.e., 2.6 cfs). Otherwise we estimated the project diversion rate using the relationship presented in **Figure 8**.

TABLE 2
FLOW ESTIMATES FOR THE PROJECT DRAINS/DIVERSIONS.

Data Source	Como Channel (cfs)	Edinger Circular Drain (cfs)	Valencia Drain (cfs)	TOTAL (cfs)
Project Pump Capacity	1.1	0.3	1.2	2.6
OCPW (2014c) [(1)]	1.15	0.2	1.0	2.35
OCPW (2012) [(2)]	0.88	0.22	0.92	2.02
OCPW (2013) [(3)]	0.39	0.20	0.70	1.29

(1) Average of “Best Available Estimates” per OCPW worksheet (OCPW, 2014c) (see **Appendix A**).
(2) From *Table 2* in OCPW (2012, averages of field data collected in January through March, 2012).
(3) Average of field data collected in November and December, 2013.



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SOURCE: OCPW (2014a, 2014b, 2013, 2012)

Figure 8

Flow in Peters Canyon Wash and Barranca Parkway vs. Total Project Diversion Estimates

4.1.1.2 Groundwater/Surface Water Interaction (Flow Gain/Loss Assumptions)

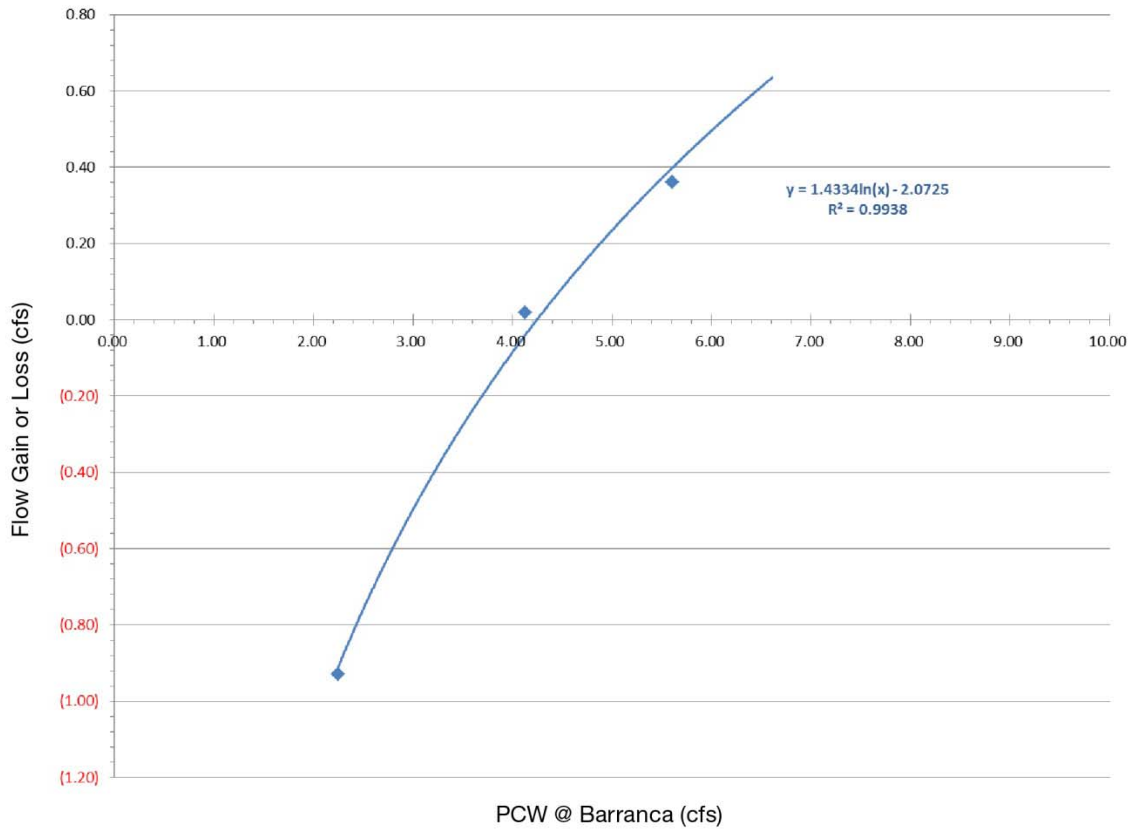
As described in Section 2.3, previous studies suggest that groundwater is generally discharging to PCW and SDC within the project area, resulting in gaining stream conditions.[4] However, this process is complex and, even within the project area, can vary seasonally and/or over relatively short distances. Based upon field measurements, a number of previous investigations reported data that can be used to estimate flow gains or losses for PCW and SDC (USEPA, 2002; Meixner et al., 2004; OCPW, 2012, 2013). In each case, all inputs (i.e., main channel flow and downstream tributary flows) upstream of some point are measured, and the sum of these inputs is compared to the measured, main channel flow downstream, in order to calculate the estimated flow gain or loss attributable to groundwater. We used these data to further assess groundwater/surface water interactions and estimate flow losses to groundwater infiltration within the channel in locations where sufficient data is available.

[4] A flow gain means that groundwater is discharging to the surface water channel (the groundwater table is sloping toward the channel), while a flow *loss* indicates that the surface water channel is discharging to groundwater (the groundwater table is sloping away from the channel).

4.1.1.2.1 Peters Canyon Wash

For PCW (between the Warner Channel and Barranca Parkway; see **Figure 3**), flow gains or losses have been measured in a number of previous studies (USEPA, 2002; OCPW, 2012, 2013). For the two earlier studies (USEPA, 2002; OCPW, 2012), the purpose was primarily for developing a better understanding of the particular sources of selenium, while the latter field study (OCPW, 2013), during the fall of 2013, was carried out to provide data specific to analyzing the potential impacts of the project. In these previous studies, all sources of flow to PCW upstream of and including the Warner Channel were measured in the field (e.g., the flow in PCW upstream of the project diversions and then all tributary inputs from the project diversions down to the Warner Channel), this combined flow rate was then compared to the measured flow downstream at the Barranca Parkway gage to calculate the gain or loss in this section of the channel (e.g., if the combined, measured flow in PCW at the Warner Channel was greater than that recorded downstream at the Barranca Parkway gage then a flow *loss* was calculated, and vice versa).

The existing data (USEPA, 2002; OCPW, 2012, 2013) suggest neutral-to-gaining conditions when the recorded flow at the PCW at Barranca gage is greater than approximately 4.2 cfs, while when the recorded flow is below this value the channel is likely a losing stream. Therefore, in order to more accurately reflect the potential impact the project diversion would have at locations downstream, we used the available data to construct a relationship between the flow in PCW at Barranca and the estimated gain or loss. We plotted the measured flow in PCW at Barranca Parkway versus the measured gain or loss in PCW between Barranca Parkway and the Warner Channel (**Figure 9**). Thus, above approximately 4.2 cfs (PCW at Barranca) we predicted neutral-to-gaining conditions between the project diversions and the 405 Freeway, and so the relationship between the project diversion rate and the subsequent reduction in PCW flow immediately downstream was one-to-one (e.g., if the project diversion was 2.3 cfs, then 2.3 cfs was subtracted from the average daily flow value for PCW at Barranca). Below 4.2 cfs (PCW at Barranca), we predicted the channel to be a losing stream based upon the relationship depicted in **Figure 9**. Note that flow at PCW at Barranca is below 4.2 cfs for only about 13 percent of the time over the WY 1999-2013 time period. The method to account for losses described below is applied for only 13 percent of the time and therefore does not greatly affect the results.



NOTE: Flow gain or loss is estimated as the difference between measured flow in PCW at Barranca and the measured combined inputs to PCW upstream of and including the Warner Channel

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SOURCE: USEPA (2002); OCPW (2012, 2013)

Figure 9
Flow in Peters Canyon Wash at Barranca Parkway vs. Measured Gain or (Loss)

For the days when we predicted a losing condition in PCW, a reduced project diversion flow rate was used to calculate the subsequent reduction in flow downstream (i.e., the project diversion rate and the downstream reduction in flow were not assumed to be a one-to-one relationship). In this case, the project diversion flow value was reduced relative to the magnitude of the predicted loss. For example, when PCW is a losing stream some fraction of the combined surface flow from the project diversions would be "lost" to groundwater under existing conditions. Therefore, since that fraction of the project diversion would be lost anyway, it is not counted (or carried) downstream when analyzing the potential impacts of the project diversion. **Figure 10** presents a simplified, graphical explanation and summary of this particular calculation and approach.

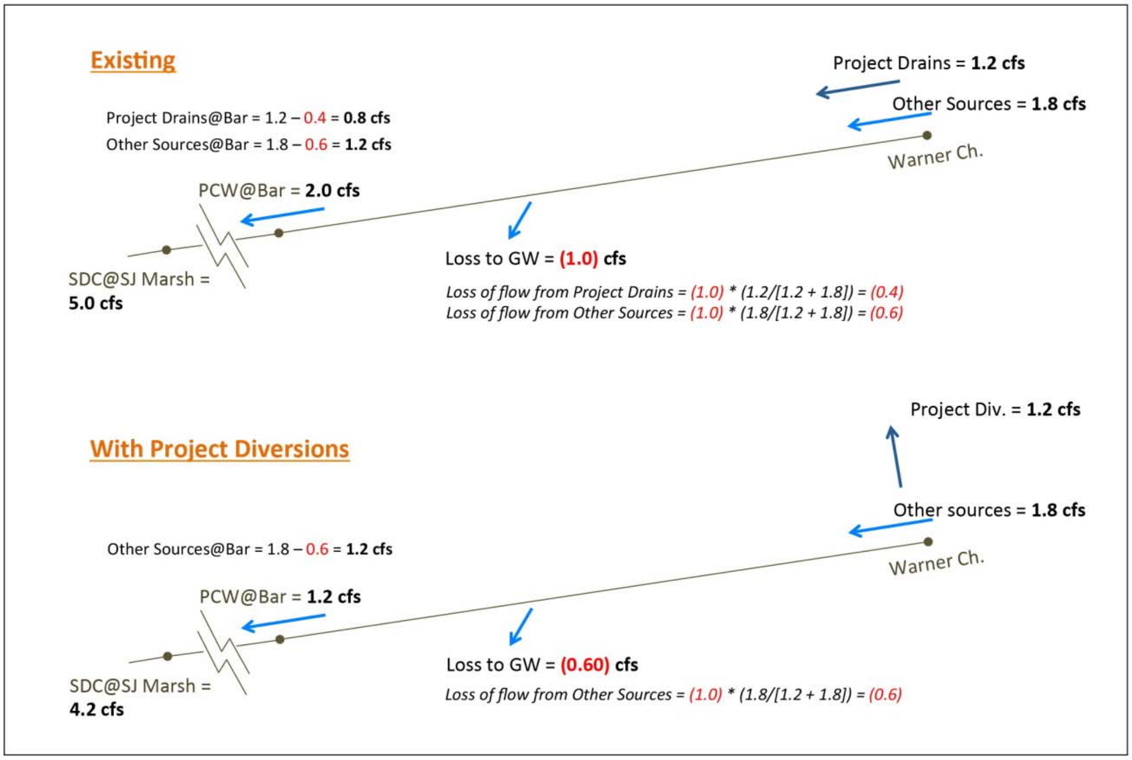

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Figure 10
Simplified Loss Approach – Example Calculation When Flow at Barranca Equals 2 cfs

The example shown in **Figure 10** uses a flow of 2.0 cfs in PCW (at Barranca Parkway). Upstream of this point, there is a loss to groundwater of approximately 1.0 cfs (estimated from **Figure 9**). Under these conditions, the total flow in PCW immediately downstream of the Valencia drain would be 3.0 cfs. This 3.0 cfs flow at the upstream end is comprised of 1.2 cfs from the three project diversions (estimated from **Figure 8**) and 1.8 cfs from other sources upstream of the Project diversions. Thus, the Project diversions account for 40% of the flow at the upstream end of the reach, while other sources account for the remaining 60%. Subsequently, the groundwater loss is partitioned using these same percentages; 40% of the groundwater loss rate (or 0.4 cfs) is subtracted from the project diversions' surface flow contribution, and the remaining 60% (or 0.6 cfs) is subtracted from the other sources. As a result, at the downstream end of the reach (PCW at Barranca Parkway), 40% of the remaining surface flow (or 0.8 cfs) is effectively attributed to the project diversions and the remaining 60% (or 1.2 cfs) is attributed to other sources. Because of the flow loss, the combined project drain flow of 1.2 cfs at the upstream end of our reach is reduced to 0.8 cfs at the downstream end (at Barranca Parkway). Therefore, under the project condition (project diversion) calculation, when the project diversion of 1.2 cfs is removed from the system and routed to OCSD, we reduce the flow in PCW at Barranca Parkway by 0.8 cfs (vs. 1.2 cfs) because of the losing condition. Otherwise, when PCW is not predicted to be a losing stream (i.e., when existing conditions flow in PCW at Barranca Parkway is greater than about 4.2 cfs, see **Figure 9**), the entire project diversion rate is subtracted from the flow downstream (e.g., if 2.4 cfs is removed from the system through the project diversion, then the flow in PCW at Barranca Parkway is reduced by 2.4 cfs, i.e., a 1:1 relationship between the project diversion and flow reduction is used).

4.1.1.2.2 San Diego Creek

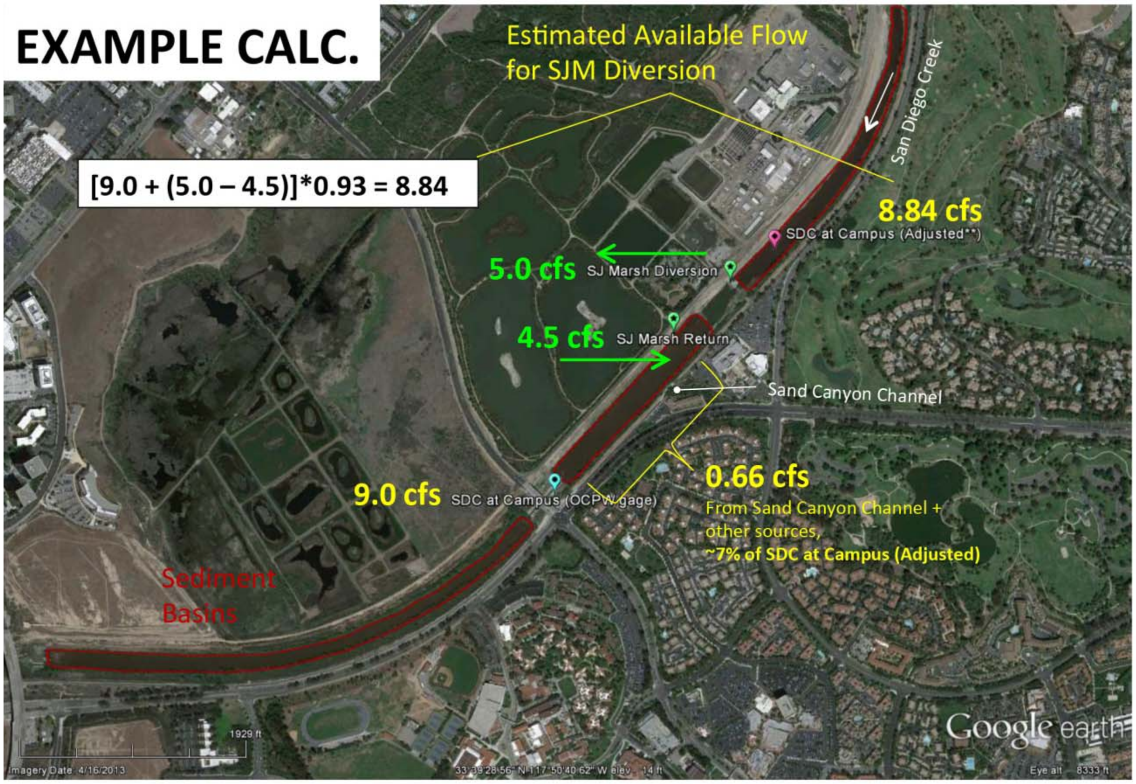
For SDC near Campus Drive, the data (USEPA, 2002; OCPW, 2013) clearly suggest neutral-to-gaining conditions, even during the fall of an extremely dry year (2013). Though, from Campus Drive upstream to the confluence with PCW (near Barranca Parkway), there are no measurements available for the main channel to estimate how far downstream of Barranca Parkway losing conditions may persist when in fact they occur. For example, Hibbs et al. (2008) suggest that losing conditions may persist as far downstream as the upper Sediment Basin (No. 3) during dry years; however, data is not available to estimate any losses (i.e., as we estimated for PCW upstream of Barranca in the section above). Given the lack of measured data along the main channel between Barranca Parkway and the upper Sediment Basin, and considering the DBSA (2013) report indicates gaining conditions are likely the norm within the project area (see Regional Setting – Hydrogeology), we have not accounted for losses, if any, and have conservatively assumed neutral conditions in SDC downstream of Barranca Parkway for the purposes of this Reduced Discharge Technical Study (i.e., the flow reduction estimated in PCW at Barranca is applied to downstream flows).

4.1.1.3 Calculating Available Flow at San Joaquin Marsh Inlet

The SDC at Campus gage is located at the downstream end of Sediment Basin No. 2, and just downstream of the inlet and outlet points for the SJM diversion (i.e., approximately 1,800 feet downstream of the SJM outlet, and about 2,300 feet downstream of the SJM inlet) (see **Figure 3**). However, in order to use data from this gage to estimate the flow in SDC just upstream of the SJM inlet diversion, we had to account for the change in SDC flow (e.g., flow loss) due to SJM intake and discharge (i.e., on average, the outflow from the SJM back to SDC is slightly less than the inflow) as well as the contribution of flow from the Sand Canyon Channel (which enters SDC between the SJM discharge and the Campus gage). Thus, we added the portion of flow used within the SJM (based on the difference between daily SJM intake and discharge volumes) to the reported daily flow at the SDC at Campus gage downstream in order to estimate the flow available at the SJM inlet. Further, based upon data reported by the U.S. Environmental Protection Agency (USEPA) (2002), OCPW (2013), USGS (2014c), and IRWD (2014b), as well as the relative sizes of the two watersheds,[5] we estimate that, during the dry-season, the flow contributed by the Sand Canyon Channel watershed represents approximately 7% of the adjusted flow for the SDC at Campus gage, and so we removed this amount from the reported flow at Campus to yield an adjusted flow at the SJM intake.[6] In this manner we derived an estimate of the average daily flow in SDC at the point of the SJM inlet diversion. **Figure 11** presents a simplified explanation and summary of this particular calculation and approach.

5 Based on delineations made using the USGS StreamStats program, http://water.usgs.gov/osw/streamstats/, the drainage area for San Diego Creek at Campus Drive is approximately 108.3 square miles, and the San Canyon Channel drainage area is approximately 8.7 square miles.

6 The Sand Canyon Channel flow contribution estimate ranged from 2 to 7% of the adjusted flow for San Diego Creek at Campus, and we selected 7% to be conservative (e.g., the Sand Canyon Channel watershed may also contribute subsurface flow to San Diego Creek).



NOTE: The "SDC at Campus (Adjusted**)" station in the figure is synonymous with the "SDC at the SJM inlet" location referenced elsewhere in the report.

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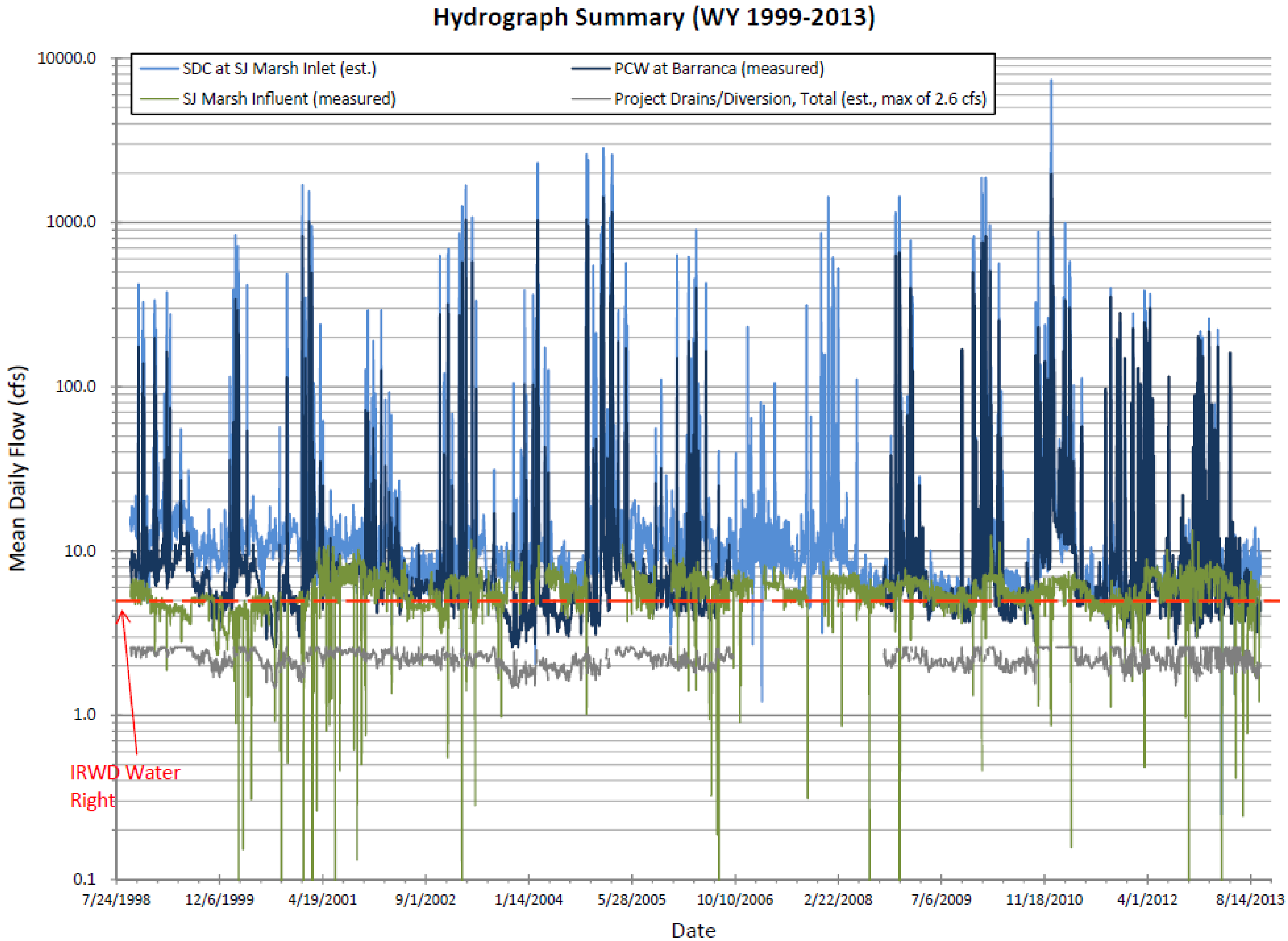
SOURCE: Google™ Earth (aerial)

Figure 11
Estimate of Available Flow in SDC at the SJM Diversion – Example Calculation

Using the above approach to estimate flows in SDC at the SJM inlet, and using the measured flow data for PCW (at Barranca Parkway) and the SJM influent (from SDC), we present a summary of existing condition hydrographs in **Figure 12**. Also included in **Figure 12** is an estimate of the total project diversion flow (see above), with a variable diversion rate of up to 2.6 cfs. These data and estimated flows represent the data set used in the analysis. **Figure 12** shows that prior to 2009, SDC flow at the SJM inlet was typically above IRWD's 5 cfs water right, whereas after 2009 available SDC flow was close to or below 5 cfs more often. **Figure 12** also shows that IRWD has often diverted more than 5 cfs to SJM.



SOURCE: OCPW (2014b); IRWD (2014b); ESA

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Figure 12
Summary of Existing Project Area Hydrology (WY 1999-2013)

4.1.2 Selenium and Nitrogen Concentrations and Loading

Annual and seasonal (if available) selenium and nitrate loading estimates were made using average concentration and flow data for the project diversions. Further, more detailed estimates were made with regards to selenium loading, including seasonal loading estimates and estimates at analysis points in PCW, SDC, and SJM. For the three project diversions, an aggregate, flow-weighted average selenium and nitrate concentration was derived from data presented by OCPW (2012; 2014c) (**Table 3**). The daily loads of the project diversion were then calculated using the average concentration from **Table 3** and the estimated daily project diversion flow rate (see Section 4.1.1.1). Only nitrate concentration data were available for the three project diversions, though, on average, nitrate represents approximately 90 percent of the total nitrogen in the project diversions (OCPW, 2014). Existing condition selenium and nitrate concentrations for PCW at Barranca were based upon data available from the Nitrogen and Selenium Management Program (NSMP) Working Group (2007). Average SJM influent and effluent selenium concentrations (including data for the MWRP) were derived from data provided by IRWD (2014a), and the average concentration for SDC at the SJM inlet was assumed to be equal to that measured for the SJM influent from SDC.

For project conditions, average selenium loads in PCW and SDC were calculated by subtracting the estimated load reduction due to the Project diversions. Average project conditions selenium concentrations were then calculated from the estimated project conditions loads and average flows.

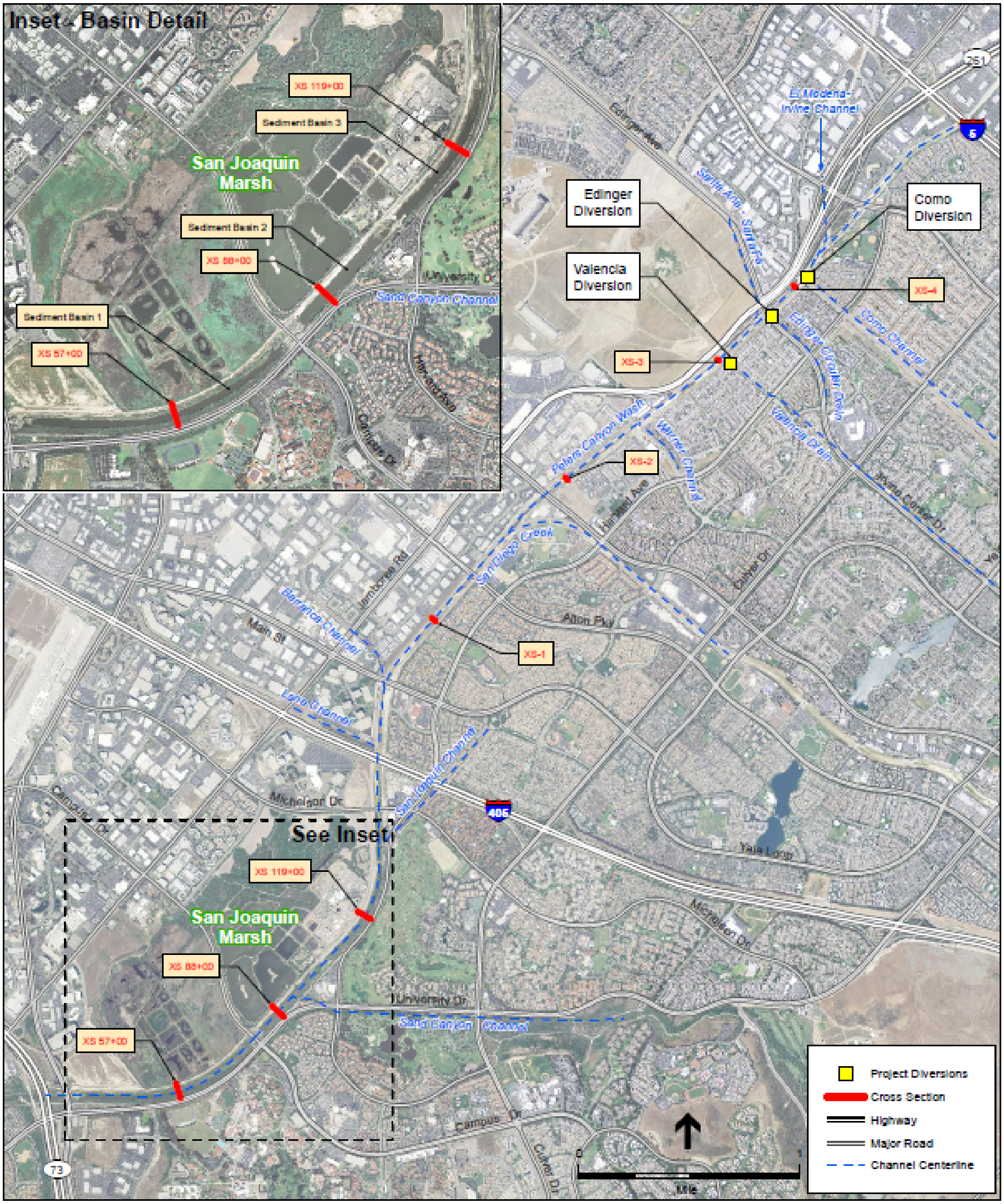
TABLE 3
PROJECT DIVERSION AVERAGE SELENIUM AND NITRATE CONCENTRATION ESTIMATES

	Flow (cfs) (1)	Se conc. (ppb) (1)	Nitrate, NO_3 conc. (ppm) (2)
Como Channel	0.88	28.50	16.2
Edinger Circular Drain	0.22	128.00	13.1
Valencia Diversion	0.92	29.25	17.6
Flow-weighted Average	--	39.7	16.5

(1) Values listed are the average of data collected from four field visits (dry weather conditions from January to March, 2012) and historical data (OCPW, 2012).
(2) Values listed are the average of wet and dry season concentrations reported in OCPW (2014c)

4.1.3 In-Channel Flow Depth and Wetted Area

The predicted change in project condition flows during the dry-season was used to assess subsequent changes in the wetted channel area within PCW and SDC. Wetted channel area changes were assessed at seven cross-section locations within the project area (**Figure 13**), generally representing the overall variation in channel conditions. Three cross-sections were located within each of the SDC Sediment Basins (XS 57+00, XS



SOURCE: NAIP Aerial (2012)

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Figure 13
Cross-Sections

88+00, and XS 119+00), one cross-section was located in SDC just downstream of the PCW confluence (XS-1), and three cross-sections were located in PCW between SDC and the project diversions (XS-2 through XS-4). Cross-section topography for the Sediment Basins was provided by OCPW (2014d), while the remaining cross-section topography was surveyed by ESA staff.[7]

For each cross-section, we used the predicted change in the average dry-season flow (see **Appendix B**) to assess the subsequent changes in wetted channel geometry, which were then used to assess the potential implications upon aquatic and riparian habitat availability. The dry-season represents the most sensitive time with respect to habitat availability, and the median flow represents the flow rate that is equaled or exceeded half of the time (i.e., half of the time the mean daily flow rate is less than the median and half of the time the mean daily flow rate is greater than the median). Therefore, this particular metric is a good estimate of typical flow conditions during the most critical time of year (with respect to aquatic and riparian habitat), and this flow metric was thus used to assess the potential impacts to in-stream vegetation and aquatic habitat.

Predicted changes in flow depth and subsequent channel area were calculated using the Manning's equation with existing and project condition discharge values:

$$Q = \frac{1.49}{n} A R^{2/3} \sqrt{S}$$

Where:

n = dimensionless channel roughness
Q = discharge (cfs)
A = Area (ft2)
R = Hydraulic radius or normal depth (ft)
S = Slope of the water surface (ft/ft)

To do this however, we first needed to calibrate the equation by determining the lumped slope/roughness term (√S / n). For the Sediment Basins, the flow depth was adjusted to match the flow width as approximated from a Google™ Earth aerial, and the lumped slope/roughness term was then adjusted to match the average flow rate for SDC at Campus for the same day. For the remaining cross-sections (XS-1 through XS-4), the flow depth was surveyed, and the lumped slope/roughness term was then adjusted to match the instantaneous flow rate recorded at PCW at Barranca (OCPW, 2014e).

4.1.4 San Joaquin Marsh Analysis

4.1.4.1 San Joaquin Marsh Inflow

Under project conditions, adjustments to SJM inflow were calculated based on the estimated flow in SDC at the SJM inlet (see discussion above). The contribution of the MWRP dewatering wells to the SJM under existing conditions was used for project conditions.

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7 ESA staff conducted a topographic survey of cross-sections XS-1 through XS-4 on April 1, 2014, using a Real-Time Kinematic-(RTK) GPS unit. Vertical positions were collected in NAVD88 datum; horizontal positions were collected in NAD83, State Plane datum.

To simulate the Project effect on SJM inflow, we compared the average daily SDC flow at the SJM inlet estimated for project conditions to the measured SJM inflow under existing conditions for each day within the WY 1999-2013 analysis period. If the estimated project conditions SDC flow at the SJM inlet was less than the measured existing conditions SJM inflow, then the project conditions SJM inflow was reduced to the estimated project conditions SDC flow. If the estimated project conditions SDC flow was greater than the measured existing conditions SJM inflow, then the Project would not have an effect for that particular day and the SJM inflow for that day was not reduced.

4.1.4.2 San Joaquin Marsh Selenium and Nitrogen Removal Efficiency

We analyzed selenium and nitrogen concentration data from the SJM influent and effluent and MWRP dewatering discharges (see the discussion in Section 3.3.2) to assess and estimate selenium and nitrogen removal for existing and project conditions.

To assess whether selenium or nitrogen removal efficiency would change due to the reduction in SJM inflow under project conditions, we calculated the total selenium and nitrogen removal efficiency of the SJM for each concentration data pair and plotted removal efficiency against SJM inflow (**Figures 14a** and **14b**).[8] Selenium and nitrogen data for the SJM influent from SDC (i.e., the input to Pond A) were not collected on the same day as the data for the MWRP dewatering discharge. Thus, to get the total selenium and nitrogen input to the SJM for a given day, we needed to also estimate the MWRP dewatering contribution for each marsh influent (from SDC) sample point. To do this, we estimated the MWRP discharge concentration for a given day by interpolating between the two nearest, measured values. From 2002 through 2007, the influent (from SDC) and effluent selenium and nitrogen measurements were offset by approximately 10 days (i.e., for each influent sample, the subsequent effluent sample was collected about 10 days later, presumably to account for the average residence time of the marsh). After 2007 it appears that the influent and effluent sample pairs were no longer systematically offset (i.e., they were collected on the same day), though samples were more or less collected once every week or two (this was done more consistently for the nitrogen samples). Thus, from 2008 onward, we offset the sample pairs generally by 7 to 14 days (where available); otherwise we used the reported sample pair for the same day or the next closest day.

Over the relatively narrow operating range of influent rates to the SJM from SDC and the MWRP dewatering wells, available data (IRWD, 2014a) show no statistically-significant relationship between the SJM average inflow rate and overall selenium or nitrogen removal efficiency (**Figures 14a and 14b**). The linear regressions between flow and removal efficiency are generally very weak ($R^2 < 0.1$). Furthermore, for the selenium the slope of the regression for the 2007-2013 data changes from negative to positive when considering only flows below 8 cfs. (Note that inflow is generally less than 8 cfs for normal operations.) These data indicate that the variation in removal efficiency is not explained (or predicted) well by the variation in the inflow rate. The removal efficiency of the SJM is likely more strongly influenced by other and/or multiple factors and only indirectly influenced by the inflow rate or any single parameter for that matter.

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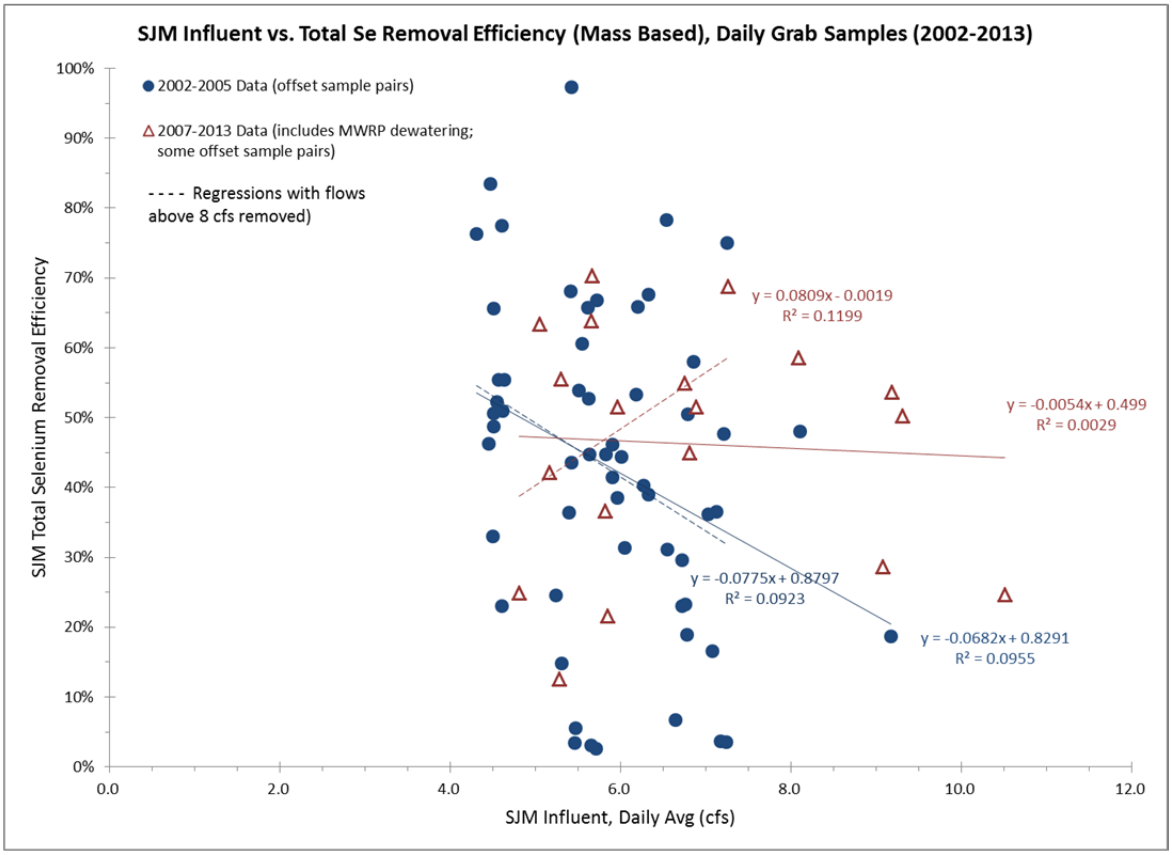
8 Selenium removal efficiencies were not calculated for 2006 due to the lack of selenium concentration data for the MWRP dewatering discharge.



SOURCE: Data from IRWD (2014a)

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Figure 14a

SJM Selenium Removal Efficiency

The average SJM selenium removal efficiency under existing conditions was used to estimate selenium removal under project conditions. This approach was adopted due to the lack of a relationship between SJM inflow and selenium removal and any basis for estimating the change in selenium removal efficiency with reduced SJM inflow under project conditions. An average selenium removal efficiency was calculated for existing conditions from the average selenium load to SJM and the average SJM effluent selenium load. The project conditions selenium load to SJM was estimated based on the estimated project conditions SJM inflow (see section above) and SDC selenium concentration at the SJM inlet (see Section 4.1.2). The project conditions selenium loading at the SJM outlet was calculated by applying the average existing conditions selenium removal efficiency to the project conditions SJM selenium load.

SOURCE: Data from IRWD (2014a)

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Figure 14b
SJM Nitrogen Removal Efficiency

4.1.4.3 San Joaquin Marsh Water Balance and Residence Time

In order to assess how predicted changes in SJM influent may potentially affect SJM water levels and/or residence time, we constructed a simplified, dry-season water balance for the SJM based on existing inflow and outflow (from and to SDC), precipitation, and evaporation. For the water balance and residence time assessment we focus on the dry-season, because this is the period during which SJM losses (e.g., evaporation) would be greatest and marsh inputs other than from SDC (e.g., upland runoff) would generally be lowest. The water balance analysis focuses on the SJM Ponds A, B, and 1-6, since these are the primary open water pond areas that receive regular intake during the dry season. Dry-season precipitation and evapotranspiration totals were derived from readily available sources listed below, and the evapotranspiration values were adjusted slightly to account for evaporation rates from open water (**Table 4**). Further, to construct the water balance we needed an estimate of the total SJM pond volume (Ponds A, B, and 1-6) (see **Figure 7**). The maximum volume for Ponds 1 through 6 was estimated based upon the maximum water surface elevation and average bottom elevation as depicted on the SJM rough grading plan (City of Irvine, 1997) (**Table 5**). For Ponds A and B, the maximum surface area was estimated from an aerial photograph, and the average depth was assumed to be equal to that for Ponds 1 through 6 (i.e., approximately 2 feet) (**Table 5**).

TABLE 4
TOTAL PRECIPITATION AND EVAPOTRANSPIRATION, DRY-SEASON (APR-SEP).

Water Year	Precipitation (inches) (1)	Reference Evapotranspiration, Eto (inches) (2)	Open Water Evaporation (inches) (3)
2001	1.03	26.54	27.87
2002	0.24	26.40	27.72
2003	2.87	30.60	32.13
2004	0.56	31.46	33.03
2005	1.97	24.39	25.61
2006	3.61	18.59	19.52
2009	0.27	31.04	32.59
2010	1.29	30.02	31.52
2011	0.55	31.33	32.90
2012	3.21	31.98	33.58
2013	0.67	31.27	32.83

(1) Data are for Santa Ana Fire Station, California (NCDC, 2014).
(2) Data are for Long Beach, California (CIMIS, 2014). IRWD's ET data for their "Coastal" and "Central" locations were also reviewed and were not much different from the CIMIS (2014) Long Beach data. The Long Beach ET values were slightly higher, by approximately 3 to 4 inches on an annual and dry-season total basis, and more conservative from the water balance perspective (i.e., a slightly higher loss).
(3) Calculated as the Reference Eto times a factor of 1.05, per Allen et al. (1998).

TABLE 5
DEPTH AND VOLUME ESTIMATES FOR THE SAN JOAQUIN MARSH. (1)

	Average Depth (ft)	Surface Area (ft^2)	Est. Volume (ft^3)
Pond 1	2.0	753,732	1,507,465
Pond 2	2.0	852,980	1,705,960
Pond 3	2.0	542,473	1,084,945
Pond 4	2.0	378,541	757,082
Pond 5	2.5	255,468	638,671
Pond 6	2.0	87,366	174,732
Pond A	2.0	138,085	276,170
Pond B	2.0	202,990	405,979
Total		**3,211,635**	**6,551,005**

(1) Estimated from City of Irvine (1997)

The existing-conditions water balance and residence time estimates for the SJM are presented in **Table 6**. Since the measured inflow and outflow rates for the SJM are available for existing conditions, the remaining gains or losses (i.e., other than precipitation and evaporation) under existing conditions were simply summed in a single term, "other sources/sinks" (e.g., which account for groundwater interactions, storm runoff, and other sources). Thus, the project-condition SJM outflow (to SDC) was calculated based on the predicted project-condition SJM inflow rate (from SDC and the MWRP dewatering), monthly precipitation and evaporation totals, and the other sources/sinks term calculated from the existing conditions water balance (note the other sources/sink term calculated for existing conditions was applied to project conditions). Residence time was calculated using the total SJM volume (estimated to be 6,551,005 cubic feet) and dividing by the average throughput flow rate (estimate as the average of the marsh inflow and outflow rates from and to SDC). Note, each additional foot added to the average depth of 2 feet would increase the estimated residence time by 6-7 days (e.g., using an average SJM depth of 3 feet results in a residence time of about 21 days) (see **Appendix C** for water balance calculations and sensitivity analysis).

TABLE 6
EXISTING CONDITIONS SIMPLIFIED WATER BALANCE, DRY SEASON, SAN JOAQUIN MARSH.

	SJM Inputs				SJM Outputs					
	SJM Influent		MWRP Dewatering (1)		SJM Effluent					
Water Year	Avg (cfs)	Total (ft^3)	Total (ft^3)	SJM Total Precip. (ft^3)	Avg (cfs)	Total (ft^3)	SJM Total Evap. (ft^3)	Other Source or (Sinks) (ft^3)	SJM Avg Throughput (cfs) (2)	SJM Avg Residence Time (days)
2001	6.7	106,572,105		281,770	6.6	103,805,908	7,606,536	4,558,569	6.7	11.4
2002	5.2	82,021,825		66,678	4.6	73,189,435	7,566,411	(1,332,658)	4.9	15.4
2003	5.8	92,193,888		782,932	5.0	79,231,340	8,770,158	(4,975,322)	5.4	14.0
2004	6.1	96,619,959		152,715	5.2	82,691,679	9,016,640	(5,064,356)	5.7	13.4
2005	4.9	78,252,556		536,653	4.5	71,109,111	6,990,332	(689,766)	4.7	16.1
2006	4.8	75,471,075	7,872,782	986,194	5.1	81,374,940	5,328,014	2,372,904	5.0	15.3
2009	5.4	84,923,914	2,959,536	73,131	4.8	75,220,872	8,896,265	(3,839,445)	5.1	15.0
2010	5.5	86,856,128	3,666,245	352,750	4.6	71,981,830	8,603,926	(10,289,366)	5.0	15.1
2011	5.2	82,884,547	5,623,179	149,488	5.8	91,196,045	8,979,381	11,518,212	5.5	13.8
2012	6.7	105,327,161	6,811,219	875,422	6.1	96,991,841	9,165,675	(6,856,286)	6.4	11.9
2013	5.1	80,503,963	5,904,110	182,828	4.8	75,811,892	8,962,184	(1,816,824)	4.9	15.3
AVG (all)	5.3				4.9				5.4	14.2
AVG (2009-2013)	5.6				5.2				5.4	14.2

(1) MWRP dewatering was discharged directly to the SJM beginning in 2006.
(2) *Throughput* is the average of the marsh inflow and outflow rates from and to SDC.

4.2 Results

4.2.1 Results Summary

A summary of the results with respect to selected flow metrics and selenium loading are presented in **Table 7** for WY 2009-2013. These results are used and discussed throughout the following sections. As discussed in Section 2.2, the WY 2009 - 2013 period is generally indicative of drought conditions, with the majority of years experiencing below-average rainfall. The 2009-2013 period reflects the latter half of the current drought, and the flow available for diversion into the SJM from SDC is generally low, while the proportion of that flow actually diverted into the SJM under existing conditions is relatively high, as compared to earlier years (dry or wet). Further, prior to 2006 the dewatering wells at the MWRP discharged directly to SDC, and after 2006 they began discharging directly to the SJM; this could also contribute to the slightly lower available flow volume over the latter part of the analysis period (i.e., if the dewatering wells are drawing from the creek to some extent). We suggest that the WY 2009-2013 period represents distinct, contemporary operating conditions for the SJM in the midst of a generally dry period, and thus we present our results for and focus the subsequent impact discussion on this more recent period. Appendix B includes the same summary table and metrics for the entire analysis period, WY 1999-2013 (the complete, daily time step spreadsheet model is included in **Appendix D**). In general, results for the two periods show the same effects of the Project, with greater magnitude of effects for 2009 – 2013 than for 1999 – 2013.

The reported average flows and selenium loads in **Table 7** and subsequent figures are for the non-storm periods only. During storm events (or wet weather conditions), the Project diversions would be shut off and the Project would have no effect. OCSD (2009) defines wet weather conditions as any period of time during which measurable rainfall occurs within OCSD's service area, and this period includes the time following cessation of rainfall until OCSD determines that the wet weather event is no longer impacting OCSD's sewerage system. According to the Santa Ana Fire Station daily rainfall data (NCDC, 2014), over the WY 1999-2013 time period, measureable rainfall occurred approximately 9 percent of the time. Storm periods are therefore removed from the analysis, average flows, and selenium loads to facilitate comparison of values between existing and project conditions and evaluation of Project effects. Storm periods were removed using the wet-season baseflow estimate for SDC presented by DBSA (2013) (approximately 20 cfs for SDC at Campus, or approximately 18.6 cfs when adjusted to represent flow in the creek at the SJM inlet). All days for which the flow in SDC was greater than this value were removed from the analysis and averages, and the project diversion was assumed to be off during these days. As a result, over the WY 1999-2013 period, the project diversion was off for approximately 11.5 percent of the time (on a daily basis). Considering that OCSD's criteria allows for storm flow recession periods, we feel the baseflow criteria employed is a good approximation for when the project would and would not be allowed to divert to OCSD.

TABLE 7
AVERAGE ANNUAL FLOW AND SELENIUM LOADING ESTIMATES, EXISTING AND PROJECT CONDITIONS (WY 2009-2013)

	Project Diversion	PCW at Barranca Pkwy	SDC at SJM Inlet	Influent from SDC	MWRP Dewatering	Effluent to SDC	Se Removed in SJM	Removal Efficiency	SDC at Campus Dr (cfs)
Existing Conditions									
Daily Flow (cfs)	--	6.4 (4)	7.5 (4)	5.7	0.3	5.3	--	--	7.2 (4)
Total Flow (mg/yr) (1)	--	1,510	1,770	1,345	71	1,251	--	--	1,699
Se Conc. (ppb) (2)	--	29.2 (5)	25.9 (6)	25.9 (6)	5.4 (6)	18.0 (6)	--	--	19.7
Se Load (lbs/yr) (3)	--	371.5	386.2	293.5	3.2	189.7	107.1	36.1%	282.4
Project Conditions									
Daily Flow (cfs)	2.2 (4)	4.2 (4)	5.3 (4)	4.6	0.3	4.2 (11)	--	--	5.0 (4),(8)
Total Flow (mg/yr) (1)	519	991	1,251	1,085	71	991	--	--	1,251
Se Conc. (ppb) (2)	39.7 (7)	26.1	22.1	22.1	5.4 (6)	15.7	--	--	16.4
Se Load (lbs/yr) (3)	153.8 (9)	217.7	232.4	201.7	3.2	131.0 (10)	73.9	36.1%	161.6
%Reduction-Flow	--	34.4%	29.3%	19.3%	--	20.8%	--	--	31.0%
%Reduction-Se Load	--	41.4%	39.8%	31.3%	--	31.0%	31.0%	--	42.7%

(1) Converted from cfs to million gallons per year (mg/yr): mg/yr = cfs * 0.646 * 365.25
(2) Calculated from the average load and flow: ppb = lbs/yr / ((0.000000002205/0.035) * cfs * 86400 * 365.25. Unless otherwise indicated/footnoted.
(3) Calculated from the average concentration and flow: lbs/yr = ppb * (0.000000002205/0.035) * cfs * 86400* 365.25. Or calculated through mass balance. Unless otherwise indicated/footnoted.
(4) Average excludes storm flows (i.e., days when the estimated flow in SDC at the SJM inlet was greater than 18.6 cfs). The Project Diversion is assumed to be shut off during storm flows.
(5) Flow-weighted average of wet season (27.4 ppb) and dry season (31.0 ppb) values reported in NSMP Working Group (2007).
(6) Average derived from IRWD (2014a) water quality data; SJM influent and effluent values spanned from 2002-2013, MWRP dewatering values spanned from 2000-2013.
(7) Flow-weighted average of values reported in OCPW (2012) (see Table 3).
(8) Estimated using same ratio of SDC@SJM (plus losses) to SDC@Campus as existing condition: *Project Condition SDC@Campus = Project Condition* [SDC@SJM - (Influent - Effluent)] * *Existing Condition* [SDC@Campus/(SDC@SJM - (Influent - Effluent)].
(9) Sum of daily project diversion selenium load divided by 5 years (WY 2009-2013). Daily load calculated using project diversion flow rate and wet or dry season project diversion concentrations (see Table 3).
(10) Estimated assuming the same removal efficiency as for the existing condition.
(11) Calculated assuming the same net loss as for the existing condition.

4.2.2 Peters Canyon Wash and San Diego Creek

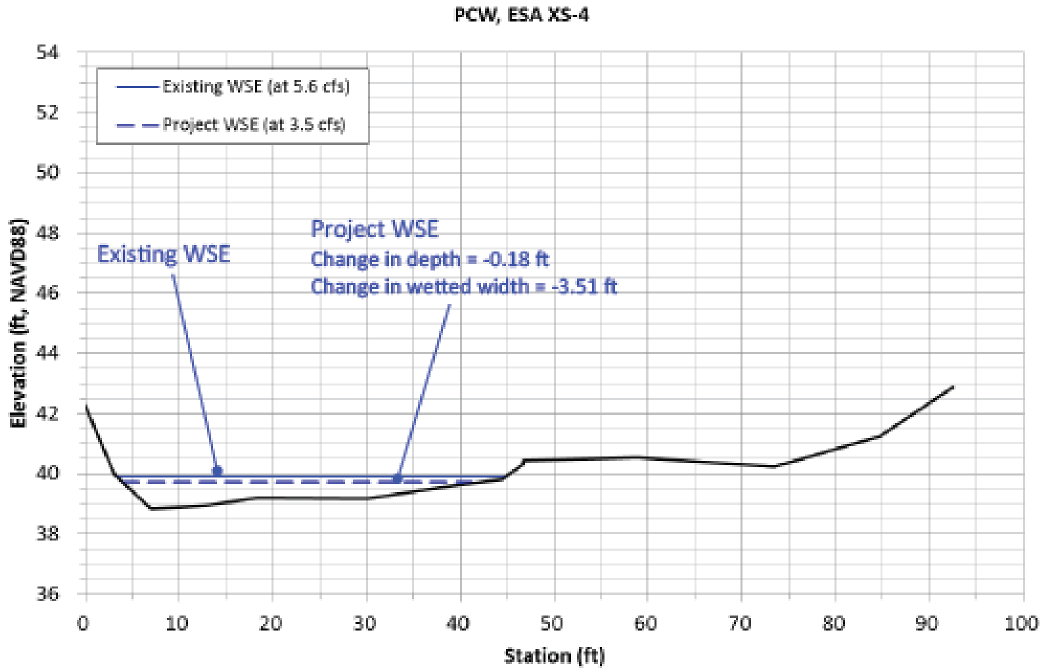
4.2.2.1 Reduction in Flow Depth, Wetted Area, and Associated Aquatic Habitat

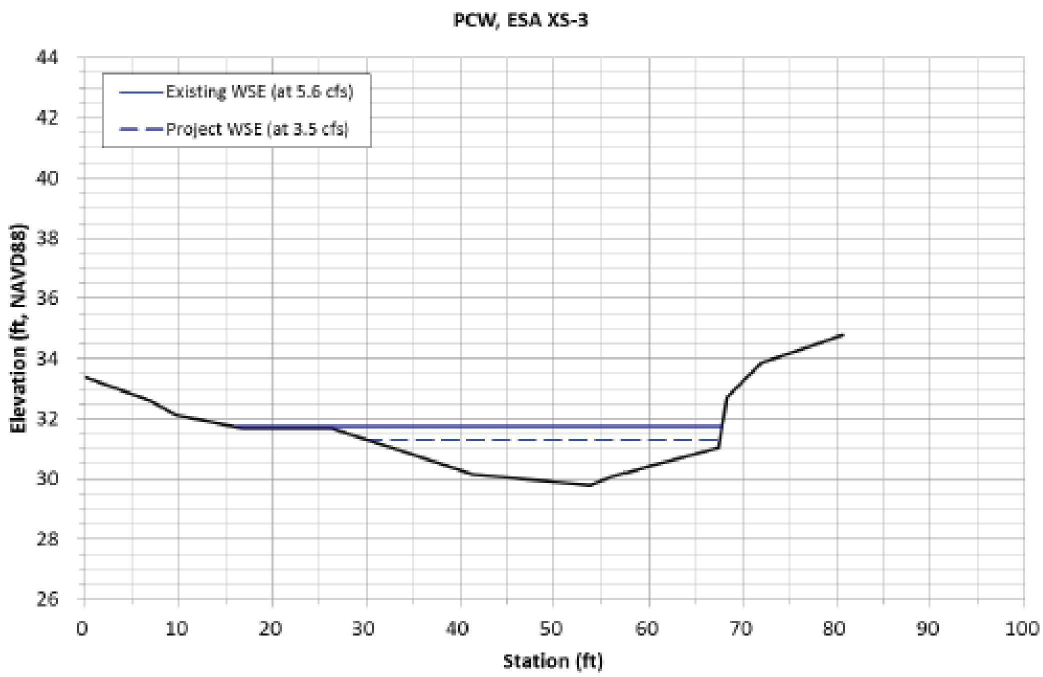
Implementation of the project would reduce non-storm or low flows within the PCW and SDC by approximately 29% to 34% (see **Table 7**). The average dry-season flows for WY 2009-2013 (from Appendix B) were used to estimate the reduction in flow depth and wetted area for project conditions at selected cross-sections within the project area (**Figure 13**). **Table 8** and **Figures 15 (A-D)** present a summary of the analysis results and potential impacts on flow depth, wetted area, and aquatic habitat availability (the detailed analysis is presented in **Appendix E**). In the reaches of the project area upstream of the sediment basins, the project would result in reductions in dry-season flow depths on the order of 0.05 to 0.43 feet (or an average reduction of approximately 16.5%), with a corresponding reduction in flow width of approximately 1.5 to 14.2 feet (or an average reduction of approximately 11%). However, in these upper reaches there is little-to-no quality in-stream vegetation or aquatic habitat under existing conditions. As described in Section 3.1, these reaches serve primarily as a managed flood control channel, the bed is periodically cleared through either planned maintenance activity and/or scouring floods, and the banks are comprised of rip-rap or concrete and generally devoid of riparian vegetation.

TABLE 8
SUMMARY OF FLOW DEPTH, WETTED AREA, AND VELOCITY CHANGES, DRY-SEASON (Apr-Sep) (WY 2009-2013).

	Existing Conditions				Project Conditions			
	Avg. Flow (non-storm) (cfs)	Max. Depth (ft)	Wetted Width (ft)	Avg. Velocity (ft/s)	Avg. Flow (non-storm) (cfs)	Change in Max. Depth (ft)	Change in Wetted Width (ft)	Change in Avg. Velocity (ft/s)
XS-4	5.6	1.06	41.46	0.21	3.5	-0.17	-3.29	-0.03
XS-3	5.6	1.95	51.90	0.11	3.5	-0.43	-14.24	-0.01
XS-2	5.6	0.41	55.73	0.56	3.5	-0.05	-2.51	-0.07
XS-1	5.6	0.52	33.93	0.78	3.5	-0.07	-1.46	-0.11
XS 119+00	6.9	2.52	107.46	0.04	4.8	-0.40	-16.77	0.00
XS 88+00	6.7	2.78	190.89	0.02	4.5	-0.45	-7.32	0.00
XS 57+00	6.7	2.67	103.15	0.04	4.5	-0.44	-6.05	-0.01

Similar to upstream reaches, within the Sediment Basin reaches the project would result in reductions in dry-season flow depth on the order of 0.40 to 0.45 feet (or an average reduction of approximately 16%), with a corresponding reduction in flow width of 6.1 to 16.8 feet (or an average reduction of approximately 8%). However, the Sediment Basins are generally comprised of wider and deeper flow areas under dry-season conditions (as they are designed to trap sediment and are controlled by weirs at their downstream extents).





SOURCE: ESA Survey (2014) (Topo)

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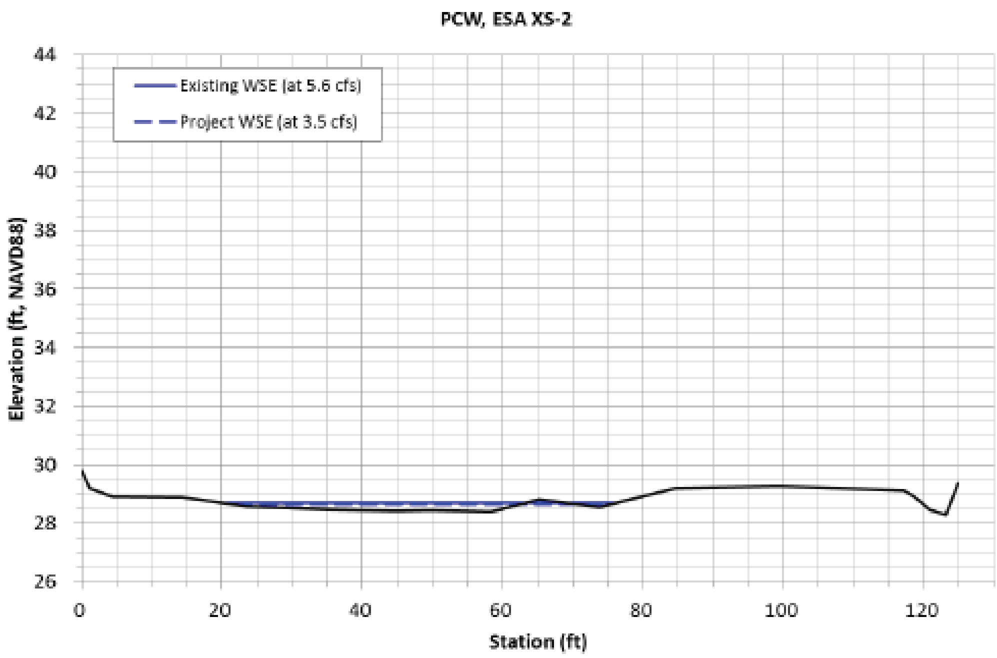
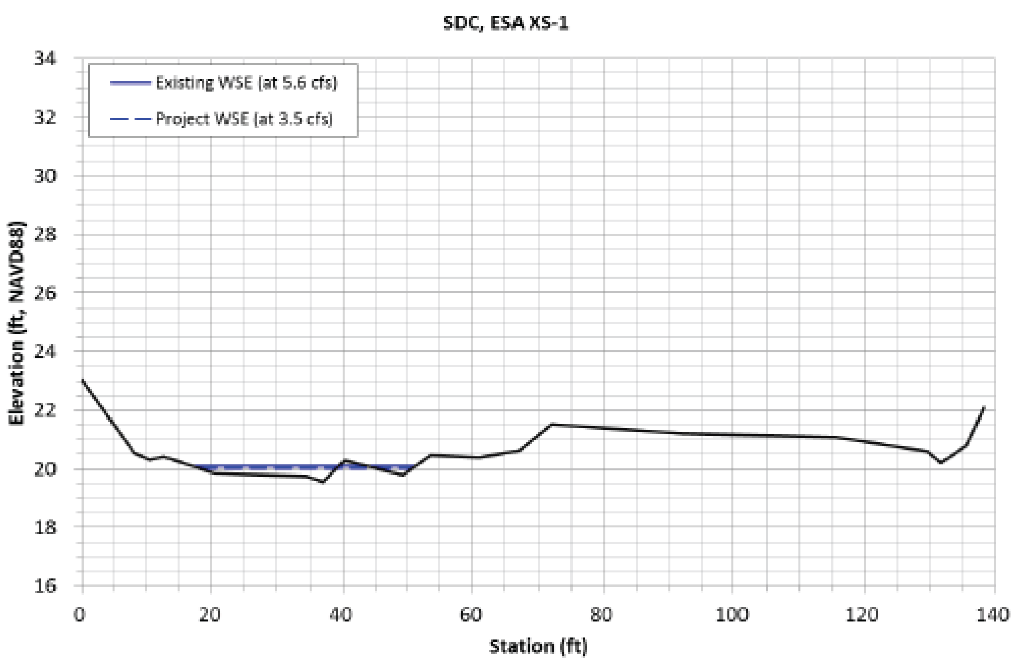
Figure 15A
Cross-Section and Flow Area Analysis





SOURCE: ESA Survey (2014) (Topo)

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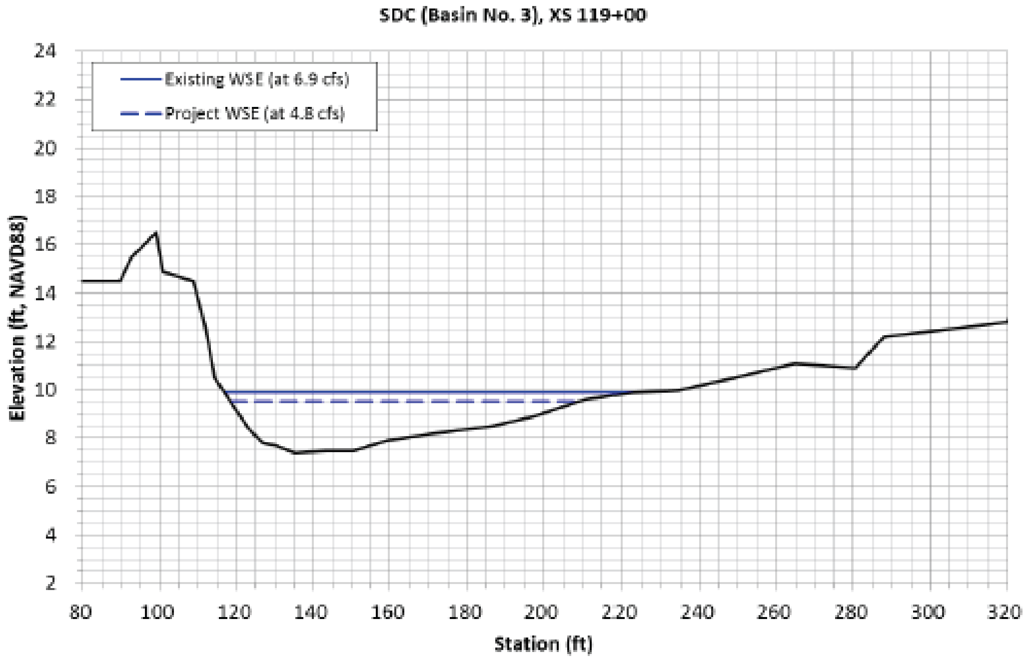
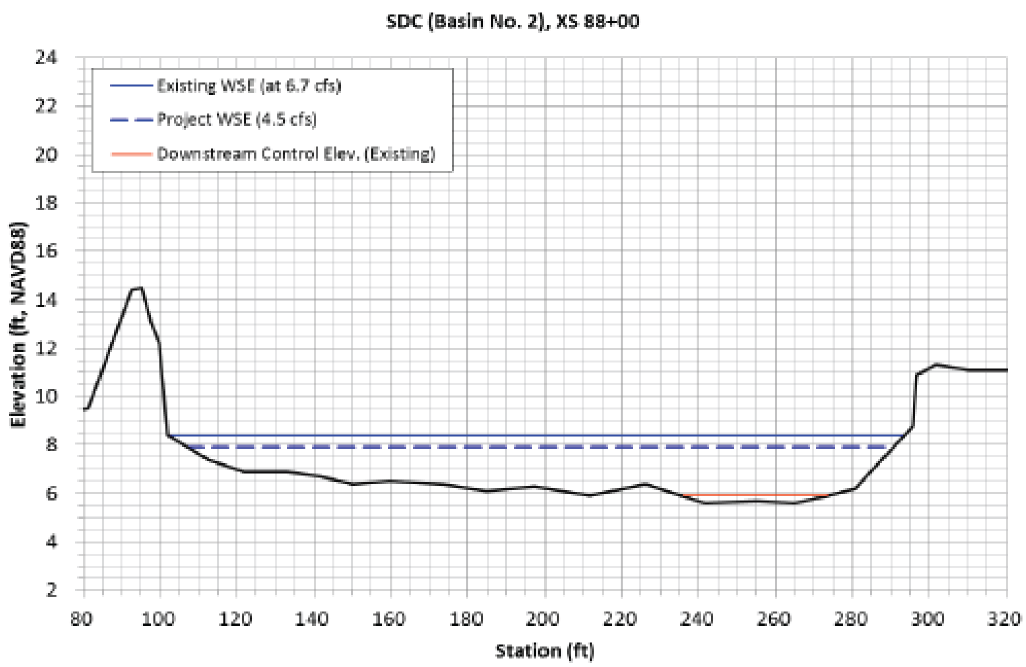
Figure 15B

Cross-Section and Flow Area Analysis





SOURCE: OCPW (2013b) (Topo)

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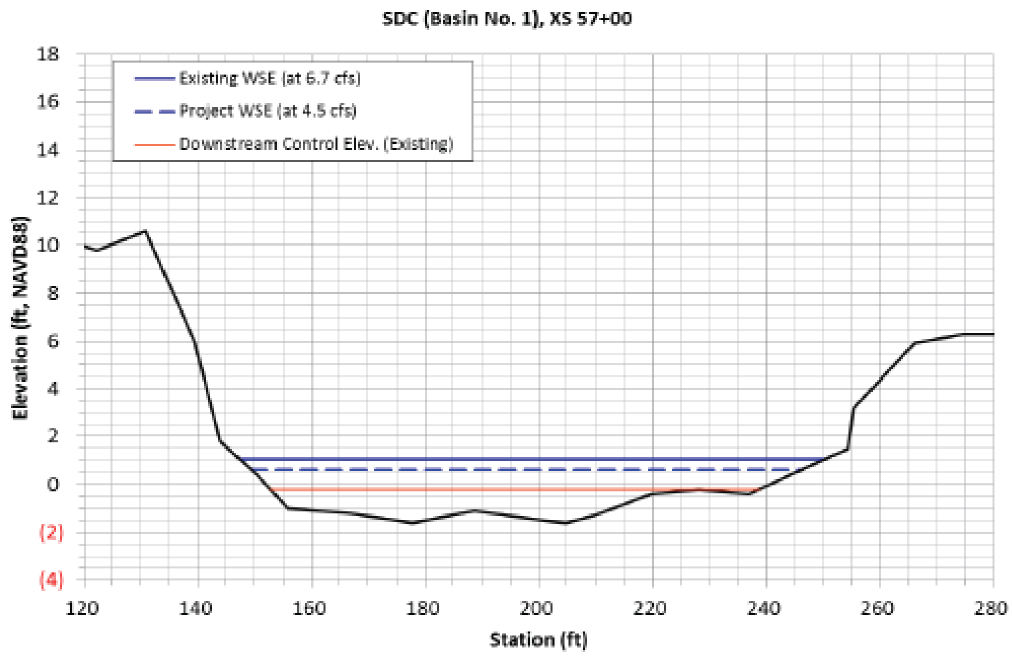
Figure 15C

Cross-Section and Flow Area Analysis



SOURCE: OCPW (2013b) (Topo)

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Figure 15D
Cross-Section and Flow Area Analysis

4.2.2.2 Selenium and Nitrogen Loading

The project would reduce the mass loading of selenium and nitrogen to PCW and SDC. Per **Table 7**, the project would remove an average of approximately 154 pounds of selenium per year. This represents about a 40 to 43 percent reduction in selenium loading throughout PCW and SDC. Further (and similarly based on WY 2009-2013), the project would remove an average of approximately 63,940 pounds of nitrate per year. Compared to an estimated annual loading in PCW at Barranca of approximately 90,860 pounds,[9] this would represent about a 70 percent reduction in annual nitrate loading at this point.

4.2.2.3 Selenium and Nitrogen Removal

As discussed above, project implementation would reduce the mass loading of selenium and nitrogen to PCW and SDC. The Project would also reduce flows in PCW and SDC. With respect to potentially influencing residence time and selenium- -cycling within the channels and/or Sediment Basins, the predicted changes in flow velocity are generally insignificant (i.e., changes in velocity are on the order of 0 to 0.11 feet per second) (**Table 8**). The changes in dry-season flow velocity within the project area would not be great enough to force the deposition of selenium (or nitrogen or other pollutants) that may be bound to silt and clay, and thus bound selenium would be expected to behave similarly under existing- and project-conditions. For example, the fall velocity of coarse silt is approximately 0.003 feet per second (Julien, 1998) (i.e., the velocity at which silt would settle out of the water column). This is well below the existing- and project-condition predicted velocities. Further, Hibbs et al. (2008) suggests that very little dissolved selenium or total nitrate is removed under existing conditions within the Sediment Basins, reasoning that even though conditions may favor reduction (and deposition) of selenium and nitrate, there is not enough fluid exchange between surface water and the channel bed sediment (i.e., hyporheic water). The substantial reduction in selenium and nitrogen mass loading would be much greater in magnitude than any of the potential, though insignificant, effects project implementation may have upon residence time or selenium- or nitrogen- cycling within the PDW and SDC channels.

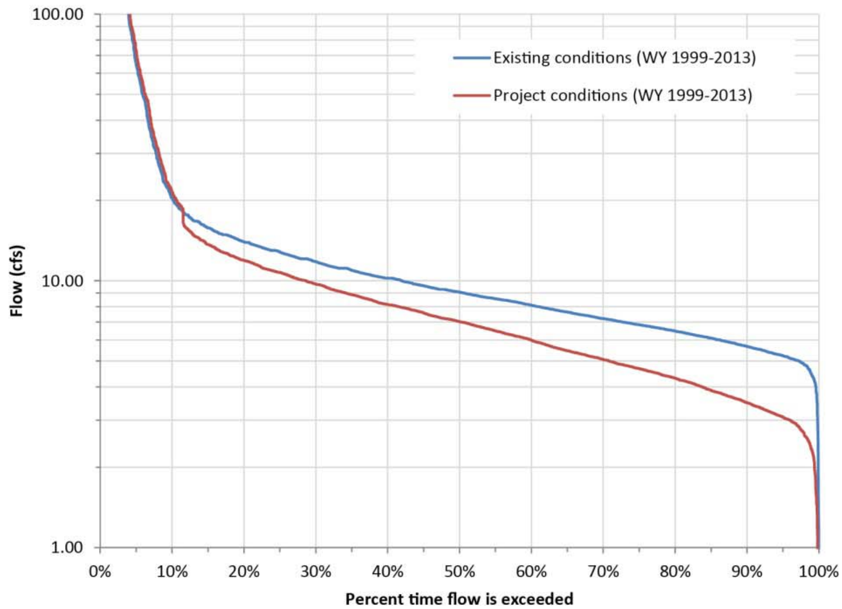
Further, in Sediment Basin No. 1 (the downstream-most basins), deposition of pollutants bound to clay-sized particles are controlled primarily by flocculation, which is driven by freshwater mixing with salt water near the downstream extent of the Sediment Basins, a process which would be unaffected by the project. The project reductions in channel flows is not expected to significantly increase the upstream extent of tidal influence and salinity in the mouth of SDC because the tidal extent is controlled by the channel elevation and weirs rather than mixing of freshwater channel flows and saline tidal flows.

4.2.2.4 Changes in Flow Rate and Duration

A useful metric for examining project impacts on flow rates in PCW and SDC is the flow duration curve. A flow duration curve is a measure of the percent of time a given flow rate is

[9] Nitrate loading estimate for PCW at Barranca based upon average annual flow from Table 7 and the average of wet and dry season nitrate concentrations reported in NSMP (2007) (average = 7.2 ppm); calculated as: lbs/yr = ppm * (0.000002205/0.035) * cfs * 86400* 365.25

exceeded over a specific period in the flow record. Flow duration curves can be compared for the same time period to evaluate how project impacts to hydrology change the frequency of high and low flow rates. A comparison of SDC flow duration curves at the SJM inlet for existing and project conditions over the WY 1999 – 2013 analysis period is shown in **Figure 16**.



SOURCE: OCPW (2014b); ESA

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Figure 16
Flow Duration Curves for San Diego Creek at the SJM Inlet for Existing and Project Conditions for WY 1999-2013

The curves show that under project conditions, the diversion lowers the frequency of flows below 20 cfs. The two curves collapse above 20 cfs because this is the flow used to estimate when storm events are occurring and the diversion pumps are shutoff, and the Project therefore has no effect on flows above 20 cfs. The change in flow duration frequency for selected low flow rates is summarized in **Table 9**.

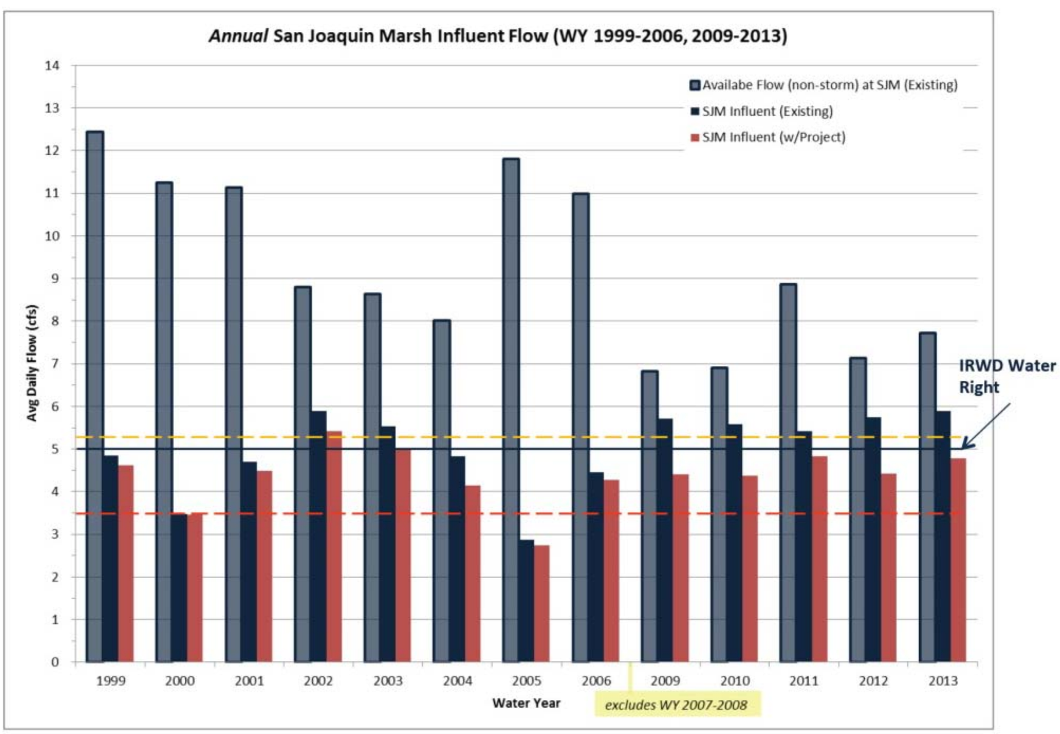
TABLE 9
EXCEEDANCE PERCENTAGE FOR SELECTED FLOW RATES UNDER EXISTING AND PROJECT CONDITIONS, WY 1999 - 2013

		Discharge			
		3 cfs	**5 cfs**	**7.5 cfs**	**10 cfs**
% Time Exceeded	Existing Conditions (1998-2013)	99.8%	97.3%	66.5%	42.0%
	Project Conditions	96.0%	70.9%	45.5%	28.6%
Change in % time exceeded existing conditions		-3.8%	-26.4%	-21.0%	-13.3%

4.2.3 San Joaquin Marsh

4.2.3.1 Project Impacts on Influent Rate to San Joaquin Marsh

Figure 17 plots the annual average SJM intake rate for existing and project conditions, showing the effect of the Project on reducing intake to SJM. **Table 7** includes the average influent rate for WY 2009 – 2013, which represents an extended drought period under contemporary baseline conditions as discussed previously.



Minimum (based on WY 2009-2011, 2013 dry-season avg) = 5.3 cfs
Minimum (based on minimum monthly avg, July 2013) = 3.5 cfs

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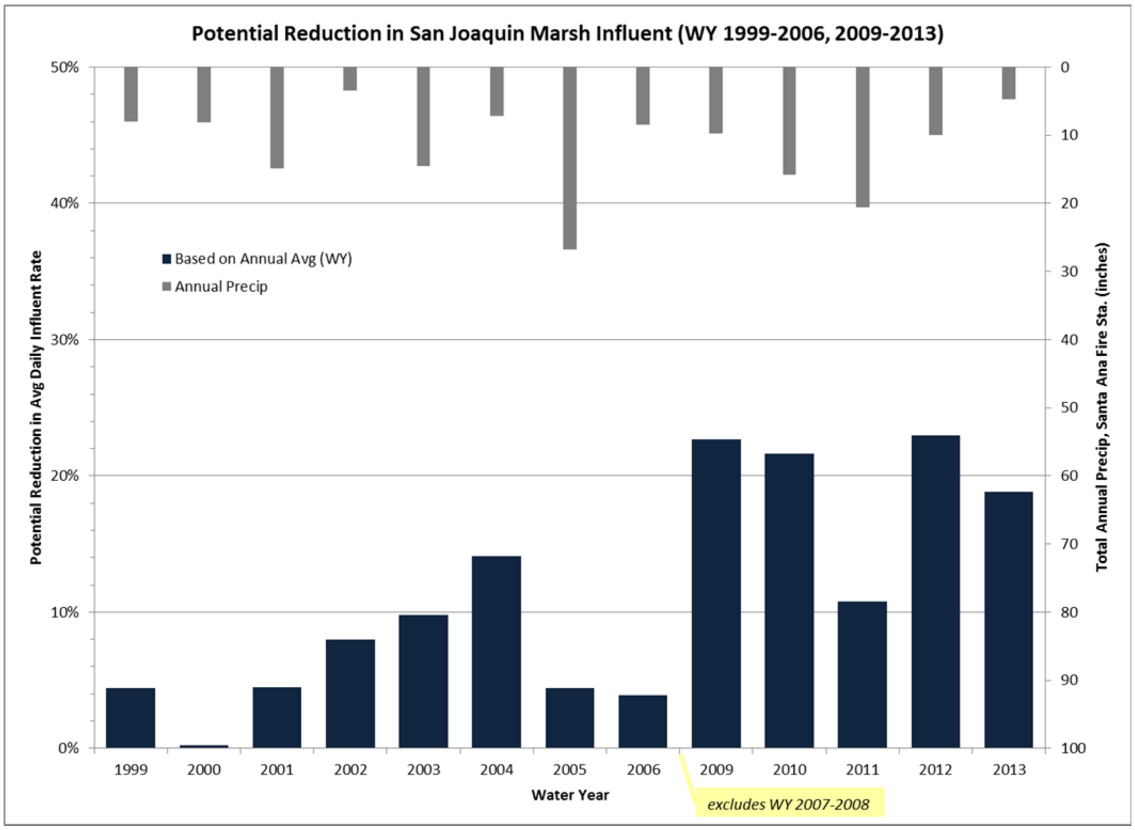
SOURCE: Existing Flow Data (IRWD, 2014b;OCPW 2014a, 2014b)

Figure 17
Existing and Project-Condition Influent, Annual Averages

On average (for WY 2009-2013), the project would result in an approximately 19% reduction in SJM influent from SDC (i.e., the average inflow rate would be reduced from approximately 5.7 cfs to 4.6 cfs). This would represent a notable reduction in supply for the marsh. As shown in **Figure 18**, the potential impact of the project is noticeably larger over the WY 2009-2013 period. On an average volume basis, for the WY 2009-2013 period, the Project may reduce the annual influent to the SJM by approximately 260 million gallons per year (MGY), from 1,345 MGY under existing conditions to 1,085 MGY for project conditions.



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SOURCE: Precip. Data (NCDC, 2014)

Figure 18
Potential Reduction in SJM Influent

To assess the potential implications of this flow reduction, a range of potential minimum inflow rates (5.3 cfs to 3.5 cfs) is used as a frame of reference and context. This range is based on the following:

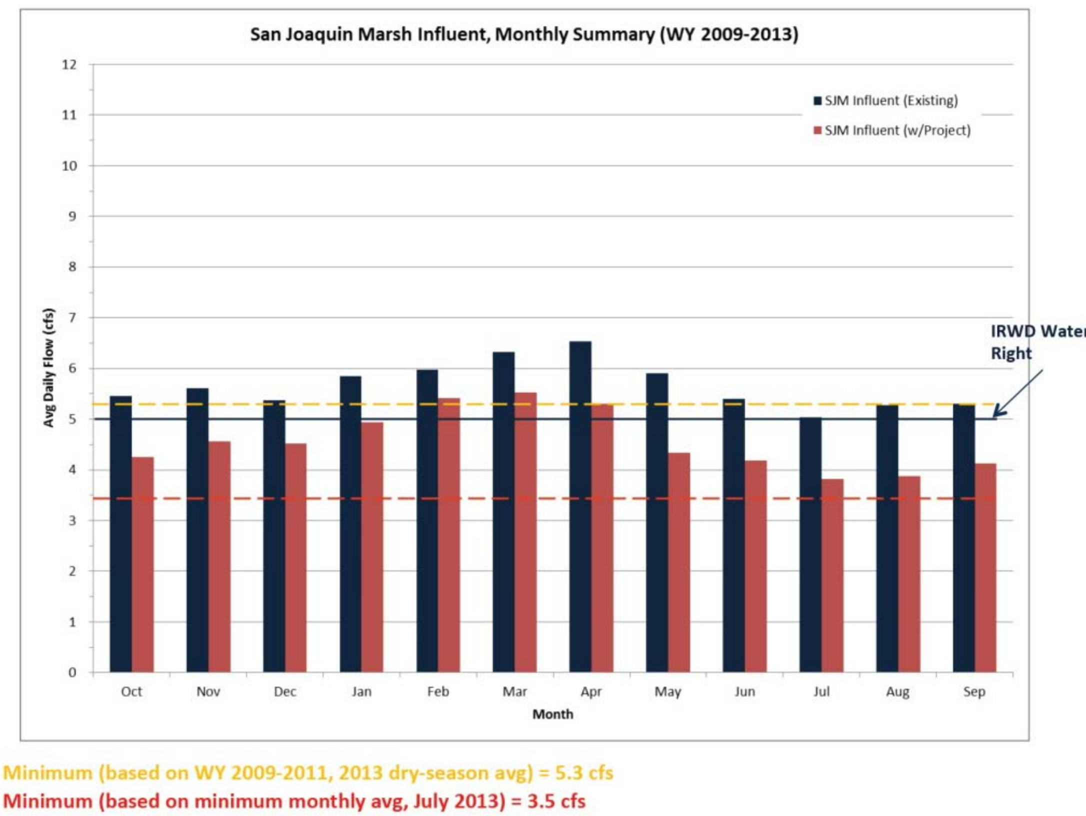
1. The upper end (5.3 cfs) is our best estimate of a representative, minimum inflow rate under contemporary operating conditions (based upon WY 2009-2011 and 2013),[10] as the SJM has not exhibited any signs of decreased functionality over this period (IRWD, 2014).

[10] We exclude WY 2012 because the influent rate was notably higher for this particular year, and we are thus considering it as an outlier with respect to this specific purpose and metric.

2. The lower end (3.5 cfs) represents the lowest monthly average inflow rate recorded for the SJM (in July of 2013) (IRWD suggests, based on experience and judgment, that this value is consistent with a likely, minimum desirable inflow rate that is roughly equivalent to running the SDC pump station at 3,200 gallons per minute for about 12 hours.).

The range in the potential minimum SJM influent rate is shown in **Figure 17** and subsequent figures for reference and context. Under project conditions, the average SJM inflow rate would generally fall within this range.

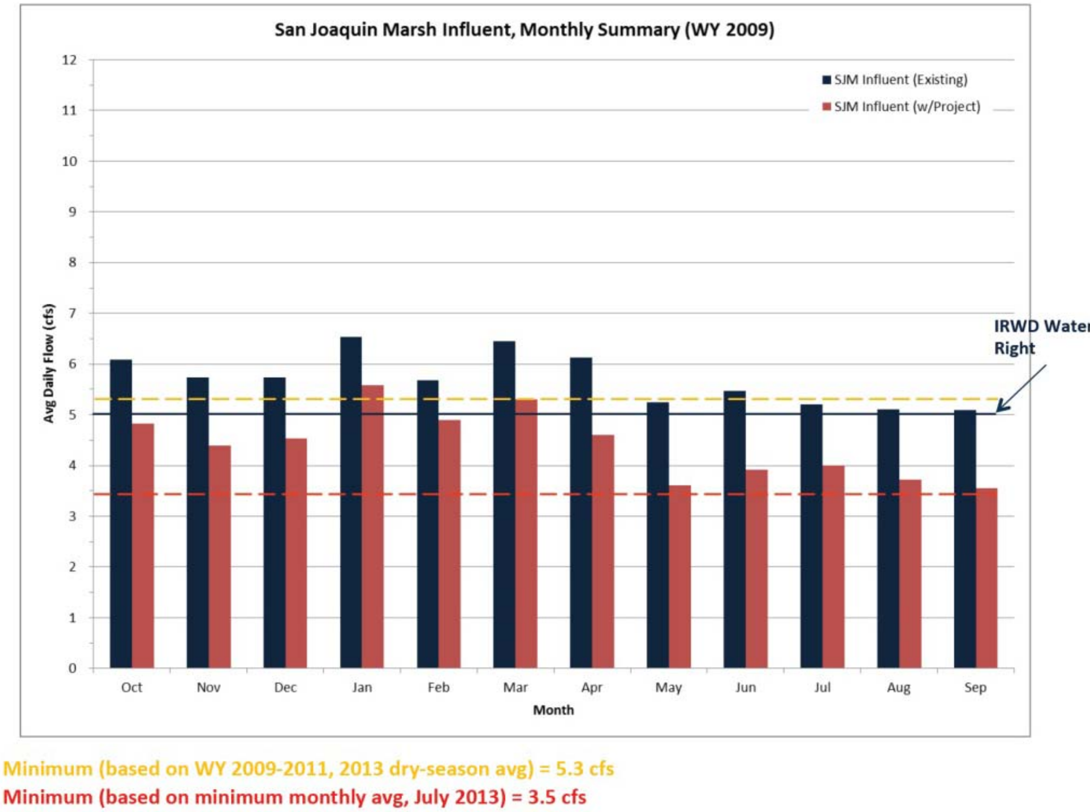
In looking at the potential impacts on a monthly basis (**Figure 19**), the result is similar in that the SJM inflow rate would generally fall within this range. The project's potential impact seems to be greatest for the months of May through September and is more apparent in certain years, such as WY 2009, which was a dry year in the midst of multiple, consecutive dry years (**Figure 20**). On average, implementation of the project would reduce the SJM inflow rate closer to the lower-end of the potential minimum inflow, particularly during the dry-season.



Peters Canyon Channel Water Capture and Reuse Pipeline Project / 130993

SOURCE: Existing Flow Data (IRWD, 2014b)

Figure 19
Existing and Project Condition SJM Monthly Influent, WY 2009-2013



Peters Canyon Channel Water Capture and Reuse Pipeline Project / 130993

SOURCE: Existing Flow Data (IRWD, 2014b)

Figure 20
Existing and Project Condition SJM Monthly Influent, WY 2009

With respect to IRWD's existing water right (5 cfs), implementation of the project would substantially reduce the amount of time that the permitted diversion rate would be achieved. Per the flow duration analysis shown in **Figure 16** and **Table 9**, the Project would reduce the percentage of the time that 5 cfs is exceeded at the SJM inlet from 97.3% under existing conditions to 70.9% under project conditions. The Project also decreases the percentage of time that flows from 3 – 10 cfs are exceeded, as shown in **Table 9**.

In terms of annual volume, 5 cfs equates to 1,180 MGY. Per **Table 7**, the project would reduce the average annual SJM influent to approximately 4.6 cfs, or 1,085 MGY. Therefore, the project may take up to approximately 95 MGY of water that has been appropriated to IRWD for diversion into the SJM or other uses.

4.2.3.2 Water Levels and Project Impacts to Water Levels and Residence Time in San Joaquin Marsh

Apart from the potential change in SJM inflow rate and subsequent supply, we used our simplified water balance to assess how a potential reduction in inflow may affect the water levels and residence time of the marsh (**Table 10**). In this case we focus on the dry season, as evaporative losses are highest during these months and, subsequently, the project's potential impact upon water levels and residence time would be the greatest. Per **Table 7**, the Project may reduce inflow to the SJM by approximately 19% on an average annual basis, and by approximately 23% on a dry season basis (**Appendix B**). Water levels in SJM are managed and controlled by weirs and other water control structures. If the rate/amount of evaporation exceeds the rate/amount of inflow replacing water lost to evaporation, then SJM water levels and habitat extents would decrease; however, as long as inflow exceeds evaporation, the weirs/water control structures can be used to maintain water levels. Under project-conditions, the volume of water being moved in and out of the SJM would be much larger than the volume of water being lost within the SJM via evaporation or other processes (**Table 9**). For example, for WY 2009-2013, average dry-season evaporative losses under project conditions represent only about 13% of the total SJM input. Therefore, since inflow to the SJM would still far exceed the estimated losses within the SJM under project-conditions, the water levels and extent of physical habitat within the SJM are unlikely to be affected.

Project condition residence time was calculated similarly to the existing conditions estimate described in Section 4.1.4.3. We calculated the SJM effluent rate under project conditions using the water balance described in Section 4.1.4.3. For the project conditions water balance, we used the project conditions SJM inflow rate; applied the inputs and losses from precipitation, evaporation, and other sources/sinks estimated for existing conditions; and recalculated the average SJM effluent rate for each year under project conditions. Since project condition marsh influent would still exceed the existing losses, the SJM effluent rate was simply calculated by subtracting the existing losses from the project condition influent. Residence time was calculated using the total SJM volume (estimated to be 6,551,005 cubic feet) and dividing by the average through-put flow rate (estimated as the average of the marsh inflow and outflow rates). Under project-conditions, average annual throughput is estimated to decrease by approximately 1.1 cfs (over WY 2009-2013), and average dry-season throughput is estimated to decrease by approximately 1.3 cfs (over WY 2009-2013) (see Appendices B and C). Under the worst-case (dry season) scenario, this could result in increasing the average residence time of the SJM by up to approximately 5 days (i.e., from approximately 14 days to 19 days). The SJM's selenium removal efficiency would likely remain the same, considering the lack of relationship between inflow and removal efficiency (Section 4.1.4.2). An increase in the average residence time could, nonetheless, potentially result in degraded marsh conditions (e.g., potential for algal blooms, decrease in dissolved oxygen) given that increased algal growth has been observed and noted recently under the persistent drought conditions (IRWD, 2014).

TABLE 10
PROJECT CONDITIONS SIMPLIFIED WATER BALANCE, DRY SEASON, SAN JOAQUIN MARSH.

Water Year	SJM Influent Avg (cfs)	SJM Influent Total (ft^3)	MWRP Dewatering [(1)] Total (ft^3)	SJM Total Precip. (ft3)	SJM Total Evap. (ft3)	Other Sources or (Sinks) (ft3)	SJM Effluent Total (ft^3)	SJM Effluent Avg (cfs)	SJM Avg Throughput (cfs)	SJM Avg Residence Time (days)	Ave Re-circ./Throughput Increase Needed (cfs) [(2)]
2001	6.4	100,619,322		281,770	7,606,536	4,558,569	97,853,125	6.2	6.3	12.1	0.4
2002	4.8	75,502,866		66,678	7,566,411	(1,332,658)	66,670,475	4.2	4.5	16.9	0.4
2003	5.3	83,479,192		782,932	8,770,158	(4,975,322)	70,516,644	4.5	4.9	15.6	0.6
2004	5.1	80,496,839		152,715	9,016,640	(5,064,356)	66,568,558	4.2	4.7	16.3	1.0
2005	4.9	76,739,657		536,653	6,990,332	(689,766)	69,596,212	4.4	4.6	16.4	0.1
2006	4.7	74,325,355	7,872,782	986,194	5,328,014	2,372,904	80,229,220	5.1	4.9	15.5	0.1
2009	3.9	61,669,279	2,959,536	73,131	8,896,265	(3,839,445)	51,966,237	3.3	3.6	21.1	1.5
2010	4.2	66,838,975	3,666,245	352,750	8,603,926	(10,289,366)	51,964,677	3.3	3.8	20.2	1.3
2011	4.2	66,494,995	5,623,179	149,488	8,979,381	11,518,212	74,806,493	4.7	4.5	17.0	1.0
2012	5.0	78,334,358	6,811,219	875,422	9,165,675	(6,856,286)	69,999,038	4.4	4.7	16.2	1.7
2013	4.1	64,281,177	5,904,110	182,828	8,962,184	(1,816,824)	59,589,106	3.8	3.9	19.4	1.0
AVG (all)	4.8								4.6	17.0	0.8
AVG (2009-2013)	4.3								4.1	18.8	1.3

(1) MWRP dewatering was discharged directly to the SJM beginning in 2006.
(2) Calculated as the difference between existing conditions (Table 5) and project conditions throughput, i.e., the flow increase (or re-circulation) needed to achieve existing conditions throughput rate under project conditions.

4.2.3.3 Project Impacts to Selenium Loading In San Joaquin Marsh

As summarized in **Table 7**, the project would remove an average of approximately 154 pounds of selenium per year from PCW and SDC. This would translate to about a 31 percent reduction in selenium loading to the SJM from SDC. In other words, under existing conditions (WY 2009-2013) approximately 294 pounds per year of selenium are input to SJM from SDC. Under project conditions, selenium loading to SJM would be reduced to approximately 202 pounds per year. Subsequently, the amount of selenium lost within the SJM (from SDC) would also be reduced as a result of project implementation, dropping from approximately 107 pounds to 74 pounds per year.

5. Summary of Potential Impacts and Mitigation

The project would have an overall benefit in reducing selenium loading to PCW and SDC by approximately 40 to 43 percent, and to SJM as well, by approximately 31 percent. Further, the Project would reduce annual nitrate loading to PCW (at Barranca) by approximately 70 percent. However, the proposed reduction in discharge to PCW could still potentially impact downstream areas and resources in other ways. Based on the above results, most of these potential impacts would not be significant. The principal potential impact of concern is how the reduced inflow from SDC could result in an increase in hydraulic residence time within the SJM ponds, possibly resulting in negative impacts to SJM water quality and habitat. Below we present a brief summary and discussion of potential adverse project impacts.

5.1 Peters Canyon Wash, San Diego Creek, and Newport Bay Impacts

5.1.1 The project would reduce the average width and depth of the Peters Canyon Wash and San Diego Creek wetted channel during base flow conditions, but would not significantly affect aquatic and riparian habitat.

Our analysis has shown that the potential reduction in the overall wetted channel area would be relatively small. Further, the subsequent potential reduction in available, in-stream aquatic habitat for sensitive species would not be substantial. Throughout the project area, riparian and wetland habitats are generally of low-quality and/or non-existent, except for within the Sediment Basins, where both riparian and wetland plant species occur consistently. However, the potential changes in water depth induced by the project would not be substantial enough to expect any significant change in the size or viability of these existing riparian and wetland communities. The larger area of riparian habitat in SDC downstream of Campus Drive is not likely to be significantly affected by the small decrease in surface water flows, depths, and widths given that this reach of the Creek likely “gains” flow from groundwater and native riparian habitat is adapted to low surface water conditions during the dry-season.

5.1.2 The project would reduce Peters Canyon Wash and San Diego Creek flows, but would not significantly increase the rate or amount of selenium or nitrate removal within the channels.

The predicted changes in PCW and SDC velocity are generally insignificant (i.e., changes in velocity are on the order of 0 to 0.11 feet per second) (**Table 8**). The changes in flow velocity within the project area would not be great enough to force the deposition of selenium (or other pollutants, such as nitrate) that may be bound to silt and clay, and thus bound selenium or other pollutants would be expected to behave similarly under existing- and project-conditions.

The process of sequestering dissolved selenium within the project area channels is also not expected to be altered significantly given the very small predicted changes in flow velocity and residence time. For example, even in areas with extremely slow velocities under existing conditions, such as the sediment basins, Hibbs et al. (2008) suggested very little dissolved selenium or total nitrate is removed. Further, in SDC Sediment Basin No. 1 (the downstream-most basins), deposition of pollutants bound to clay-sized particles are controlled primarily by flocculation, which is driven by freshwater mixing with salt water near the downstream extent of the Sediment Basins, a process which would be unaffected by the project. The project reductions in channel flows is not expected to significantly increase the upstream extent of tidal influence and salinity in the mouth of SDC because the tidal extent is controlled by the channel elevation and weirs rather than mixing of freshwater channel flows and saline tidal flows.

The Project is therefore not expected to increase selenium- or pollutant-cycling within the channels and/or SDC Sediment Basins. Rather, the Project would have the beneficial effect of reducing selenium loads in the channels by approximately 40 to 43 percent, as well as reducing the nitrate load in PCW by approximately 70 percent. The substantial reduction in selenium and nitrogen mass loading would be much greater in magnitude than any of the potential, though insignificant, effects the project may have upon residence time or selenium- or nitrogen-cycling within the surface channels.

5.1.3 The project would reduce San Diego Creek flows to Upper Newport Bay, but this would not significantly affect Upper Newport Bay.

In the project area, the tidal influence of Newport Bay generally extends upstream to approximately Campus Drive (SDC) (Hibbs et al., 2008).Estuarine processes in Upper Newport Bay are dominated by ocean tides and tidal flows. The volume of tidal flux in Upper Newport Bay is much larger than the volume of freshwater baseflows from SDC and the reduction in these flows due to the Project. The Project diversions are therefore not expected to affect salinities or habitats in Upper Newport Bay.

5.2 IRWD San Joaquin Marsh and UCI Marsh Impacts

5.2.1 The project would likely reduce the amount of water diverted into the IRWD San Joaquin Marsh from San Diego Creek, but

would not significantly reduce water levels and habitat extents within the SJM and adjacent areas.

Water levels in SJM are managed and controlled by weirs and other water control structures. If the rate/amount of evaporation exceeds the rate/amount of inflow replacing water lost to evaporation, then SJM water levels and habitat extents would decrease; however, as long as inflow exceeds evaporation, the weirs/water control structures can be used to maintain water levels.

The results show that the project would decrease SJM inflow, but that the reduced inflow would still exceed evaporation. The reduction in inflow would slow flow through SJM and increase residence time; however, water levels would be maintained.

As shown in **Table 7**, the project may reduce the inflow to the SJM by approximately 19%, or from a total inflow of approximately 1,345 MGY under existing conditions to 1,085 MGY for project conditions. However, under project-conditions, the volume of water being moved in and out of the SJM would still be much larger than the volume of water being lost within the SJM via evaporation or other processes (see **Table 9**). Therefore, since inflow to the SJM would still far exceed the estimated losses within the SJM under project-conditions, the water levels and extent of physical habitat within the SJM could be managed and maintained as they are under existing conditions, and are therefore unlikely to be affected.

5.2.2 The project would likely reduce the amount of water diverted into the IRWD SJM from San Diego Creek, but would not significantly reduce the amount of water available for transfer to the UC Irvine Marsh.

As described above, for a short period of time each winter (approximately 15 to 20 days, typically anywhere from mid-December through February), water is diverted from the SJM to the UC Irvine marsh in order to fill UCI Marsh (see **Figure 7**). When this occurs, the rate at which water is recirculated to Cells 1 through 9 (and subsequently to the UC Irvine marsh) is increased from approximately 2.5 cfs to up to 3.6 cfs. The dry season project condition SJM throughput rate (4.1 cfs, see **Table 10**) would still be greater than this temporary elevated recirculation rate (3.6 cfs), and thus the project is not likely to impact the current SJM operating practice of temporarily diverting water to the UC Irvine marsh in the winter. In other words, the SJM inflow rate under project conditions would still be greater than the rate of flow transfer to UCI Marsh and water transfers to UCI Marsh could therefore be maintained.

5.2.3 The project would likely reduce the amount of water diverted into the IRWD San Joaquin Marsh from San Diego Creek, but would not significantly impair the water quality treatment function of the SJM.

Based upon the available data relating SJM inflow rates to measured removal efficiency of selenium and nitrogen, there is no statistically-significant relationship between the SJM average inflow rate and the overall selenium or nitrogen removal efficiency of the Marsh (see Section 4.1.4.2). If anything, a reduction in SJM inflow could improve the removal efficiency of the marsh with respect to selenium, nitrogen, and other potential pollutants, as the throughput rate would decrease, allowing more time for potential pollutants to settle-out or otherwise be lost from the water column. The removal efficiency of the SJM is, however, dependent upon a number of other interacting factors and ambient conditions, such as water temperature and dissolved oxygen levels. As the relationship between the SJM inflow rate and removal efficiency of selenium and nitrogen appears to be indeterminate, a reduction in the throughput rate of the SJM is not expected to reduce the removal efficiency. Thus, it is unlikely that the project would impair the water quality treatment function of the SJM.

5.2.4 The project would likely reduce the amount of water diverted into the IRWD San Joaquin Marsh from San Diego Creek, which may potentially degrade water quality and habitat conditions within the SJM (e.g., result in algae growth and low dissolved oxygen) and UCI Marsh transfer water quality.

Though reduced SJM inflow would be unlikely to affect marsh removal efficiency or water levels as discussed above, it would likely reduce the flow-through rate of the marsh and increase the residence time. Under project conditions, we estimate that the average flow-through rate would decrease by 1.1 to 1.3 cfs, increasing the average residence time of the SJM by up to approximately 5 days. Thus, implementation of the project may ultimately reduce the rate at which water is cycled through the SJM (i.e., through Ponds 1-6, and A and B), and this may induce undesirable conditions, such as increased water temperature, increased algae production, and a sustained reduction in dissolved oxygen levels during drought and summer dry conditions. These reduced water quality conditions if sustained may impact the benthic community and potentially fish if the low dissolved oxygen extends to the upper water column in the SJM. These potential impacts are based upon recent observations during the current drought period that suggest there could be a causal link between reduced marsh inflow and increased algae growth (IRWD, 2014). It is important to also note that an anticipated decrease in nutrient loading from the Project may likely reduce algae growth during these critical periods. Under conditions of continued increases in algae production and die off as a result of reduced circulation and increased retention time, diurnal fluctuations in dissolved oxygen may results in anoxic conditions during the night at the lower water column. If sustained, these conditions can impact the benthic community, and potentially fish if the low dissolved oxygen extends to the upper water column. These potential effects would significantly impact habitat and require increased SJM management and maintenance actions, such as removal of algal mats. Increased algae growth and anoxic conditions could also result in increased selenium sequestration in the SJM. An IAF that would mitigate these effects is described below.

The project could similarly degrade water quality of water transferred from SJM to the UCI Marsh; however, transfers to UCI Marsh occur during the winter when the effects of the project would be less and the potential for poor water quality conditions would also be less (due to lower temperatures). The IAF discussed below would also mitigate the potential for degraded water quality of water transferred to UCI Marsh.

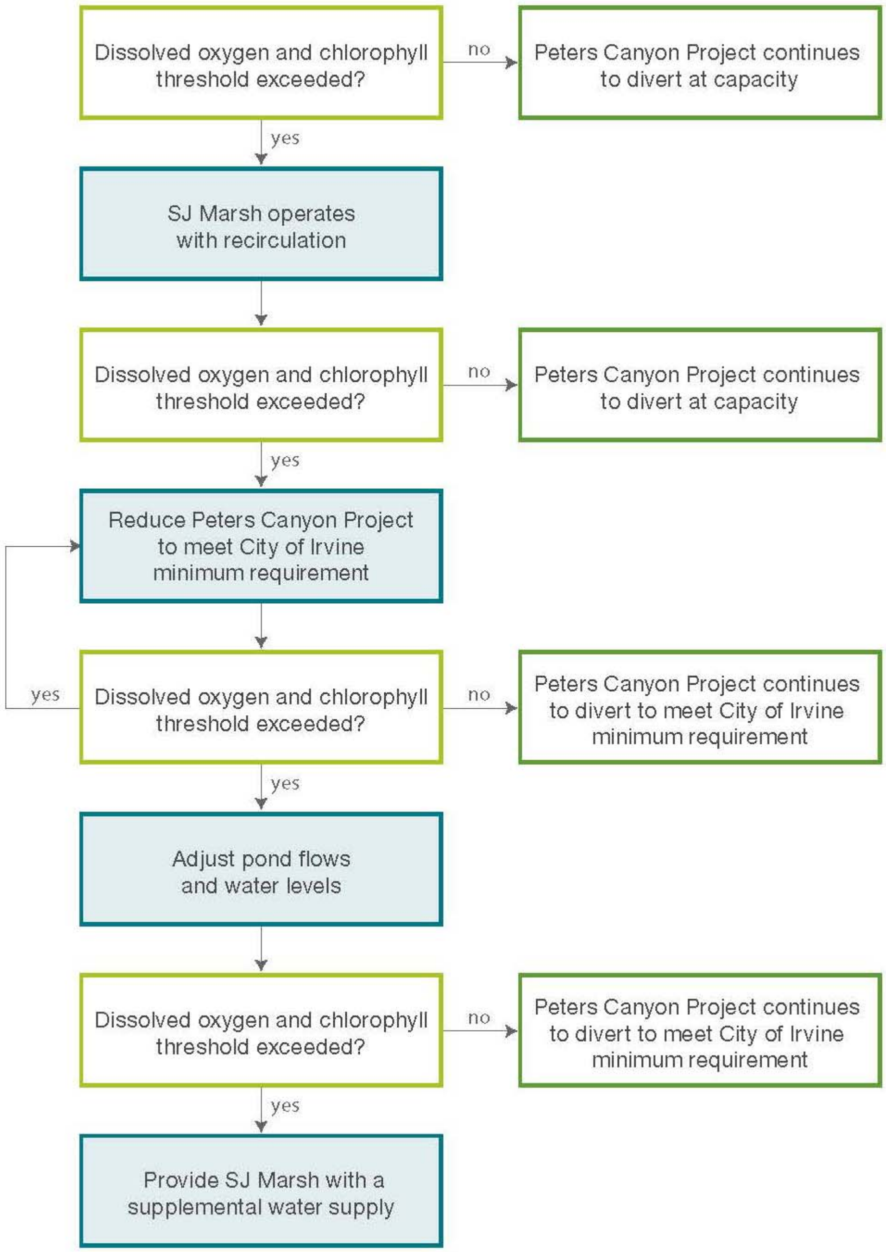
5.3 Mitigation Measures – Impact Avoidance Framework

An Impact Avoidance Framework (IAF) is recommended as the mitigation measure to avoid potentially significant impacts to SJM water quality and habitat described above. We present here a conceptual framework for the IAF, which includes an existing water quality sampling program, a description of potential management actions and a management action trigger.

Contemporary SJM operating conditions (i.e., the existing inflow and outflow rates) essentially serve two primary objectives: 1) provide a water quality treatment function (e.g., by removing nitrogen from SDC and thus reducing the annual loadings to the downstream reach of SDC and Newport Bay) and 2) provide habitat for fish and bird species (e.g., shorebirds and waterfowl). As discussed above, the project is unlikely to impact the first objective but could potentially have an impact upon the second, if changes in water quality such as increased algae growth and die off that result in sustained lower dissolved oxygen were to adversely affect benthic and fish communities. The following discussion and IAF have been developed to address the potential negative project impacts to SJM water quality and habitat conditions due to reduced inflow from SDC and a corresponding increase in hydraulic residence time within the SJM ponds (Ponds A, B, and 1-6) (as discussed above).

5.3.1 Impact Avoidance Framework Overview

An IAF would be developed that utilizes an existing water quality sampling program and implementing different management actions in response to SJM water quality and habitat conditions. For example, once the Project diversions are operational, SJM water quality conditions would be monitored and evaluated. If water quality conditions are deemed acceptable based on meeting established baseline conditions and management action triggers (described in the section below), no management action would be necessary. If sustained lower dissolved oxygen levels are observed that are both below and longer in duration than the baseline conditions, then temporary management (mitigation) action would be implemented. A conceptual example of the decision-making process and management action hierarchy are illustrated in **Figure 21**. Management actions are only expected to be required during critical periods of low flow such as drought conditions and summer months. Management actions would only be implemented when needed, and are therefore likely to be temporary actions. Once conditions are deemed to be acceptable and are expected to continue to meet baseline conditions without further management action, the management action would cease and management and operations would return to the baseline regime.



NOTE: The proposed order of management action implementation is subject to change.

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Figure 21
SJ Marsh Impact Avoidance Framework Overview (Conceptual)

Management actions may include, but not be limited to, the following list; these management actions are described in greater detail in Section 5.3.4 below:

1. **Recirculation** – Increased re-circulation of water through SJM to compensate for reduced intake. Re-circulation has the potential to maintain acceptable water quality conditions, but may require increased pumping within SJM.
2. **Reduce Project Diversions** – Reducing Project diversions would increase the available inflow for the SJM and help to maintain acceptable water quality conditions. In this case, a minimum Project diversion rate would be established such that the portion of the diversion required by the City of Irvine's NPDES permit would still be met.
3. **Modified Pond Management –** The existing operations and maintenance of the SJM allow for modifying pond management (see Section 3.3.1 above). Within the scope of the existing operations and maintenance program, SJM pond management could be modified by reducing water levels or temporarily removing one or more SJM ponds from the flow-through water quality treatment system in order to maintain the existing conditions residence time with the reduced project conditions inflow.
4. **Alternative Water Supply** – The Project's reduction in SJM inflow could be compensated for by using a supplemental water source such as water from another surface channel or potable water, to replace the reduction in inflow. In this mitigation scenario, inflow to SJM would not be reduced and existing SJM operations and water quality would likely be maintained.

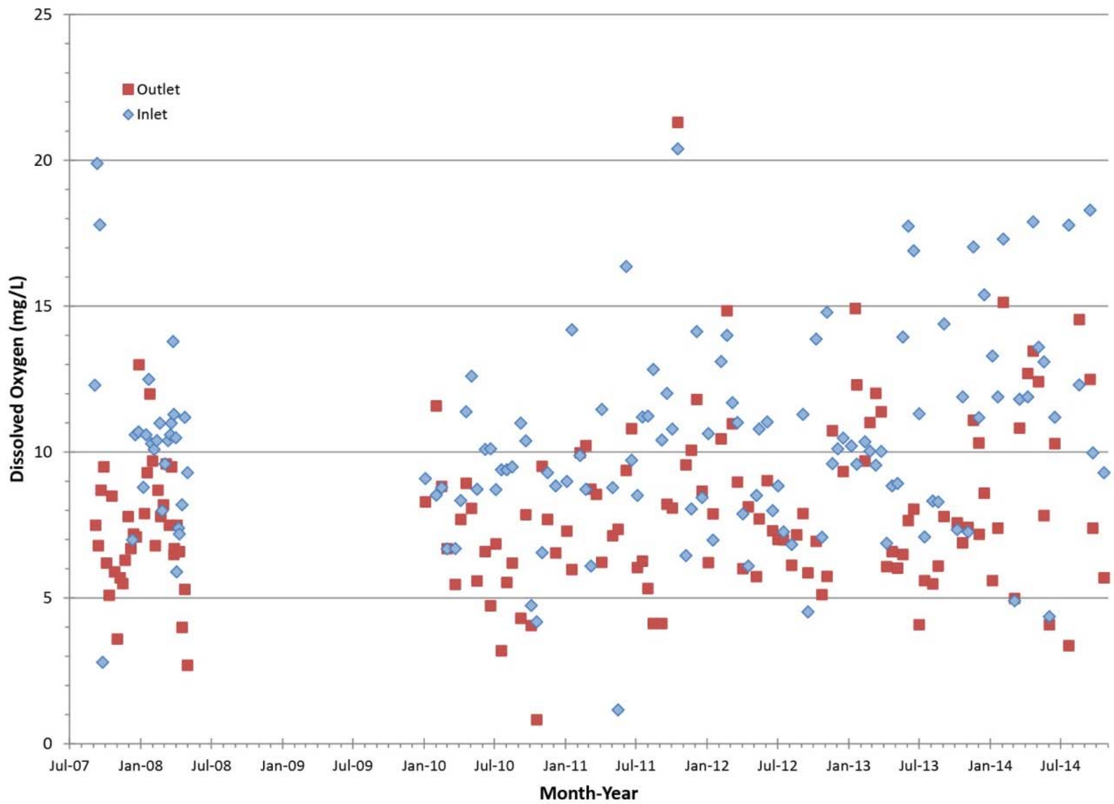
5.3.2 Management Action Trigger(s)

Dissolved oxygen levels would be used to define a water and habitat quality threshold between acceptable conditions that would require no further action and unacceptable conditions that would trigger implementation of one or more management actions...

As described in Section 3.3.2, the existing water quality sampling program routinely measures, a number of water quality parameters, including dissolved oxygen and chlorophyll for SJM inflow and outflow. Dissolved oxygen levels measured at the outlet of the SJM (just downstream of the SJM pump station) are a good indicator of the overall conditions within the marsh. Based upon data collected by IRWD (2014a), dissolved oxygen levels at the SJM inlet and outlet have historically (i.e., since 2007) ranged from 1.2 to 20.4 milligrams per liter (mg/L) and from 0.8 to 21.3 mg/L, respectively (**Figure 22**).[11] Further, average dissolved oxygen levels at the marsh inlet and outlet are 10.4 and 7.9 mg/L, respectively, though the variation in this parameter is substantial. The Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) (SARWQCB, 2008) objective for dissolved oxygen is 5 mg/L. However, dissolved oxygen levels may exhibit relatively large fluctuations, both seasonally and even diurnally (e.g., between morning and evening). The SJM has generally functioned as intended and provided quality habitat even though measured dissolved oxygen levels have sporadically been below the 5 mg/L objective from the Basin Plan. Given that SJM conditions and dissolved oxygen levels have naturally fluctuated and fallen below 5 mg/L while continuing to support adequate water quality

[11] Dissolved oxygen content in water is a function of water temperature and salinity.

and habitat, dissolved oxygen triggers for the IAF would be established based on the existing sampling program's dissolved oxygen data.



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SOURCE: IRWD (2014a)

Figure 22
IRWD SJM DO Measurements (2007-2014

Baseline Sampling Program

Dissolved oxygen data collected by the existing water quality sampling plan will be used to establish a dissolved oxygen-based trigger for the IAF. The historic data will be used to establish dissolved oxygen conditions for the SJM during critical periods from which to compare water quality during the project implementation. The baseline condition will then be used as a basis to establish a trigger for management actions. This trigger will be defined as sustained lower dissolved oxygen conditions that are both lower and longer in duration than the baseline conditions.

5.3.3 Impact Avoidance Framework Sampling

The existing water quality sampling program described in Section 3.3.2 will be used by the IAF. The main component of the program would be sampling for dissolved oxygen at the same locations as the baseline sampling program. Data collection frequency and assessment may be adjusted according to season and/or the likelihood of approaching the management action levels.

For example, during the wet season (October through March), and when SJM inflow is at or above 5 cfs, it may be adequate to assess dissolved oxygen levels by way of a weekly or bi-monthly running average. In contrast, during the dry season, and when SJM inflow is below 5 cfs (e.g., during extended drought conditions), dissolved oxygen levels may need to be assessed on a daily basis. The management action triggers would be revisited and revised (as necessary) based upon the sampling result, coupled with more qualitative indicators of marsh health (e.g., observations of algae growth). In addition to the water quality sampling, IRWD will continue the existing monitoring of the SJM daily inflow and outflow.

5.3.4 Impact Avoidance Actions

If sustained lower dissolved oxygen levels are observed compared to the baseline conditions, then IRWD would initiate the implementation of one or more specific management actions (discussed in more detail below). The IAF is intended to be flexible, and the exact order in which the various management actions are implemented may be adjusted to meet the objectives of the IAF.

5.3.4.1 Recirculation of Flow within IRWD San Joaquin Marsh

One option for maintaining the existing flow through rate for the SJM under project conditions would be to re-circulate water through SJM Ponds A, B, and 1-6 using the existing pump station and pipe system. The goal would be to re-circulate water at a flow rate that would compensate for the reduced intake available from SDC and thus maintain water quality conditions similar to past years and operations. Given the existing operations and infrastructure within the SJM, most if not all of the needed facilities for additional re-circulation are already in place. **Figure 7** shows the different ponds, cells, and areas within SJM. **Figure 23** is a schematic showing average flow rates in SJM for existing conditions, project conditions, and project conditions with re-circulation (as a mitigation measure). Each scenario in **Figure 23** is described below.

Existing Conditions (average annual basis): Under existing conditions, typical flows and operations are as follows:

- 5.7 cfs pumped from SDC to Pond A by the SDC pump station;
- Passive flow (i.e., cascading or gravity flows over weir structures) from Pond A through Pond 1, Pond 2, Pond 3, Pond 4, Pond 5 to Pond 6;
- 0.3 cfs from the MWRP dewatering wells flows into the marsh system at Pond 5;
- 0.7 cfs net loss due to evaporation (as well as other gains and losses, e.g., groundwater interactions);
- 5.3 cfs passive outflow from Pond 5 to Pond 6. Pond 6 acts as a fore bay pond for the SJM pump station and also receives flow that is re-circulated through Cells 1 – 9 via the Linear Pond;
- A total of 7.8 cfs pumped from Pond 6, which consists of 5.3 cfs outflow pumped to SDC as outflow and about 2.5 cfs that is re-circulated through Cells 1 – 9 (IRWD currently successfully manages re-circulation of flows through Cells 1 – 9 and Pond 6).

Project Conditions (average annual basis): Under project conditions, the available flow from SDC would be reduced by approximately 1.1 cfs (19%), from 5.7 cfs to 4.6 cfs. Outflow to SDC would also be reduced by up to the same amount, decreasing from 5.3 cfs to 4.2 cfs. Existing recirculation of flows through Cells 1 – 9 could be maintained.

Project Conditions with Re-circulation (average annual basis): Flows could be re-circulated from Pond 6 back to Pond A using the existing SJM pump station and pipe distribution system. Pumping approximately 1.1 cfs from Pond 6 to Pond A, as shown in **Figure 23**, would achieve a similar rate of flow through Ponds A, B, 1 – 5 as for existing conditions. The SJM pump station could be operated for a rate of pumping and re-circulation that is higher (or lower) than 1.1 cfs since the total pumping rate would be 7.8 cfs and the pump has a capacity of up to 11.6 cfs (5,200 gpm design flow). Note that the SJM pump station runs at 7.8 cfs under existing conditions and the current rate of pumping could therefore be maintained with re-circulation. A ramp-up period would be required to achieve the re-circulation rate.

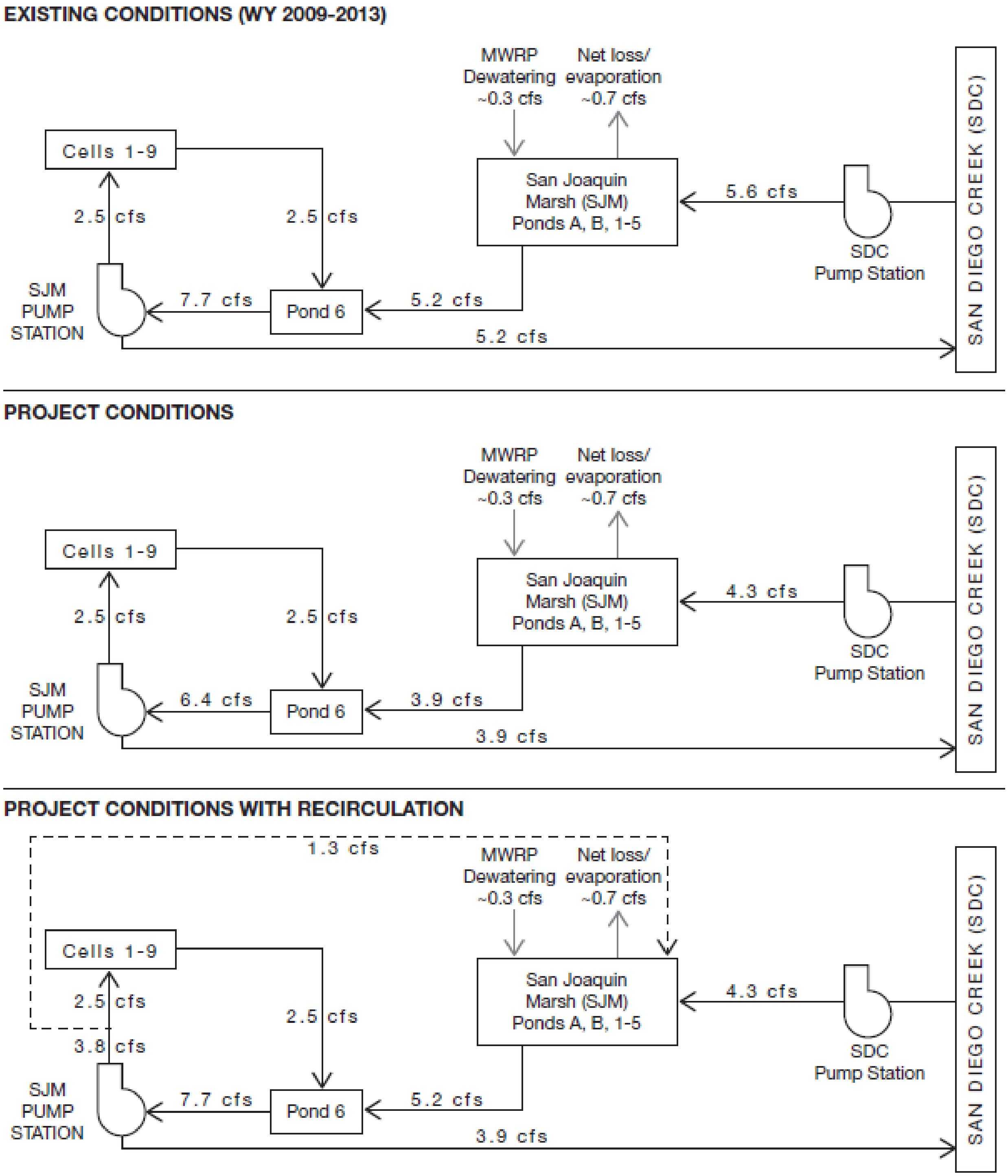

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Figure 23
Existing and Proposed
San Joaquin Marsh Operations

Figure 24 is an operation schematic for the SJM with the all ponds, pumps, pipes, and valves shown. The SJM pump station currently pumps water from Pond 6 to Cells 1 – 9 for re-circulation and to SDC for discharge. The pipe system is equipped with gate valves that control water distribution and flow rates. The existing valves would not allow for precise control and measurement of the split in flow rates to Cells 1-9, re-circulation to Pond A, and discharge to SDC; however, IRWD could consider upgrading the valve system to allow for more precise control. Therefore, at a minimum, IRWD would likely need to install new valves on the pipeline from the discharge pipe to Cells 1-9 (i.e., the Carlson and Michelson Ponds) and the pipeline from the Carlson/Michelson Ponds pipeline to Pond A (see **Figure 24**). These new valves would ideally provide the ability to measure and control flow rates.

It is possible that re-circulating a portion of flow back through Ponds A, B, 1-6 may yield different water quality conditions compared to existing conditions, in which most intake flow is from SDC (i.e., except for the small amount attributable to the MWRP dewatering). Re-circulation would maintain the existing conditions flow through rate, though the overall hydraulic residence time would still be increased. In effect, with recirculation the hydraulic residence time for the fraction of flow being recirculated would be even longer than for the project condition alone, and one likely outcome of this scenario would be that the SJM removes (and potentially sequesters) more selenium as compared to the project condition without recirculation. Thus, we recalculated the SJM effluent selenium concentration, removal efficiency, and mass of selenium lost for the project condition with recirculation of 1.1 cfs and compared this to both the existing and project condition (**Table 11**).

TABLE 11
COMPARISON OF SJM SELENIUM REMOVAL, ANNUAL AVERAGES (WY 2009-2013)

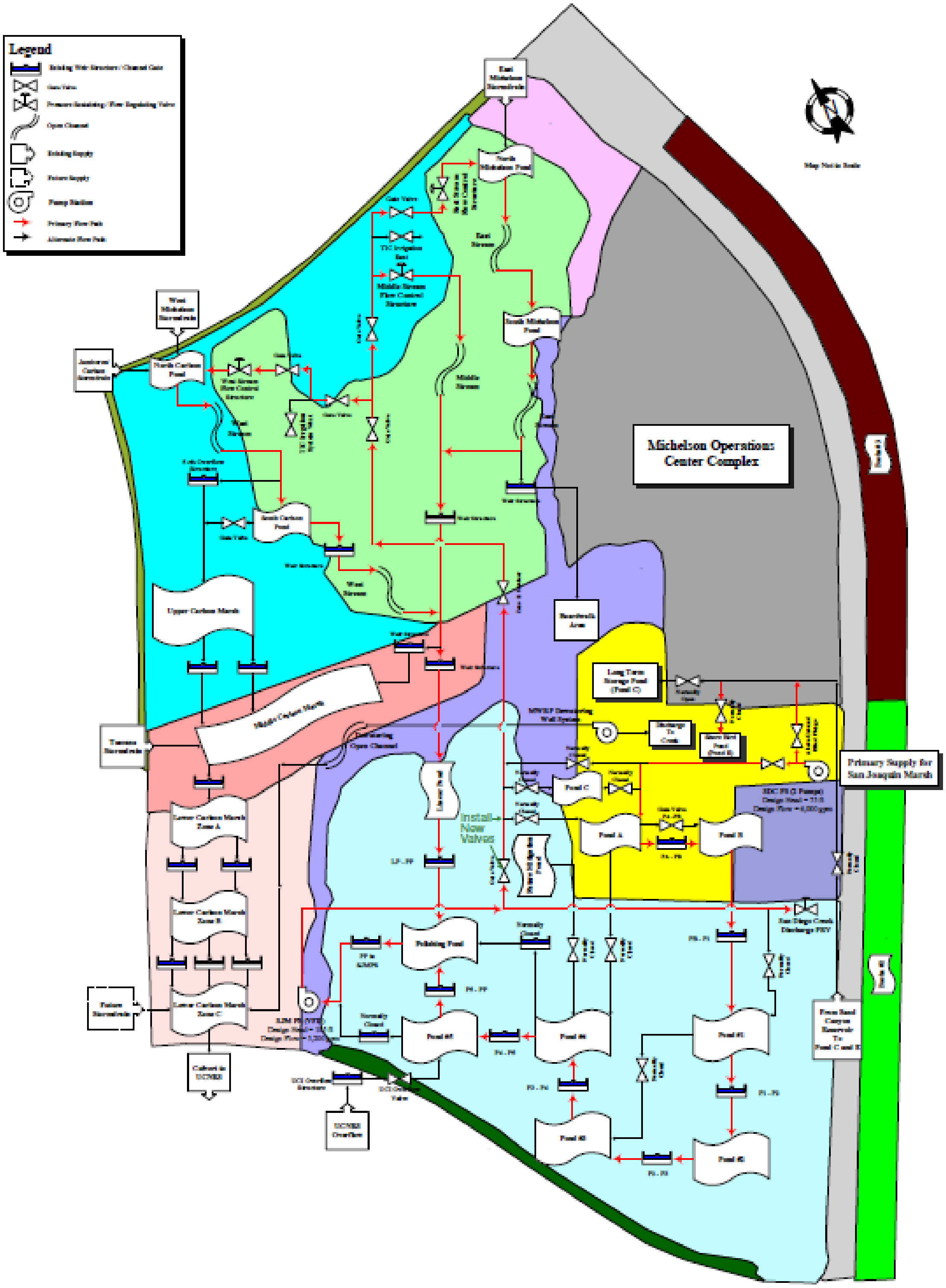
	SJM Effluent to SDC, Se Conc. (ppb)	Se Removed in SJM (lbs)	Removal Efficiency
Existing Conditions	18.0	107.1	36.1%
Project Conditions	15.7	73.9	36.1%
Project Conditions w/Recirculation	14.4	84.4	41.2%

To estimate the increase in selenium sequestration with recirculation, we derived the following equation as shown in **Appendix F**:

$$E_R = \frac{C_e}{C_0} = \left(\frac{E}{1 + R - RE}\right)$$

Where C_0 is the concentration of selenium in the intake from SDC (and MWRP dewatering), C_e is the effluent concentration, E_R is the ratio of effluent to intake concentration adjusted for re-circulation, and:

$$E = \frac{C_e}{C_i}$$



SOURCE: IRWD

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Figure 24
San Joaquin Marsh
Existing Operating Schematic

Where C_i is the concentration of in the water entering the Marsh (mix of SDC intake and re-circulated water) and:

$$R = \frac{Q_R}{Q_0}$$

Where Q_0 is the intake flow rate from SD and Q_R is the re-circulation rate.

Under existing conditions, E = 1 – Removal Efficiency from **Table 7** (36.1%), so E = 1 – 0.361 = 0.639.

In the re-circulation scenario, Q_0 = 4.6 cfs, Q_R = 1.1 cfs, and R = 0.24. E_R is therefore 0.588 from the equation above, and the removal efficiency with re-circulation is 1 - E_R or 41.2%. With this level of re-circulation, the SJM removal efficiency is therefore estimated to increase from 36.1% to 41.2%.

Under the project condition with recirculation scenario we predict that slightly more selenium (84.4 pounds) would be sequestered or otherwise lost within the SJM compared to the project condition alone (73.9 pounds), and the effluent selenium concentration would subsequently be slightly less. However, recirculation of 1.1 cfs would still result in less selenium (84.4 pounds) being sequestered or otherwise lost within the Marsh compared to the existing condition (107.1 pounds). Thus, this level of recirculation is not expected to have negative impacts with respect to selenium sequestration within the SJM. Further, we expect a similar outcome with respect to nitrogen removal within the Marsh (i.e., recirculation may result in more nitrogen being sequestered or otherwise lost within the SJM as compared to the Project condition without recirculation, but it would still be less than the existing condition). These estimates are based on maintaining existing water quality conditions through the IAF, including dissolved oxygen levels and selenium and nitrogen removal rates.

Concerning other water quality conditions and parameters, current operations suggest that SJM can be successfully managed with re-circulation of flows. Successful re-circulation of flows through Cells 1 – 9 and Pond 6 under existing conditions suggests that any water quality differences may not be an issue. IRWD also occasionally shuts down the intake to SJM when the SDC Sediment Basin maintenance is occurring. During these periods, all of the flow through the SJM is re-circulated without negative consequences; however, this does not occur for an extended period of time. Note that the rate of flow through the ponds with re-circulation could be increased above the existing flow through rate if necessary and effective in addressing any negative water quality effects of re-circulation. Using the above equation, we estimate that the re-circulation rate could potentially be increased to up to about 2 cfs, for a total SJM pump station flow rate of 8.4 cfs, without increasing selenium sequestration compared to existing conditions. This would require an increase in the pumping rate over existing conditions and monitoring to confirm the rate of selenium concentration with re-circulation. Re-aeration of water within the pumping and re-circulation system could also be considered if necessary. As discussed above, IRWD would continue to monitor water quality in the SJM and inspect the ponds for any potential negative effects such as excess algae growth.

5.3.4.2 Reduce Project Diversions

Reducing Project diversions would increase the available inflow for the SJM and help to maintain acceptable water quality conditions. A minimum Project diversion rate would be established such that the City of Irvine's (City) discharges (currently permitted under SARWQCB Order R8-2005-0079, the City of Irvine Dewatering Permit) are either diverted or offset at all times.

The City has three discharges that need to be offset by the Project at all times.[12] The City has two permitted discharges into the Como Channel (the Culver and Jeffrey discharges). These discharges would need to be diverted/offset through Project diversions (i.e., offset at a 1:1 ratio). Also, the City has one permitted discharge into PCW just upstream from the Como Channel (the Jamboree discharge), and since this discharge would not be captured by the Project the City would need an offset credit at a higher ratio, conservatively assumed to be 3:1. Collectively (and based on data beginning in 2009), the City's average monthly discharge ranges from 0.05 to 0.21 cfs, and accounting for the required offsets the minimum Project diversion range would be from 0.06 to 0.23 cfs based on the City's data. The low-end of this range represents more recent conditions (i.e., the last few years), and may reflect changed operations and/or extended drought conditions.[13]

If it is necessary to reduce the Project diversions, IRWD would reduce (or stop) the diversions from the Edinger Circular Drain and Valencia Drain first, as these are independent of the City's discharges. If the diversion from the Como Channel also needs to be reduced at some point, IRWD would maintain a minimum diversion rate to offset the City's discharges. Depending on the season and broader climate factors (e.g., persistence of the current drought), the City's discharges may change compared to the average conditions over the last five years. Thus, prior to reducing the diversions from the Como Channel, IRWD and the City would assess the average discharge from the City's points (Culver, Jeffrey, and Jamboree) and calculate, or come to consensus on, the target minimum diversion for the Como Channel.

Under this reduced Project diversion scenario, assuming diversions are reduced to between 0.06 to 0.23 cfs as discussed above, the Project diversion would be reduced by approximately 97 to 90 percent, on average. The impact to SDC flow available for intake to SJM would be correspondingly lessened. For example, the estimated 1.1 cfs reduction in inflow to SJM (from **Table 7**) would be reduced to about a 0.1 cfs reduction in flow. This would be equivalent to about a 2 percent reduction in the average existing inflow to SJM (5.7 cfs from **Table 7**), which is not expected to be significant. Reducing Project diversions to a minimum rate is therefore expected to mitigate any potential adverse SJM water and habitat quality impacts due to the diversions.

5.3.4.3 Modified Pond Management

Another option within the IAF for mitigating the Project's effect on SJM inflow, residence time, and water and habitat quality would be to modify the management of water levels and flows

[12] The City's current permit for these discharges (R8-2005-0079) was extended by Time Schedule Order (TSO) R8-2009-0069. The TSO will expire in 2019, at which time these discharges will need to be offset by the Project as they would not be able to meet the Basin Plan selenium objective of 5 ppb.

[13] In late 2012 the City changed the way in which their discharges were operated, generally resulting in lower discharge rates (City of Irvine, 2014).

within the ponds within the range of historic operations. Under this management action, flows through Ponds A, B, and 1-6 could be modified by temporarily reducing water levels and/or taking one or more of the existing ponds out of the treatment chain for short periods of time to maintain existing residence times within the rest of the ponds. For example, the offline pond(s) could be operated exclusively for habitat, without flow through for water quality treatment. Thus, by reducing the functional treatment volume of the marsh the existing residence time could be maintained with the reduced inflow under project conditions. The offline pond(s) and habitat would need to be managed by transferring enough water into the pond(s) from time to time to maintain desirable habitat conditions, similar to how the UCI Marsh is currently managed.

We recalculated a simplified water balance under project conditions assuming a smaller overall marsh volume (i.e., such that we would recover the existing conditions residence time of approximately 14 days).[14] In order to reduce residence time back to approximately 14 days under project conditions, an overall marsh volume of approximately 4,950,000 cubic feet would be required. This is a reduction of approximately 1,6000,000 cubic feet relative to the current estimated marsh volume of approximately 6,551,005 cubic feet for Ponds A, B, and 1-6. **Appendix C** shows the results of simplified water balance under project conditions using the reduced marsh volume. Reducing the overall marsh volume by approximately 1,600,000 cubic feet could offset and mitigate for the potential increase in hydraulic residence time as a result of the project. For perspective, this volume is roughly equivalent to the size of Pond 1 or 2 (see **Table 4**). Thus, temporarily taking Pond 1 or Pond 2 offline within the range of historic operations would likely mitigate the Project effects on SJM residence time.

As described above, Ponds 1 and 2 are already subject to periodic drawdown lasting up to a maximum of eight weeks for routine maintenance. These ponds are currently drawn down once a year, and the timing of pond drawdown is coordinated to minimize the potential impacts to vegetation and ground nesting shorebirds and waterfowl. Typically Pond 1 will be drawn down early in the season (May, June) and Pond 2 later in the season (July, August). All ponds are typically full in October to accommodate the fall migration of shorebirds and waterfowl. Thus, it may be feasible, as part of the IAF, to take one or more ponds offline while working within the current operational scheme and continuing to meet some the SJM objectives. For example, as a contingency measure during drought conditions, the annual maintenance of Pond 2 could be pushed back further to coincide with potentially needing to implement this management action.

Though there could be some temporary, short-term changes in water quality as a result of changing the treatment chain, SJM water quality conditions over time would be expected to remain similar to existing conditions, as the hydraulic residence time of the smaller SJM flow-through system would be comparable to existing conditions.

5.3.4.4 Alternative Water Supplies

As a final IAF option, the Project's reduction in SJM inflow could be compensated for by using supplemental water sources such as flow from the Sand Canyon Channel, flow from the University of California at Irvine (UCI) box culvert, MWRP dewatering well discharges, and/or

[14] See Appendix C for water balance calculations and sensitivity analysis.

potable water. Under this management action, inflow to SJM would not be reduced due to the Project diversion and existing SJM operations and water quality would likely be maintained. Because an alternative water supply will only be taken after Project diversions are reduced to a minimum diversion (See Section 5.3.4.2 above), about 14 to 54 MGY (0.06 to 0.23 cfs) would be needed. Potential alternative water supplies are described further below.

Potable Water Supply

Two existing domestic water lines run adjacent to or within the SJM facility area; a domestic water line within Campus Drive and a smaller domestic line that crosses San Diego Creek downstream of the SJM intake (**Figure 25**). Thus, the backbone infrastructure for this potential management action is already in place, and implementation of this action would likely involve minor construction activities (e.g., shallow trenching) in order to establish a connection from the existing line to some point within the SJM into Pond A. The smaller domestic water line is already relatively close to Pond A (see **Figure 25**) and, if this potential source of water is feasible, the additional line and subsequent construction required would likely be minor. If the larger domestic water line in Campus Drive is used, the connection would need to run northeast from Campus Drive along Riparian View Way.

Sand Canyon Channel

Sand Canyon Channel, which drains into SDC from the east at a point just upstream of Campus Drive, is another potential alternative water supply source for the SJM (see **Figure 25**). Sand Canyon Channel is an open channel that discharges to SDC through two pipe culverts under the SDC bike trail and through the SDC channel bank/sidewall. The USGS operates a stream gaging station on Sand canyon channel just upstream of the mouth, at Culver Drive. According to the USGS (2014c) average monthly flow data (spanning WY 2001-2013) in Sand Canyon Channel ranges from 0.18 (in August) to 3.97 cfs (in February), and from 0.18 to 0.68 cfs during the dry season. The minimum average monthly flow for WY 2001-2013 ranges from 0.06 to 0.22 cfs. The Sand Canyon Channel flow may therefore be adequate to replace the reduction in inflow to SJM after Project diversions are reduced to a minimum (see Section 5.3.4.2).

Flow from Sand Canyon Channel would be pumped to Sediment Basin 3 via a new pipeline running parallel to and on the south side of the San Diego Creek trail, following the alignment of existing sewer lines. The tie-in point to Sand Canyon Channel would occur near the point of discharge to SDC, where the existing sewer lines currently run underneath the channel, and the pipeline would discharge into SDC just upstream of the SJM inlet (within Sediment Basin 3). Construction activities for this option would primarily be limited to trench excavation and backfilling, and possibly temporary dewatering of shallow groundwater from the trench (though, because of the gaining conditions, the shallow groundwater at this point is likely being discharged

Peters Canyon Channel Water Capture and Reuse Pipeline . 130993

Figure 25
Alternative Water Supply Management Action
(Conceptual Options)

to SDC anyway). Little-to-no existing aquatic or riparian habitat would be disturbed during construction and installation of this option, and all necessary permits and agency consultations would be pursued.

UCI Box Culvert

The University of California at Irvine (UCI) Box Culvert drains into SDC from the south side of the channel, capturing runoff and drainage from the UCI campus (**Figure 25**). Measured flow data are not available for the UCI Box Culvert; however, observations suggest that the UCI Box Culvert flow is greater than Sand Canyon Channel flow (IRWD, 2014). Flow from this box culvert would be routed up to Sediment Basin 3 via a new pipeline running parallel to and on the south side of the San Diego Creek trail, following the alignment of existing sewer lines (similar to the Sand Canyon Channel alternative, above). The tie-in point to the UCI Box Culvert would occur near the point of discharge to SDC, and the pipeline would discharge into SDC just upstream of the SJM inlet (within Sediment Basin 3). Construction activities for this option would be similar to those described above for the Sand Canyon Channel.

MWRP Wells

Thirteen permanent dewatering wells are currently located within the MWRP area (**Figure 25**). These dewatering wells are operated to control the shallow groundwater level and prevent hydrostatic pressure build-up within and/or groundwater seepage into areas of the MWRP. Under normal operations, the collective flow pumped from these dewatering wells is discharged to Pond 5 of the SJM via the dewatering channel (see **Figure 7**) (except for the short periods of time when water is transferred from SJM to UCI Marsh, which typically happens over approximately 15 to 20 days during the winter).

Currently the dewatering wells' discharge to Pond 5 (see **Figure 7**), and thus the flow from these wells does not go through the entire marsh (i.e., Ponds A, B, and 1-4). Under this alternative supply scenario, the dewatering wells' discharge would be routed and discharged to the upstream end of the SJM (Pond A) to supplement the marsh water supply at the inflow point. The average, collective daily flow of the dewatering wells is approximately 0.3 cfs, and the average selenium concentration is much less than that of inflow from SDC to SJM (see **Table 7**).[15] Therefore, the dewatering wells' discharge could offset the minimum Project diversion required by the City of Irvine. To implement this alternative supply, IRWD would need to construct an additional pipe or channel extending from the dewatering channel to the Pond A inlet; the distance would be relatively short (likely less than 1,000 feet), and the alignment would likely follow existing roads and/or berms (or otherwise already developed areas).

An additional option associated with the MWRP dewatering wells is to increase their discharge or construct additional dewatering wells. A number of temporary dewatering wells have been in service during construction of the biosolids area (in the northeast corner of the MWRP). Though these wells are only temporary and unlikely to be operational at the time of Project implementation, they do demonstrate that the capacity for additional dewatering may be

15 Based on eleven MWRP dewatering wells; two wells have only very recently become active (summer of 2014) and these are not included in our analysis.

available. Implementation of this particular alternative water supply component would be subject to regulatory approvals and feasibility studies regarding the availability of groundwater and the potential effects upon groundwater levels, SDC, and MWRP facilities.

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APPENDIX A
OCPW (2014c) – Excerpts from Worksheet

	Stream Gage Dry	Stream Gage Wet	Gage Years	SJM Data	OC Watersheds 2000-2001 Annual Report to EPA and RWQCB	Proportion of Major Node	EPA TMDL Report, Sept	Notes	Proportion of Major Node	Meixner Measurements Dry Avg	# pts	Wet Avg	# pts	Proportionality Dry Season	Wet Season	Best Available Estimate of Flow dry	wet
Peter's Canyon Wash																	
Hicks Canyon Wash					0.38	7%								7%	7%	**0.5**	**0.5**
PCW u/s of CIC					0.55	9%	0.39		7%					2%	2%	**0.1**	**0.1**
CIC					0.65	11%	0.55		10%	2%	1			8%	8%	**0.6**	**0.6**
PCWr1 GW						0%	0	Assume no GW exfiltration in r1	0%							**0.0**	**0.0**
PCW @ CIC					1.58	27%	0.94		18%					10%	10%	**0.7**	**0.7**
EMI	1.3	1.2	1992-1995		1.17	20%	1.04		20%	8%	1	18.5%	2	18%	18%	**1.3**	**1.2**
Como					0.7	12%	0.56		11%	18%	2	18.0%	2	15%	18%	**1.0**	**1.3**
Valencia					0.73	13%	1.01		19%			13%	1	16%	13%	**1.1**	**0.9**
Santa Fe					0.97	17%	0.89		17%	9%	2	11%	1	13%	11%	**0.9**	**0.8**
Edinger CD										3%	5	3%	1	3%	3%	**0.2**	**0.2**
PCWr2 GW							0.18	Assumes 0.36 cfs GW flow is split 50/50 btw r2 and r3	3%					3%		**0.2**	**0.2**
PCW @ Val					5.15	88%	4.62		87%								
Warner					0.67	12%	0.52		10%					11%	11%	**0.8**	**0.7**
PCWr3 GW							0.18	Assumes 0.36 cfs GW flow is split 50/50 btw r2 and r3	3%					15%	15%	**1.1**	**1.1**
PCW @ SDC (@Barranca)	**7.1**	**7.0**	**1992-2005**		**5.82**	100%	**5.32**		100%					**100%**	**100%**	**7.081**	**7.038**
Sum of All Tribs PCW at SDC																**7.510**	**7.391**
San Diego Creek																	
SDC u/s of Jeffrey														79%	79%	**0.513603519**	**0.739036**
SDCr1 GW							0	Assume no GW exfiltration in r1	0%							**0**	**0**
SDC @ Jeffrey																	
SDCr2 GW							0.79		7%					7%		**0.881858258**	**0.881858**
SDC @ PCW (@ Culver)	**1.5**	**1.8**	**1992-2005**		**2.23**	19%	**1.15**		11%					15%		**0.7**	**0.9**
SDC @ PCW + PCW					8.05	70%	6.47		59%							**8.6**	**8.9**
SJC					0.86	7%	0.7		6%					7%	7%	**0.887768401**	**0.887768**
SCW	0.3	0.3	2004-2005		0.29	3%	0.58		5%					3%	2%	**0.356942947**	**0.304157**
Barranca					0.26	2%	0.53		5%	5%	1	1.3%	2	4%	1%	**0.516025683**	**0.159593**
Lane					2.03	18%	1.3		12%	15%	1	9%	1	15%	9%	**1.897839212**	**1.149067**
SDCr3 GW							1.32		12%					12%		**1.546145235**	**1.546145**
SJM In				9.4												**9.4**	**9.4**
SJM Out				8.2												**8.2**	**8.2**
SDC Above SJM																**12.8**	**12.7**
SDC @ Campus	**12.2**	**12.1**	**1992-2005**		**11.49**	**100%**	**10.9**		**100%**							**12.2**	**12.1**
Sum of all tribs of SDC Abv SJM																**13.8**	**12.9**
Bonita	0.7	1.1	2004-2005													**0.7**	**1.1**
SADC Irvine	2.075549	1.7827														**2.1**	**1.8**
SADCr1														47%	47%	**0.975508003**	**0.837857**
SADCr2														73%	73%	**1.515150728**	**1.301353**
SADCr3														100%	100%	**2.075548943**	**1.782675**

** Worksheet provided by Jian Peng (OCPW) on May 6, 2014

** Table from OC_NSMP_Se_Modelv3.05_Sc4.xls \ Flow Assumptions

APPENDIX B

Project Condition Data Summaries (All)

SUMMARY of Flow Statistics and Project Impact Analysis, (WY 2009-2013)

				San Joaquin Marsh					
							Total Se Removal		
Existing	Project Diversion	Peters Canyon Wash (PCW) at Barranca Pky	San Diego Cr (SDC) at SJ Marsh Inlet	Influent from San Diego Cr (SDC)	MWRP Dewatering	Effluent to San Diego Cr (SDC)	Se Sequestered in SJ Marsh	Removal Efficiency	San Diego Cr (SDC) at Campus Dr
Dry-Season Averages									
Daily Flow (cfs)	--	5.6	6.9	5.6	0.3	5.2	--	--	6.7
Total Flow (mg/yr)	--	662	816	662	35	615	--	--	792
Se Conc. (ppb)	--	31.0	26.4	26.4	5.4	17.4	--	--	18.6
Total Low-Flow Se Load (lbs/yr)	**--**	**172.9**	**181.5**	**147.3**	**1.6**	**90.1**	**58.8**	**39.5%**	**124.3**
Annual Averages									
Daily Flow (cfs)	--	6.4	7.5	5.7	0.3	5.3	--	--	7.2
Total Flow (mg/yr)	--	1,510	1,770	1,345	71	1,251	--	--	1,699
Se Conc. (ppb)	--	29.2	25.9	25.9	5.4	18.0	--	--	19.7
Total Low-Flow Se Load (lbs/yr)	**--**	**371.5**	**386.2**	**293.5**	**3.2**	**189.7**	**107.1**	**36.1%**	**282.4**

w/Project	Project Diversion	PCW at Barranca Pky	SDC at SJ Marsh Inlet	Influent from SDC	MWRP Dewatering	Effluent to SDC	Se Sequestered in SJ Marsh	Removal Efficiency	SDC at Campus Dr
Dry-Season Averages									
Daily Flow (cfs)	2.1	3.5	4.8	4.3	0.3	3.9	--	--	4.5
Total Flow (mg/yr)	248	414	567	508	35	461	--	--	536
Se Conc. (ppb)	39.7	26.0	20.8	20.8	5.4	14.1	--	--	14.4
Total Low-Flow Se Load (lbs/yr)	**82.2**	**90.7**	**99.2**	**88.9**	**1.6**	**54.8**	**35.7**	**39.5%**	**65.1**
Annual Averages									
Daily Flow (cfs)	2.2	4.2	5.3	4.6	0.3	4.2	--	--	5.0
Total Flow (mg/yr)	519	991	1,251	1,085	71	991	--	--	1,172
Se Conc. (ppb)	39.7	26.1	22.1	22.1	5.4	15.7	--	--	16.4
Total Low-Flow Se Load (lbs/yr)	**153.8**	**217.7**	**232.4**	**201.7**	**3.2**	**131.0**	**73.9**	**36.1%**	**161.6**
Dry Season									
%Reduction in Avg Flow		37.5%	30.4%	23.2%		25.0%			32.3%
%Reduction in Se Load		**47.5%**	**45.3%**	**39.6%**		**39.2%**	**39.2%**		**47.6%**
Annual									
%Reduction in Avg Flow		34.4%	29.3%	19.3%		20.8%			31.0%
%Reduction in Se Load		**41.4%**	**39.8%**	**31.3%**		**31.0%**	**31.0%**		**42.7%**

w/Project and Re-Circulation of:		***1.1 cfs***							
Dry-Season Averages									
Se Conc. (ppb)	39.7	26.0	20.8	20.8	5.4	12.8	--	--	13.3
Total Low-Flow Se Load (lbs/yr)	82.2	90.7	99.2	88.9	1.6	**49.7**	**40.8**	**45.1%**	**60.0**
Annual Averages									
Se Conc. (ppb)	39.7	26.1	22.1	22.1	5.4	14.4	--	--	15.3
Total Low-Flow Se Load (lbs/yr)	153.8	217.7	232.4	201.7	3.2	**120.5**	**84.4**	**41.2%**	**151.2**
Dry Season									
%Reduction in Se Load						**44.9%**	**30.5%**		**51.7%**
Annual									
%Reduction in Se Load						**36.5%**	**21.2%**		**46.5%**

SUMMARY of Flow Statistics and Project Impact Analysis, (WY 1999-2013) *

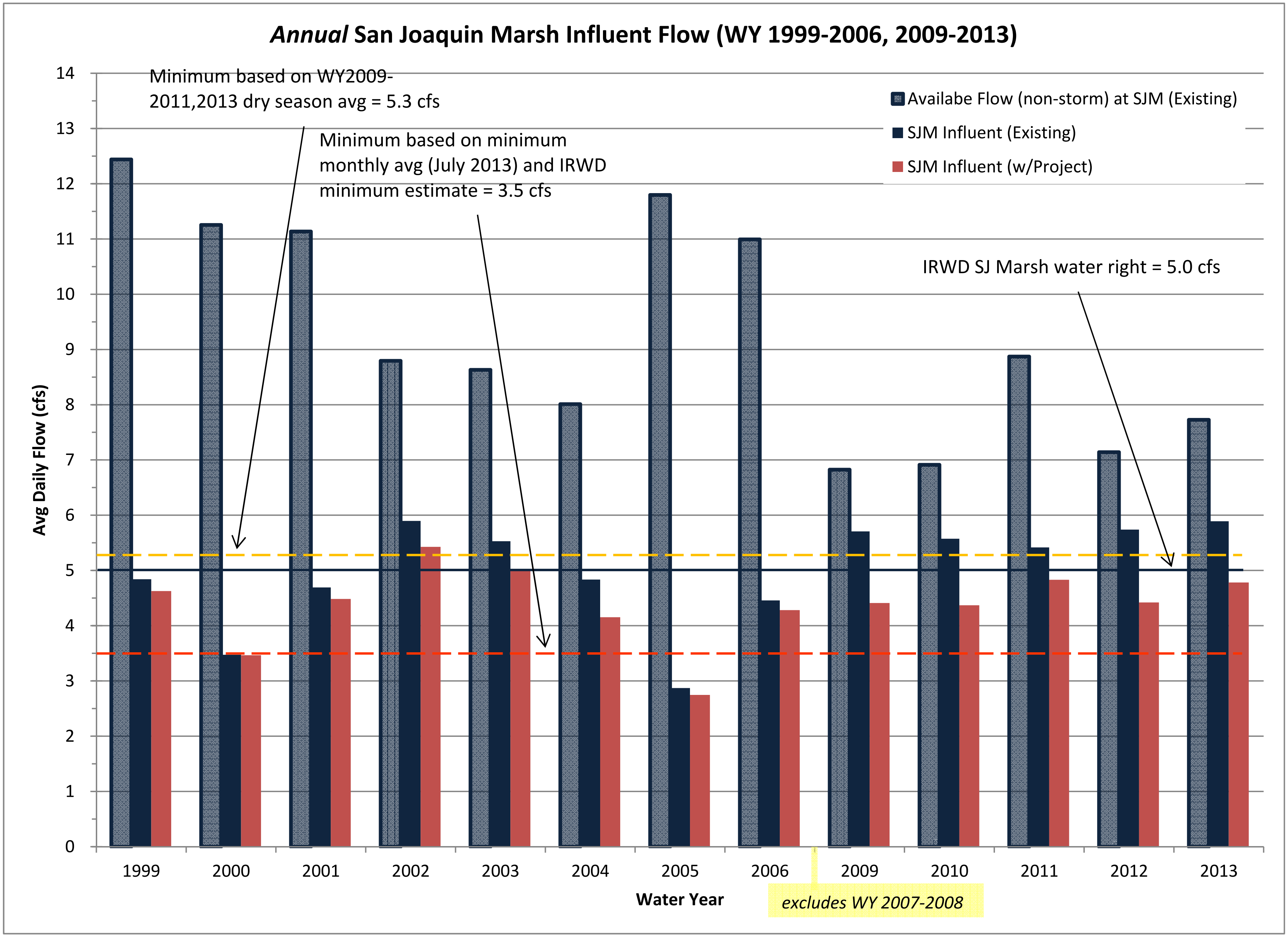
Existing	Project Diversion	Peters Canyon Wash (PCW) at Barranca Pky	San Diego Cr (SDC) at SJ Marsh Inlet	San Joaquin Marsh: Influent from San Diego Cr (SDC)	San Joaquin Marsh: MWRP Dewatering	San Joaquin Marsh: Effluent to San Diego Cr (SDC)	San Joaquin Marsh: Total Se Removal: Se Sequestered in SJ Marsh	San Joaquin Marsh: Total Se Removal: Removal Efficiency	San Diego Cr (SDC) at Campus Dr
Dry-Season Averages									
Daily Flow (cfs)	--	5.9	8.9	5.3	0.4	4.9	--	--	8.9
Total Flow (mg/yr)	--	699	1,056	627	47	579	--	--	1,052
Se Conc. (ppb)	--	31.0	20.4	20.4	7.6	14.1	--	--	16.1
Total Low-Flow Se Load (lbs/yr)	--	**182.5**	**181.6**	**107.7**	**3.0**	**68.8**	**41.9**	**37.8%**	**142.8**
Annual Averages									
Daily Flow (cfs)	--	6.1	9.2	5.0	0.4	4.4	--	--	9.0
Total Flow (mg/yr)	--	1,439	2,171	1,180	94	1,038	--	--	2,124
Se Conc. (ppb)	--	29.2	19.7	19.7	6.3	14.8	--	--	16.4
Total Low-Flow Se Load (lbs/yr)	--	**354.1**	**360.3**	**195.8**	**5.0**	**129.5**	**71.4**	**35.5%**	**294.0**

w/Project	Project Diversion	PCW at Barranca Pky	SDC at SJ Marsh Inlet	Influent from SDC	MWRP Dewatering	Effluent to SDC	Se Sequestered in SJ Marsh	Removal Efficiency	SDC at Campus Dr
Dry-Season Averages									
Daily Flow (cfs)	2.2	3.7	6.7	4.6	0.4	4.2	--	--	6.6
Total Flow (mg/yr)	260	437	792	544	47	497	--	--	777
Se Conc. (ppb)	39.7	27.1	14.9	14.9	7.6	10.6	--	--	11.5
Total Low-Flow Se Load (lbs/yr)	**82.5**	**100.0**	**99.2**	**68.1**	**3.0**	**44.2**	**26.9**	**37.8%**	**75.3**
Annual Averages									
Daily Flow (cfs)	2.2	3.9	7.0	4.4	0.4	3.8	--	--	6.7
Total Flow (mg/yr)	519	920	1,652	1,038	94	897	--	--	1,580
Se Conc. (ppb)	39.7	26.0	14.9	14.9	6.3	11.6	--	--	12.4
Total Low-Flow Se Load (lbs/yr)	**152.6**	**201.6**	**207.8**	**130.6**	**5.0**	**87.4**	**48.2**	**35.5%**	**164.6**
Dry Season									
%Reduction in Avg Flow		37.4%	25.0%	13.2%		14.3%			26.1%
%Reduction in Se Load		**45.2%**	**45.4%**	**36.8%**		**35.8%**	**35.8%**		**47.3%**
Annual									
%Reduction in Avg Flow		36.1%	23.9%	12.0%		13.6%			25.6%
%Reduction in Se Load		**43.1%**	**42.3%**	**33.3%**		**32.5%**	**32.5%**		**44.0%**

w/Project and Re-Circulation of: ***1.1 cfs***

	Project Diversion	PCW at Barranca Pky	SDC at SJ Marsh Inlet	Influent from SDC	MWRP Dewatering	Effluent to SDC	Se Sequestered in SJ Marsh	Removal Efficiency	SDC at Campus Dr
Dry-Season Averages									
Se Conc. (ppb)	39.7	27.1	14.9	14.9	7.6	9.7	--	--	10.9
Total Low-Flow Se Load (lbs/yr)	82.5	100.0	99.2	68.1	3.0	**40.5**	**30.6**	**43.0%**	**71.6**
Annual Averages									
Se Conc. (ppb)	39.7	26.0	14.9	14.9	6.3	10.6	--	--	11.8
Total Low-Flow Se Load (lbs/yr)	152.6	201.6	207.8	130.6	5.0	**80.3**	**55.3**	**40.8%**	**157.4**
Dry Season									
%Reduction in Se Load						**41.1%**	**27.0%**		**49.8%**
Annual									
%Reduction in Se Load						**38.0%**	**22.5%**		**46.4%**

* Excludes WY 2007 and 2008.



Annual San Joaquin Marsh Influent Flow (WY 1999-2006, 2009-2013)
Minimum based on WY2009-2011,2013 dry season avg = 5.3 cfs
Minimum based on minimum monthly avg (July 2013) and IRWD minimum estimate = 3.5 cfs
Availabe Flow (non-storm) at SJM (Existing)
SJM Influent (Existing)
SJM Influent (w/Project)
IRWD SJ Marsh water right = 5.0 cfs
Avg Daily Flow (cfs)
0
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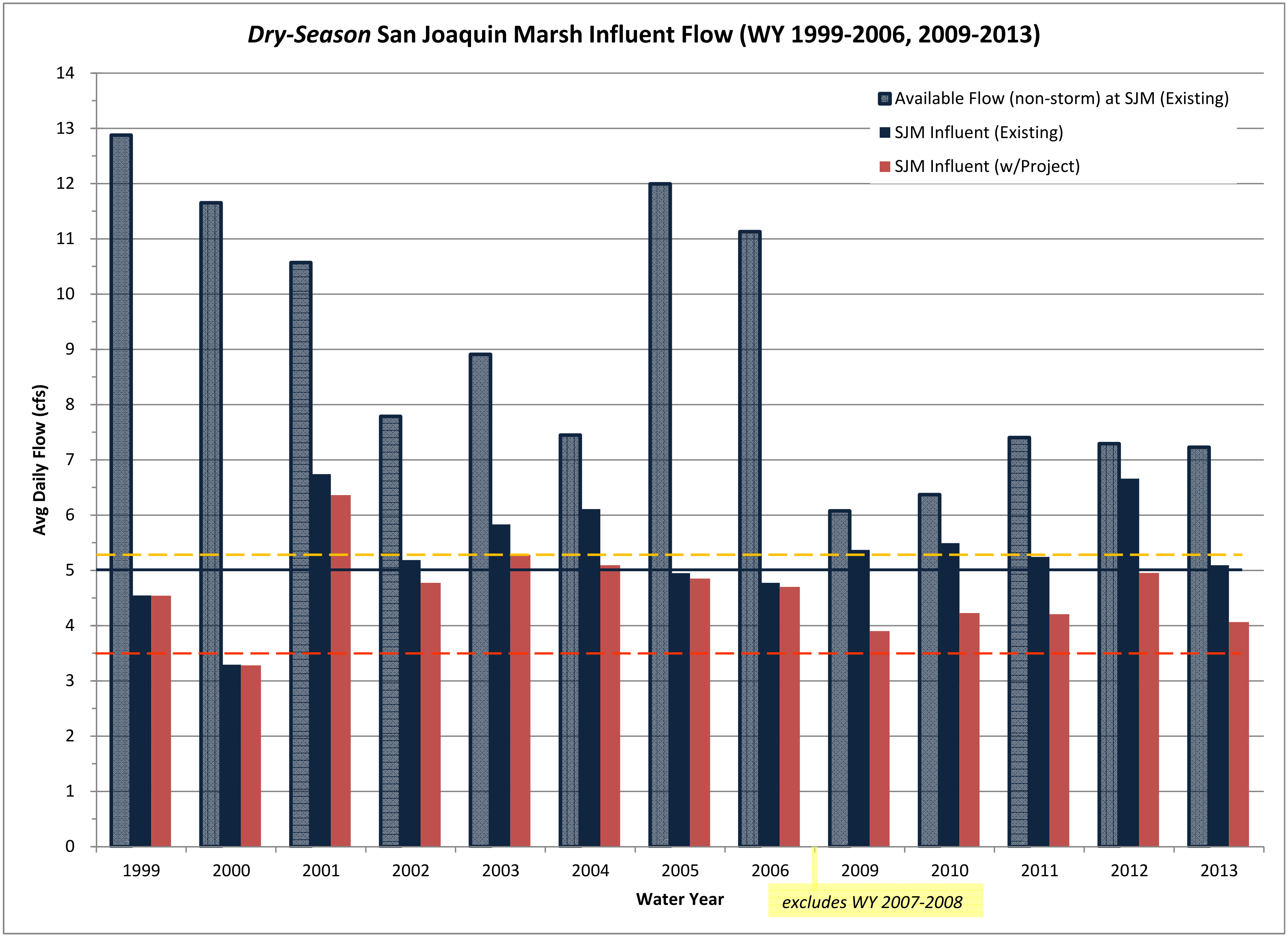
2012
2013
Water Year
excludes WY 2007-2008


Dry-Season San Joaquin Marsh Influent Flow (WY 1999-2006, 2009-2013)
Available Flow (non-storm) at SJM (Existing)
SJM Influent (Existing)
SJM Influent (w/Project)
Avg Daily Flow (cfs)
0
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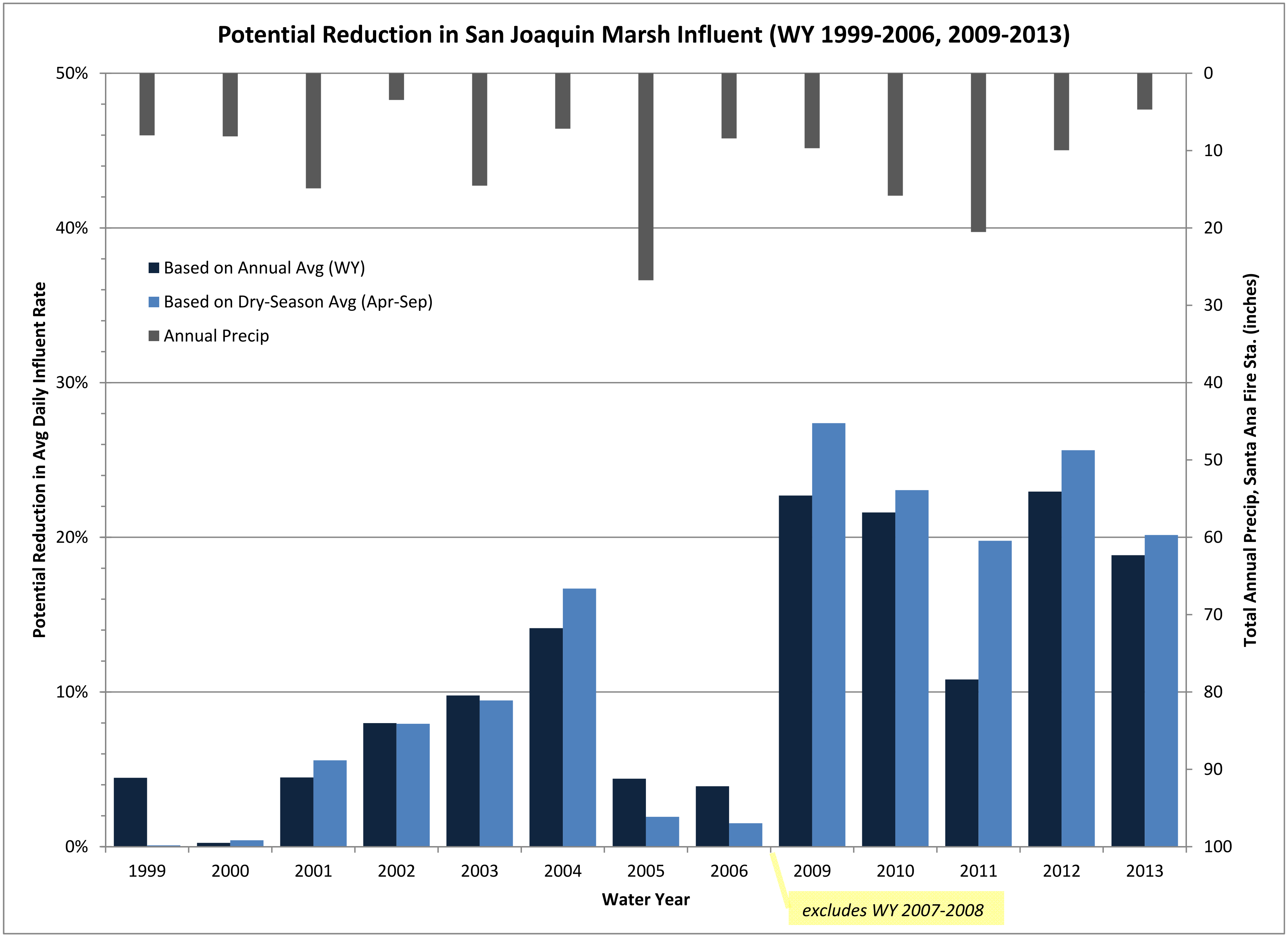
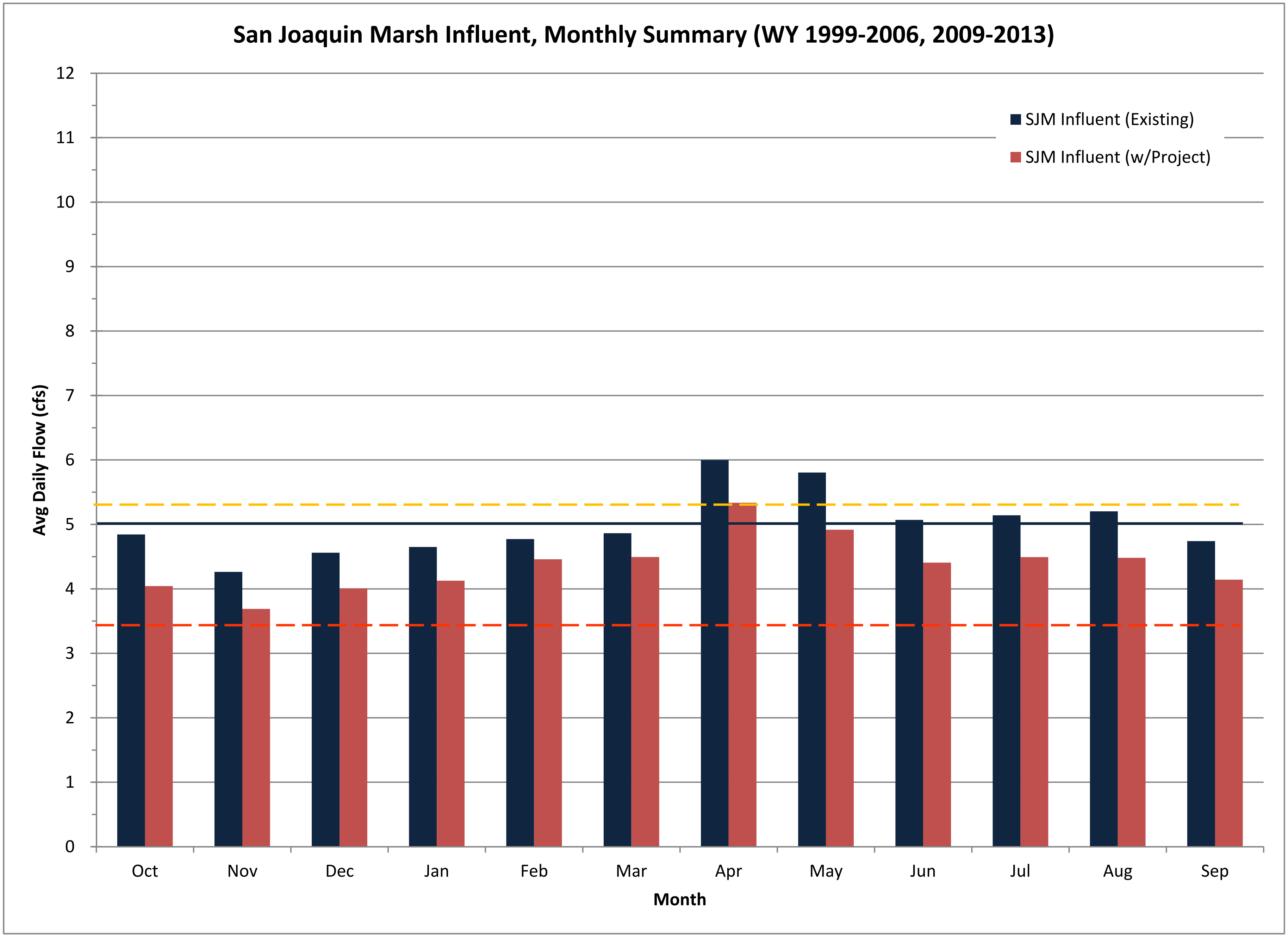
Water Year
excludes WY 2007-2008


Potential Reduction in San Joaquin Marsh Influent (WY 1999-2006, 2009-2013)
Potential Reduction in Avg Daily Influent Rate
Total Annual Precip, Santa Ana Fire Sta. (inches)
50%
40%
30%
20%
10%
0%
0
10
20
30
40
50
60
70
80
90
100
Based on Annual Avg (WY)
Based on Dry-Season Avg (Apr-Sep)
Annual Precip
1999
2000
2001
2002
2003
2004
2005
2006
2009
2010
2011
2012
2013
Water Year
excludes WY 2007-2008


San Joaquin Marsh Influent, Monthly Summary (WY 1999-2006, 2009-2013)
SJM Influent (Existing)
SJM Influent (w/Project)
Avg Daily Flow (cfs)
0
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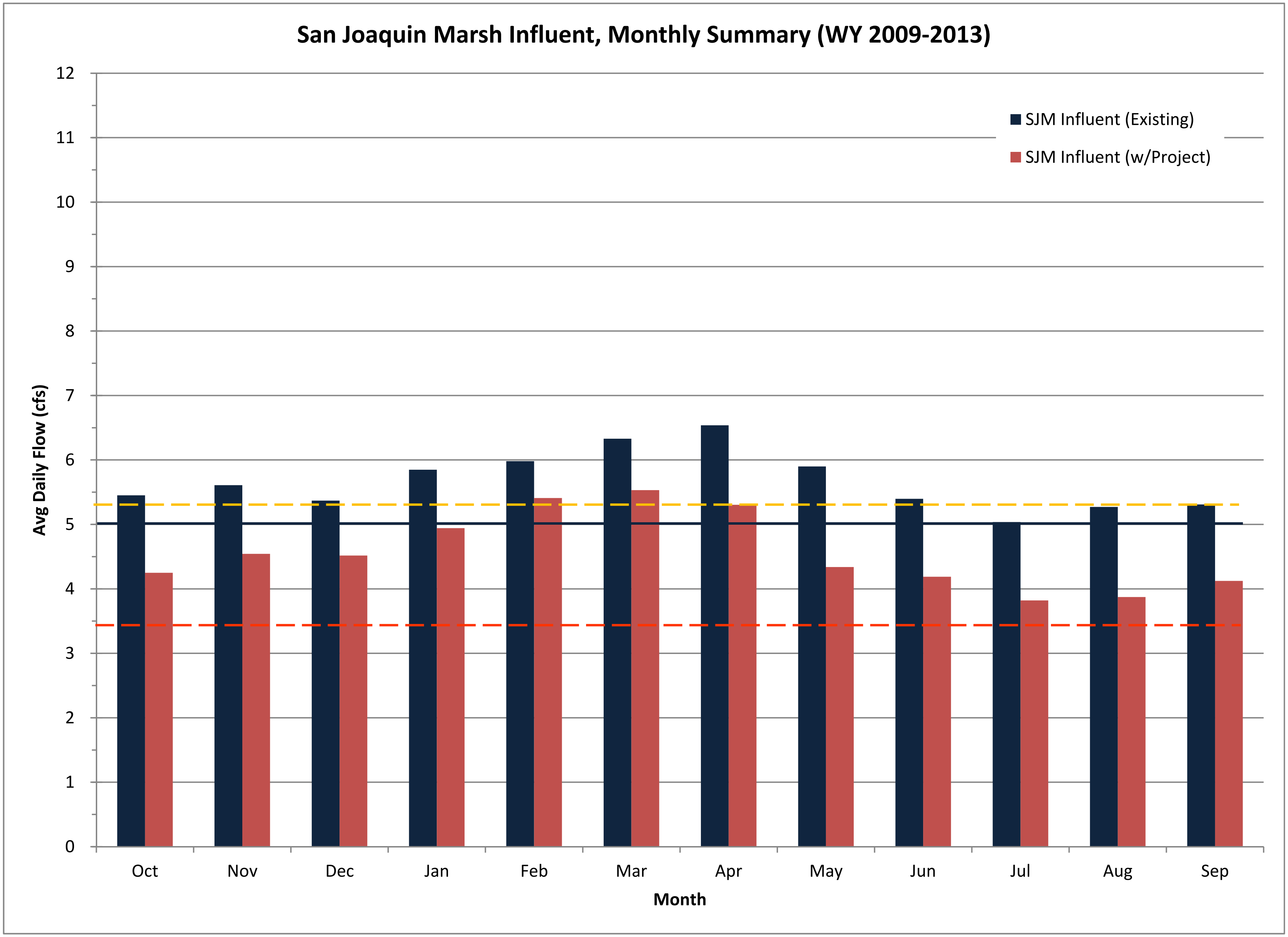
San Joaquin Marsh Influent, Monthly Summary (WY 2009-2013)
SJM Influent (Existing)
SJM Influent (w/Project)
Avg Daily Flow (cfs)
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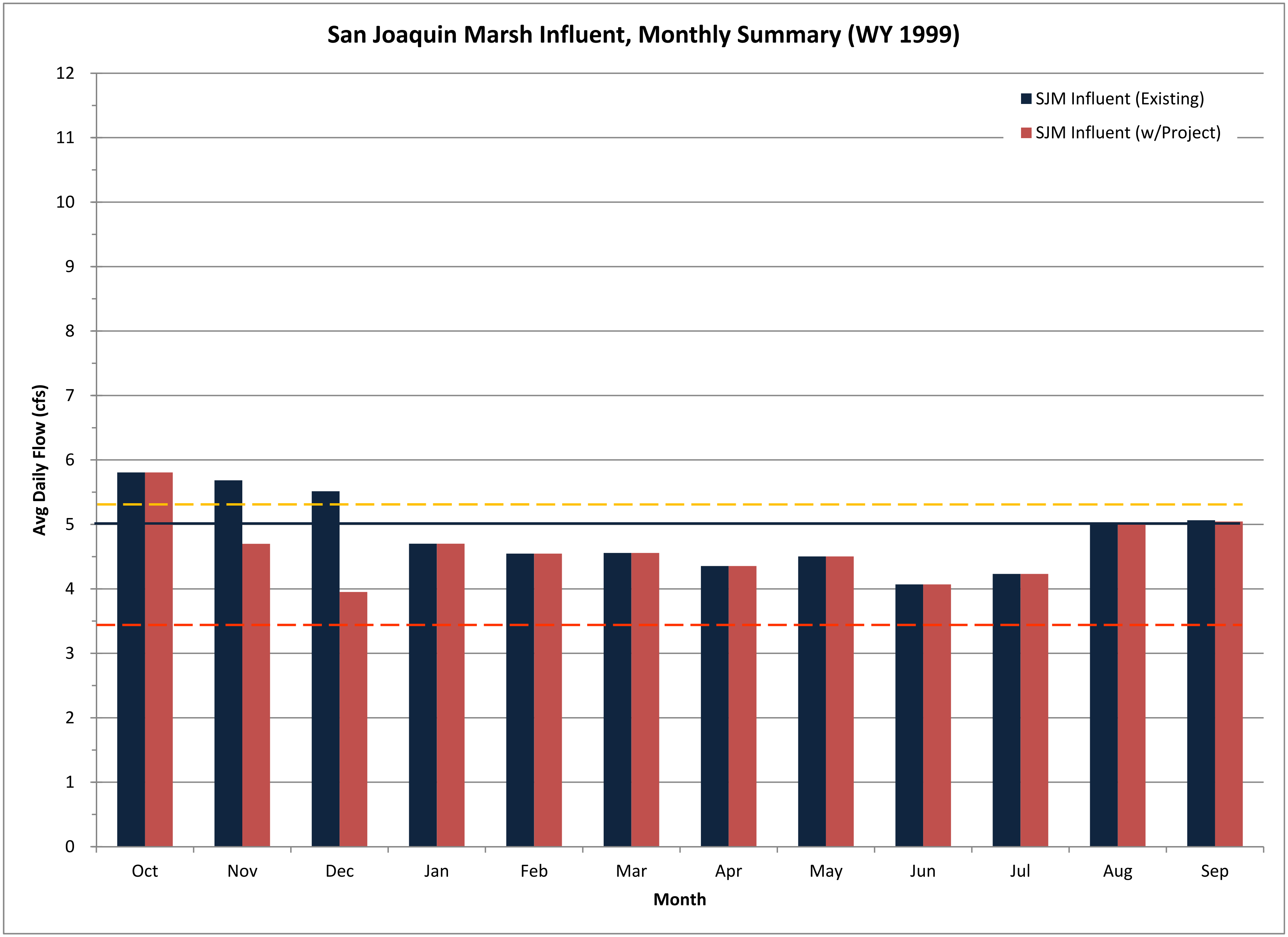

San Joaquin Marsh Influent, Monthly Summary (WY 1999)
Avg Daily Flow (cfs)
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SJM Influent (Existing)
SJM Influent (w/Project)
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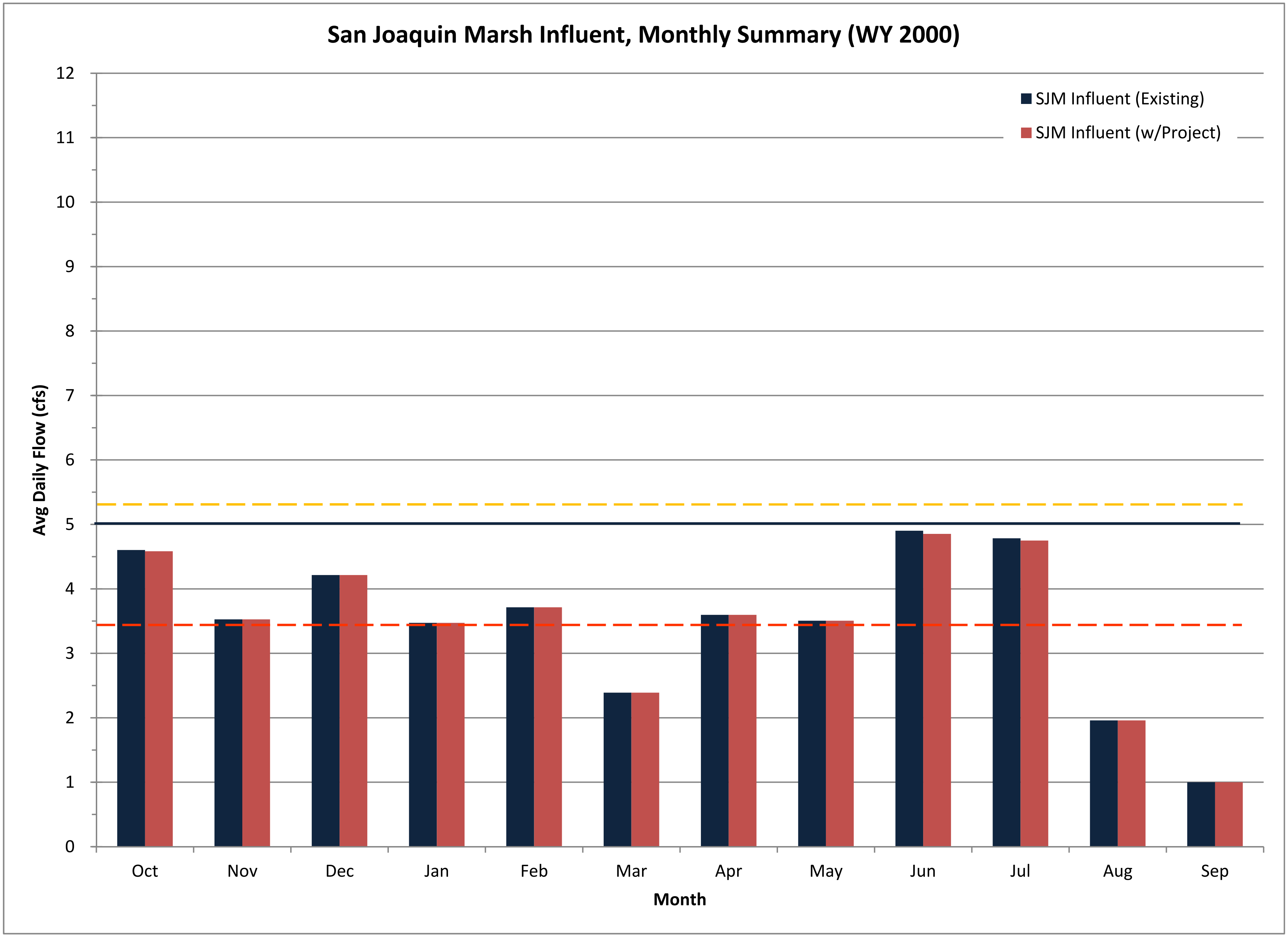
Month


San Joaquin Marsh Influent, Monthly Summary (WY 2000)
Avg Daily Flow (cfs)
0
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SJM Influent (Existing)
SJM Influent (w/Project)
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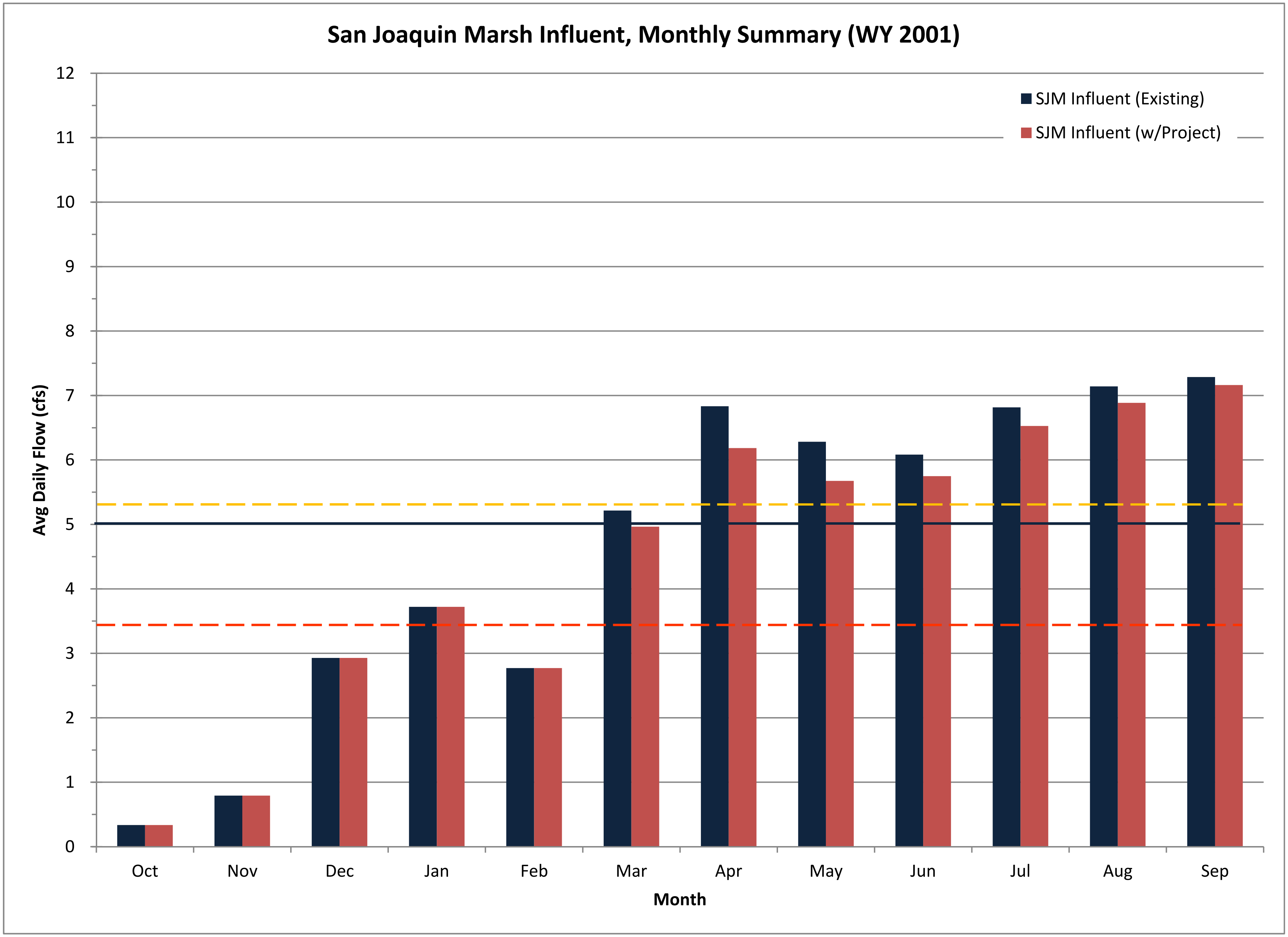
San Joaquin Marsh Influent, Monthly Summary (WY 2001)
SJM Influent (Existing)
SJM Influent (w/Project)
Avg Daily Flow (cfs)
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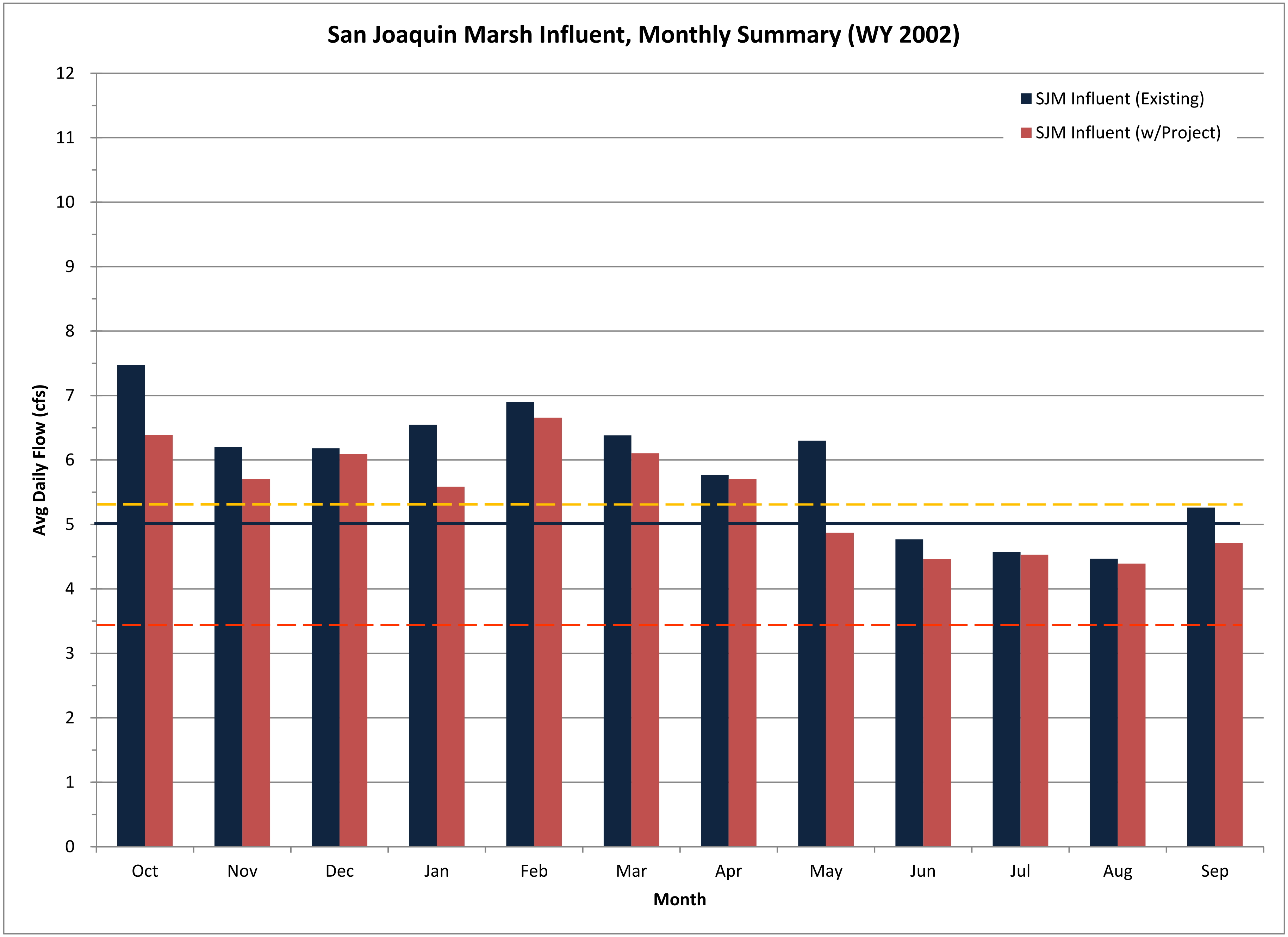
San Joaquin Marsh Influent, Monthly Summary (WY 2002)
SJM Influent (Existing)
SJM Influent (w/Project)
Avg Daily Flow (cfs)
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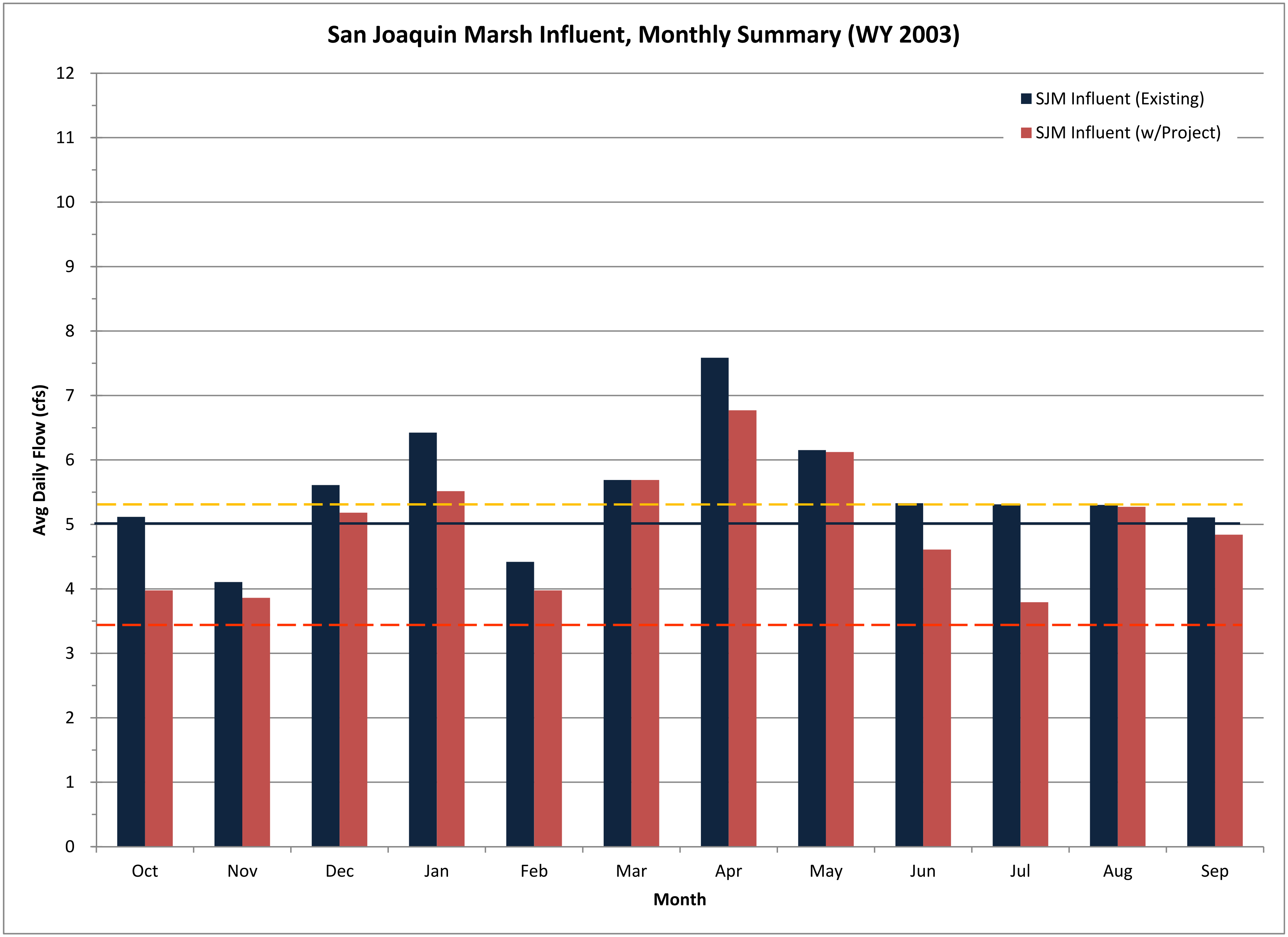
San Joaquin Marsh Influent, Monthly Summary (WY 2003)
SJM Influent (Existing)
SJM Influent (w/Project)
Avg Daily Flow (cfs)
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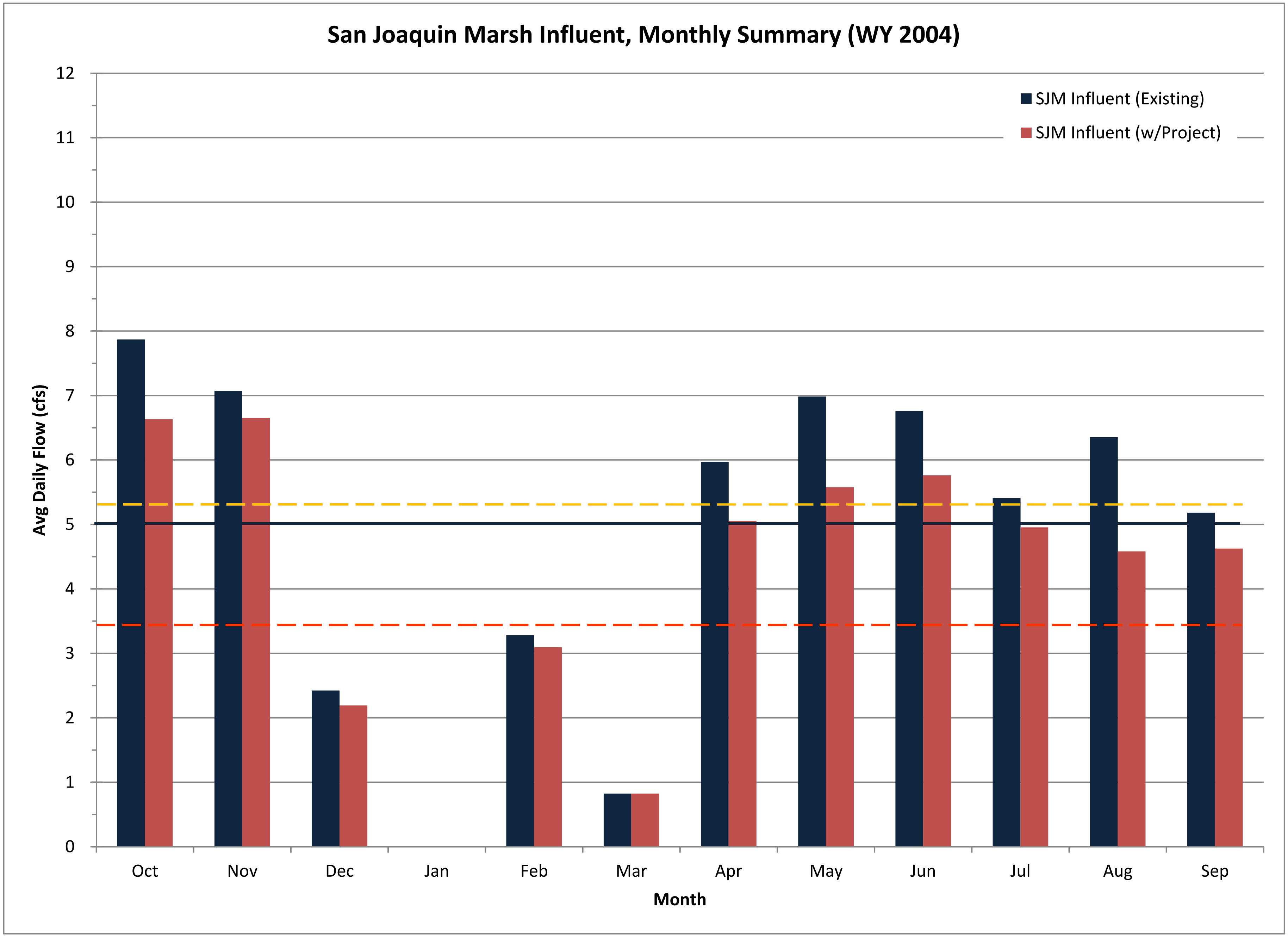

San Joaquin Marsh Influent, Monthly Summary (WY 2004)
SJM Influent (Existing)
SJM Influent (w/Project)
Avg Daily Flow (cfs)
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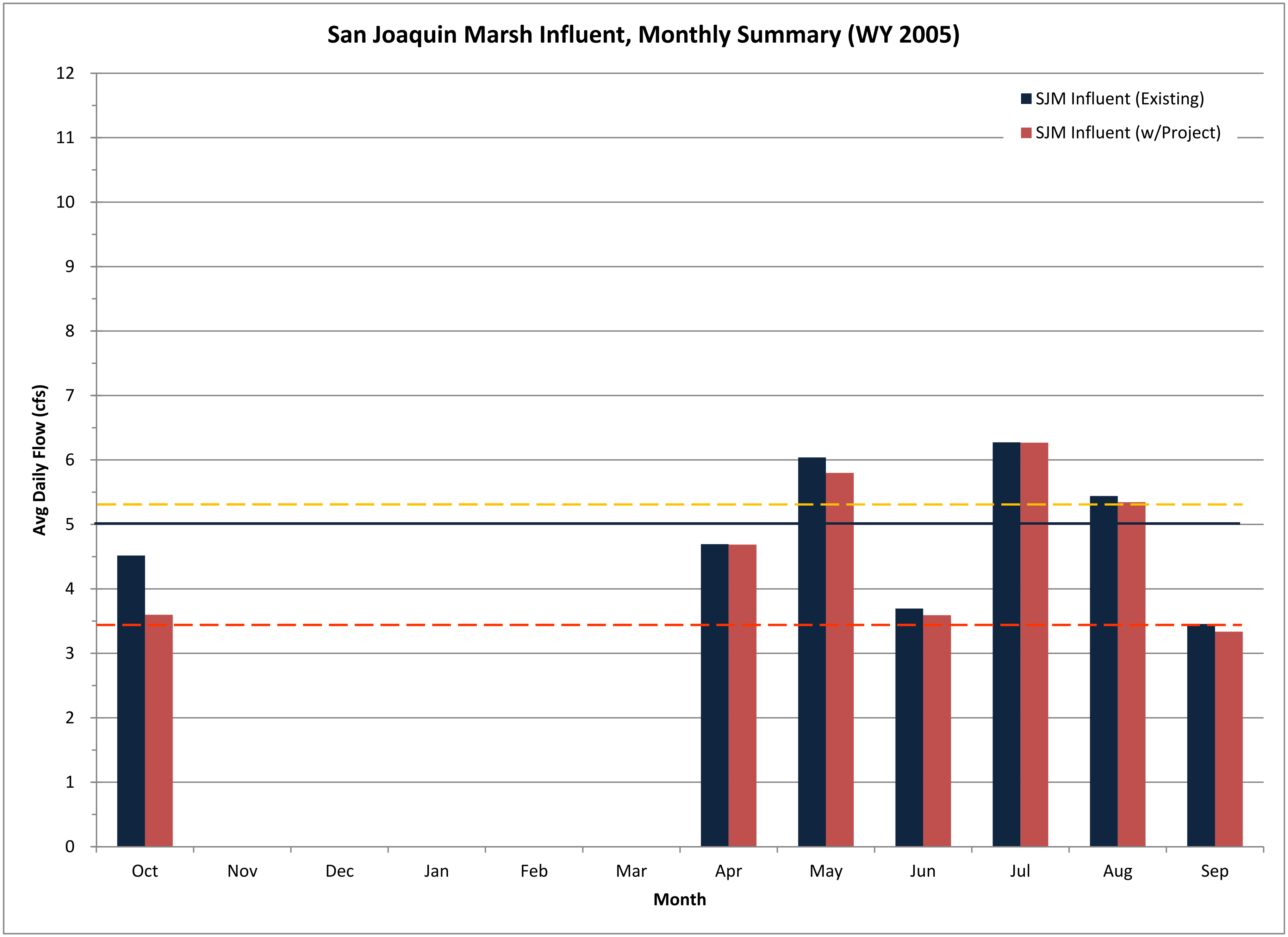
San Joaquin Marsh Influent, Monthly Summary (WY 2005)
SJM Influent (Existing)
SJM Influent (w/Project)
Avg Daily Flow (cfs)
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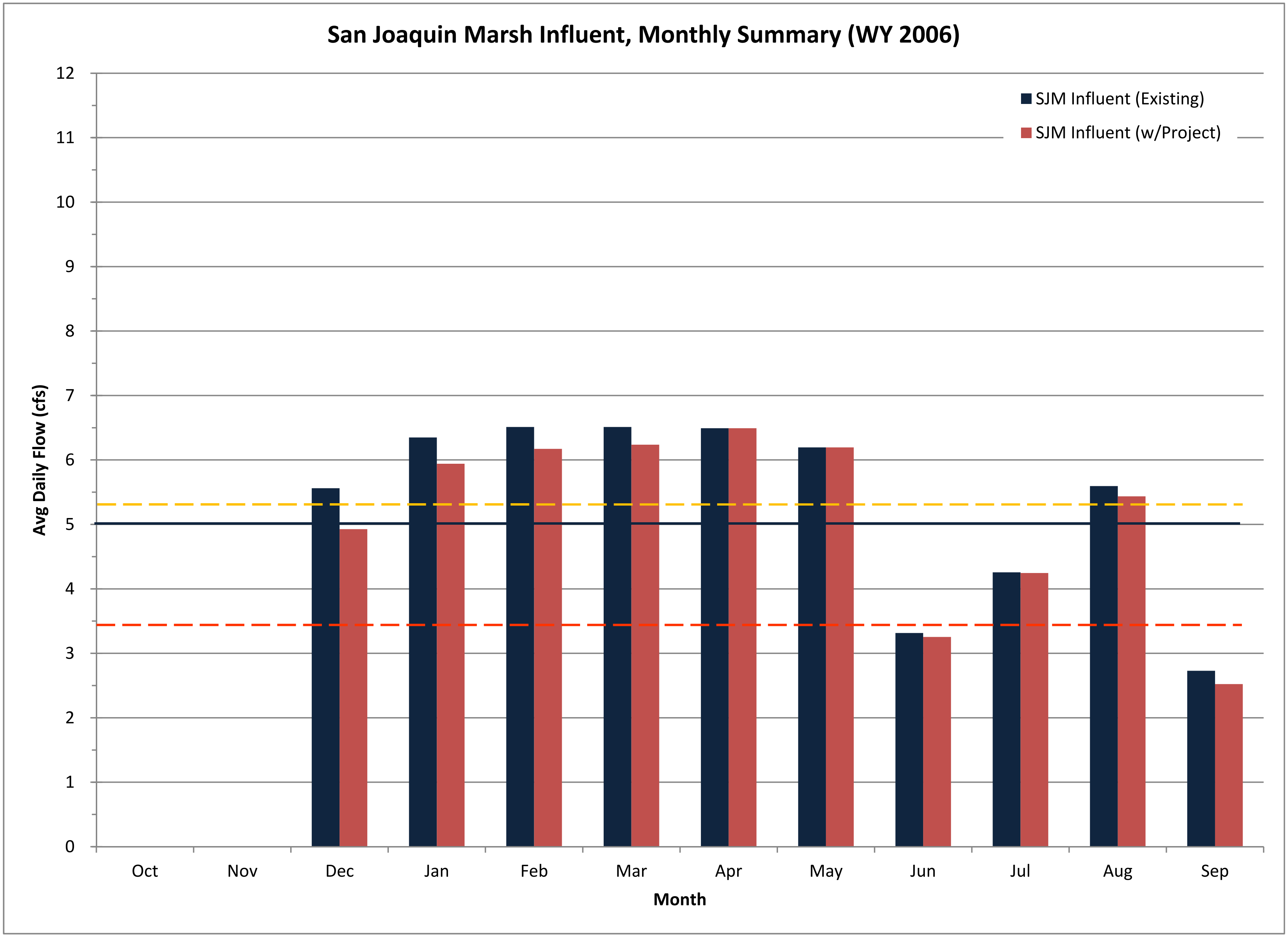
San Joaquin Marsh Influent, Monthly Summary (WY 2006)
SJM Influent (Existing)
SJM Influent (w/Project)
Avg Daily Flow (cfs)
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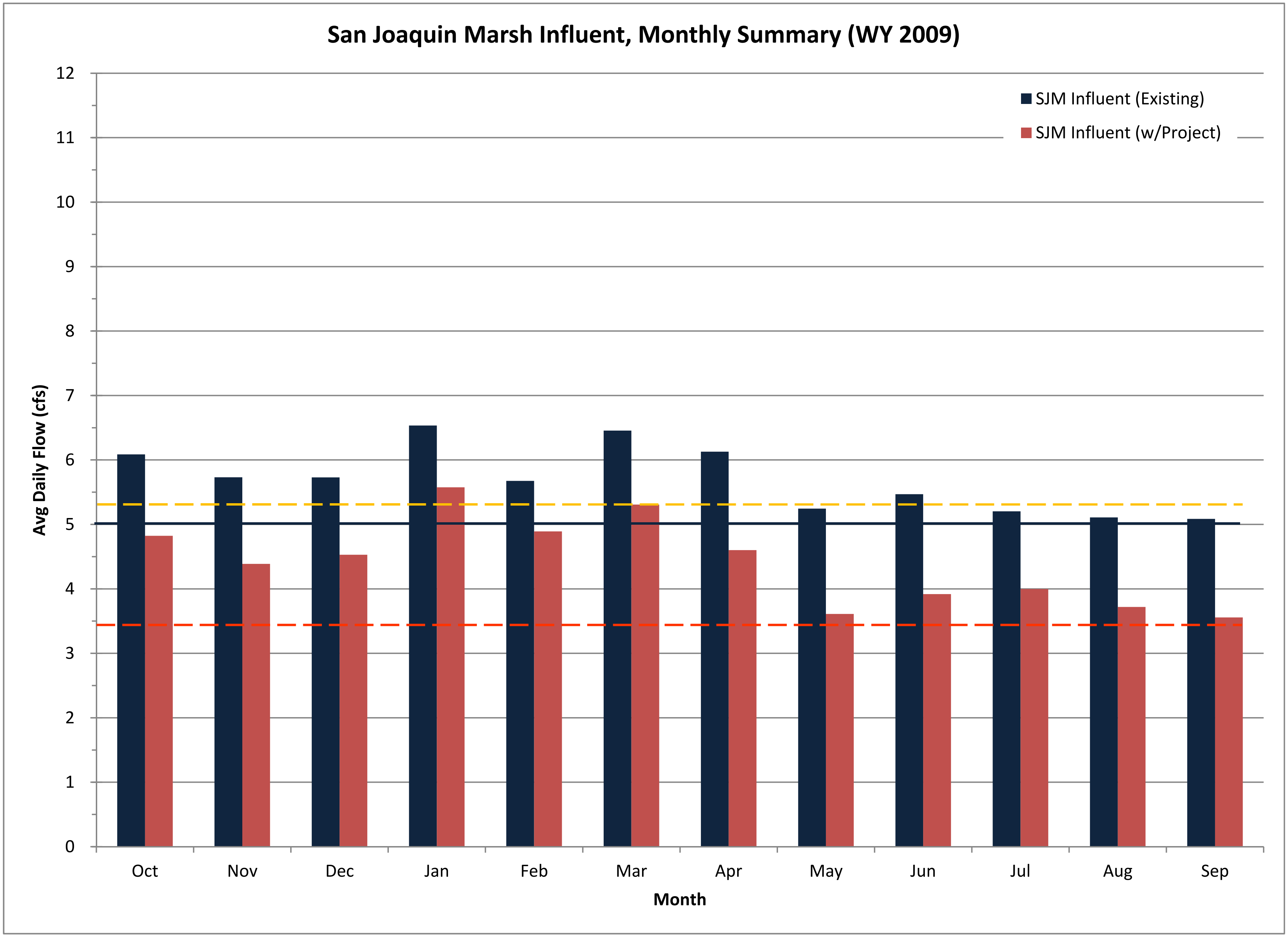

San Joaquin Marsh Influent, Monthly Summary (WY 2009)
SJM Influent (Existing)
SJM Influent (w/Project)
Avg Daily Flow (cfs)
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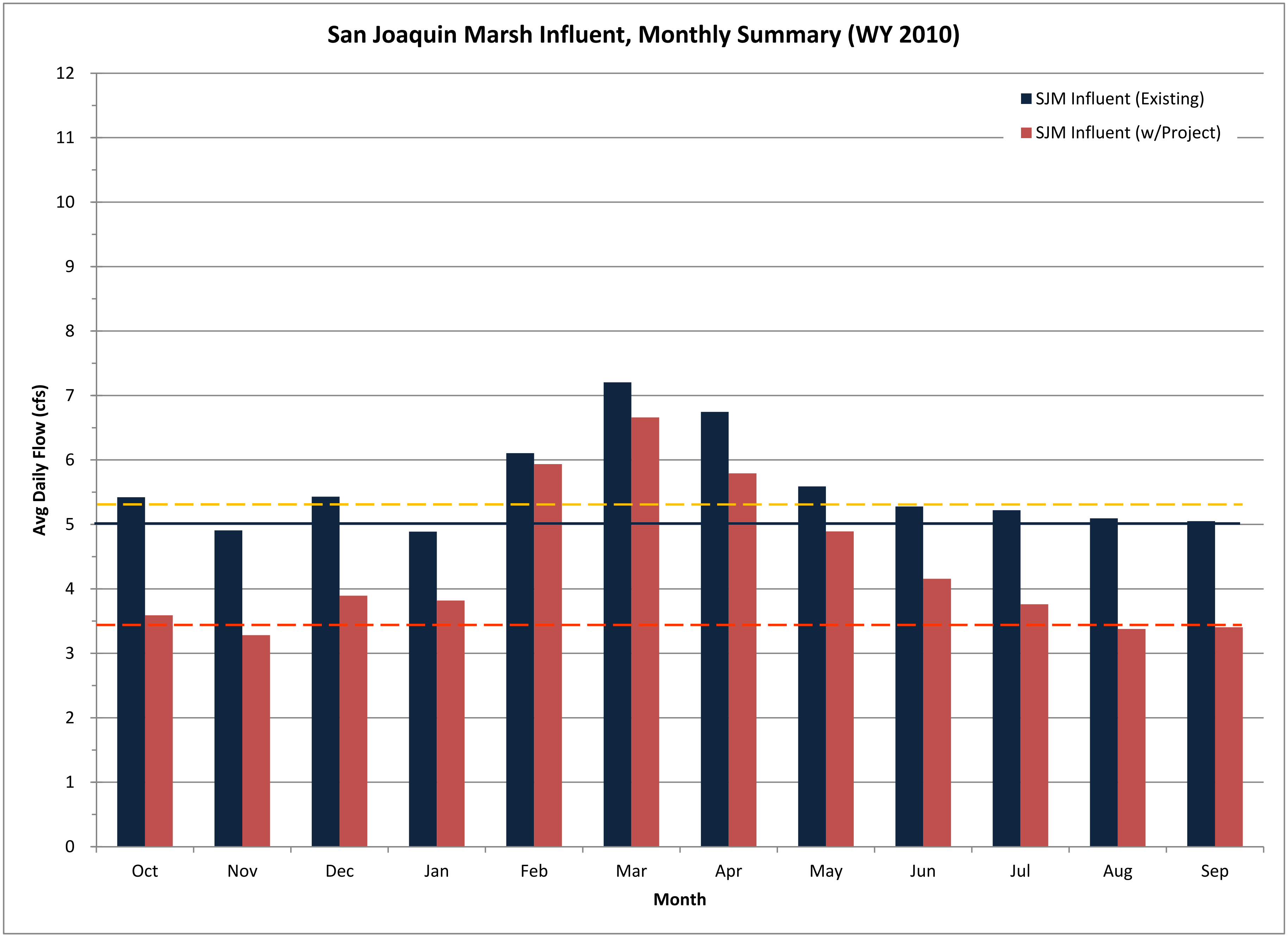
San Joaquin Marsh Influent, Monthly Summary (WY 2010)
SJM Influent (Existing)
SJM Influent (w/Project)
Avg Daily Flow (cfs)
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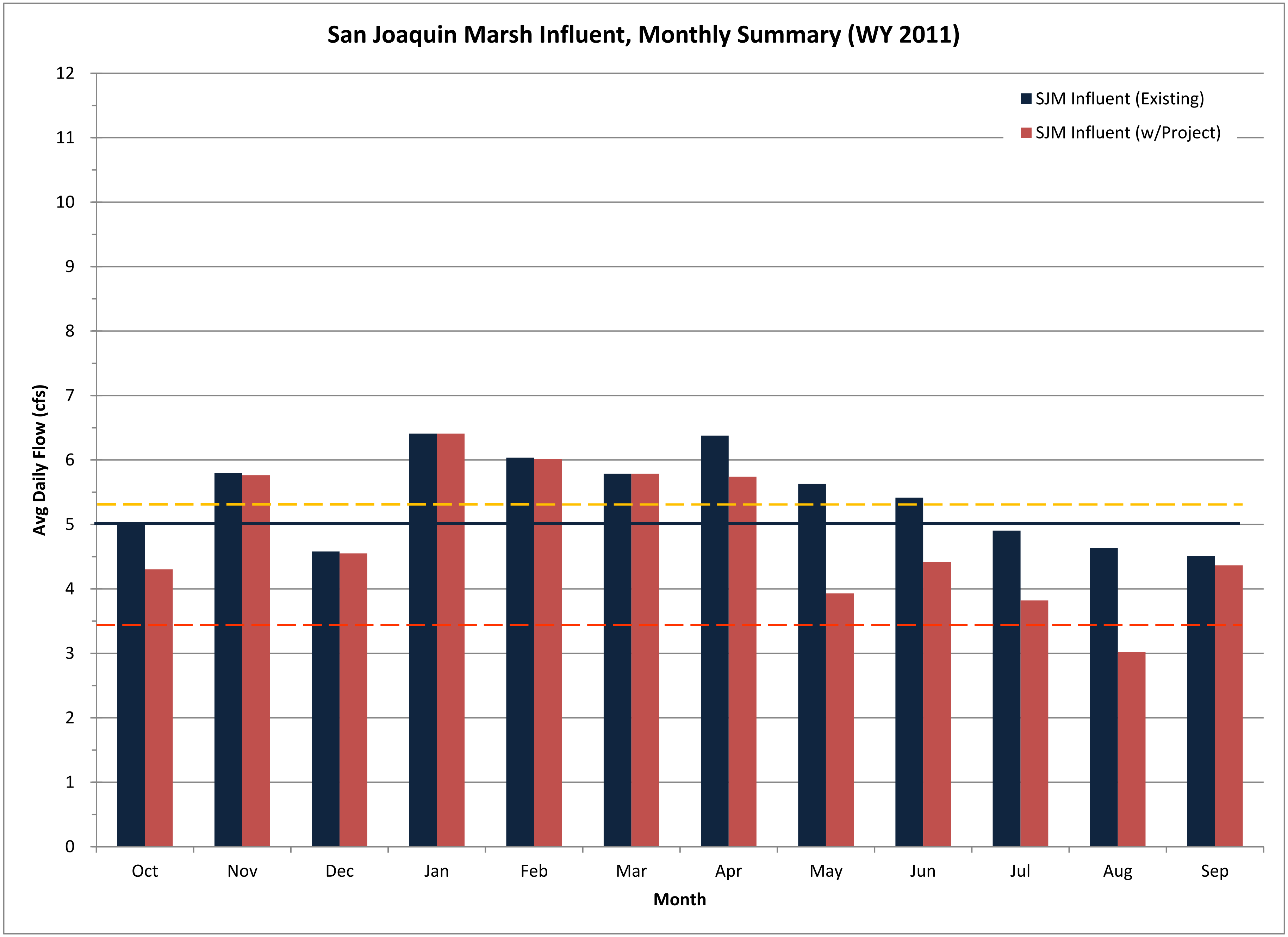

San Joaquin Marsh Influent, Monthly Summary (WY 2011)
SJM Influent (Existing)
SJM Influent (w/Project)
Avg Daily Flow (cfs)
0
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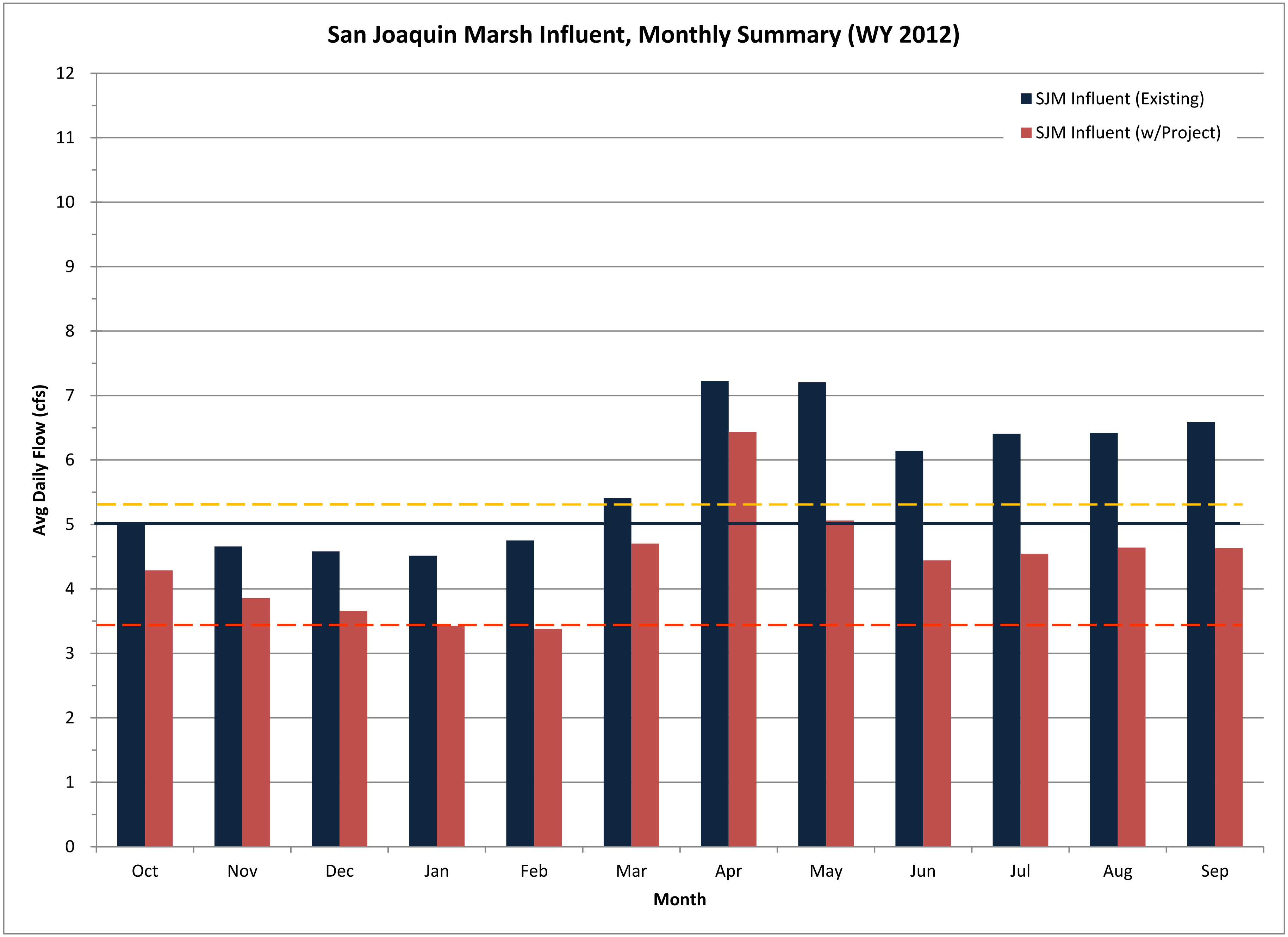

San Joaquin Marsh Influent, Monthly Summary (WY 2012)
SJM Influent (Existing)
SJM Influent (w/Project)
Avg Daily Flow (cfs)
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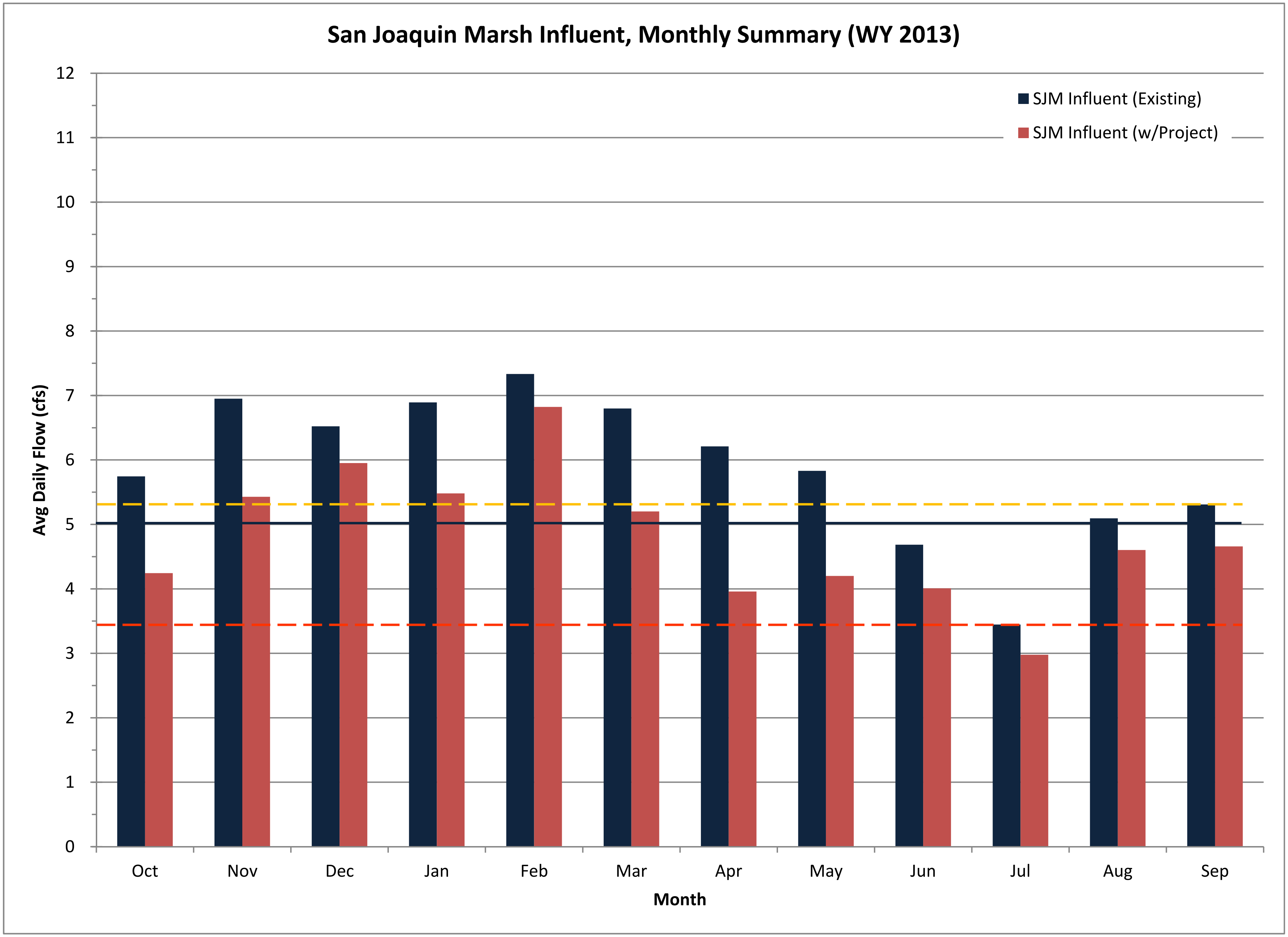

San Joaquin Marsh Influent, Monthly Summary (WY 2013)
SJM Influent (Existing)
SJM Influent (w/Project)
Avg Daily Flow (cfs)
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APPENDIX C
Water Balance Worksheets/Sensitivity Analysis

RESULTS OF DRY SEASON ANALYSIS

WATER BALANCE

SJM, Ponds A,B,1-6, avg depth (ft): 2.0
SJM, Ponds A,B,1-6, total surf. area (ft2): 3,211,635
SJM, Ponds A,B,1-6, est. volume (ft3): 6,551,005

	Existing Conditions			Project Conditions		Existing Conditions, Kc = 1.05												
	SJ Marsh Influent, Avg		SJ Marsh	SJ Marsh		SJM In	SJM In	SJM In	SJM In	SJM In	SJM Out	SJM Out	SJM Out	SJM Out	SJM Out	SJM In	Avg. SJM	Avg.
	from SDC	from MWRP dewater	Effluent, Avg	Influent, Avg		SDC Flow	MWRP Flow	Precip.	Precip.	TOTAL	Eto	Evap.	Evap.	to SDC	TOTAL	"Other"	Flow-through	Res. Time
Water Year	(cfs)	(cfs)	(cfs)	(cfs)		(ft3)	(ft3)	(inches)	(ft3)	(ft3)	(inches)	(inches)	(ft3)	(ft3)	(ft3)	(ft3)	(cfs)	(days)
1999	4.5		3.4	4.5														
2000	3.3		2.6	3.3														
2001	6.7		6.6	6.4		106,572,105		1.03	276,276	106,848,381	26.54	27.87	7,458,220	103,805,908	111,264,129	4,415,748	6.7	11.4
2002	5.2		4.6	4.8		82,021,825		0.24	65,378	82,087,203	26.40	27.72	7,418,878	73,189,435	80,608,312	(1,478,891)	4.9	15.4
2003	5.8		5.0	5.3		92,193,888		2.87	767,667	92,961,554	30.60	32.13	8,599,154	79,231,340	87,830,494	(5,131,060)	5.4	14.0
2004	6.1		5.2	5.1		96,619,959		0.56	149,737	96,769,697	31.46	33.03	8,840,829	82,691,679	91,532,508	(5,237,189)	5.7	13.4
2005	4.9		4.5	4.9		78,252,556		1.97	526,189	78,778,745	24.39	25.61	6,854,031	71,109,111	77,963,142	(815,602)	4.7	16.1
2006	4.8	0.5	5.1	4.7		75,471,075	7,872,782	3.61	966,965	84,310,821	18.59	19.52	5,224,126	81,374,940	86,599,066	2,288,246	5.0	15.3
2009	5.4	0.2	4.8	3.9		84,923,914	2,959,536	0.27	71,705	87,955,155	31.04	32.59	8,722,802	75,220,872	83,943,674	(4,011,482)	5.1	15.0
2010	5.5	0.2	4.6	4.2		86,856,128	3,666,245	1.29	345,872	90,868,244	30.02	31.52	8,436,163	71,981,830	80,417,994	(10,450,251)	5.0	15.1
2011	5.2	0.4	5.8	4.2		82,884,547	5,623,179	0.55	146,574	88,654,299	31.33	32.90	8,804,297	91,196,045	100,000,342	11,346,043	5.5	13.8
2012	6.7	0.4	6.1	5.0		105,327,161	6,811,219	3.21	858,352	112,996,732	31.98	33.58	8,986,959	96,991,841	105,978,800	(7,017,932)	6.4	11.9
2013	5.1	0.4	4.8	4.1		80,503,963	5,904,110	0.67	179,263	86,587,336	31.27	32.83	8,787,436	75,811,892	84,599,328	(1,988,007)	4.9	15.3
					TOTAL	971,627,120	32,837,070		4,353,977	1,008,818,166			88,132,897	902,604,892	990,737,789	(18,080,377)		
AVG (2001-2013)	**5.3**		**4.9**	**4.8**													**5.4**	**14.2**
AVG (2009-2013)	**5.6**		**5.2**	**4.3**									**9.9%**				**5.4**	**14.2**

RESULTS OF DRY SEASON ANALYSIS

Water Year	Existing Conditions: SJ Marsh Influent, Avg from SDC (cfs)	Existing Conditions: SJ Marsh Influent, Avg from MWRP dewater (cfs)	Existing Conditions: SJ Marsh Effluent, Avg (cfs)	Project Conditions: SJ Marsh Influent, Avg (cfs)
1999	4.5		3.4	4.5
2000	3.3		2.6	3.3
2001	6.7		6.6	6.4
2002	5.2		4.6	4.8
2003	5.8		5.0	5.3
2004	6.1		5.2	5.1
2005	4.9		4.5	4.9
2006	4.8	0.5	5.1	4.7
2009	5.4	0.2	4.8	3.9
2010	5.5	0.2	4.6	4.2
2011	5.2	0.4	5.8	4.2
2012	6.7	0.4	6.1	5.0
2013	5.1	0.4	4.8	4.1
AVG (2001-2013)	**5.3**		**4.9**	**4.8**
AVG (2009-2013)	**5.6**		**5.2**	**4.3**

WATER BALANCE - Sensitivity Analysis for Assumed Average SJ Marsh Depth

SJM, Ponds A,B,1-6, avg depth (ft): 2.5

SJM, Ponds A,B,1-6, total surf. area (ft2): 3,211,635

SJM, Ponds A,B,1-6, est. volume (ft3): 8,029,089

Existing Conditions

Kc = 1.05

Water Year	SJM In SDC Flow (ft3)	SJM In MWRP Flow (ft3)	SJM In Precip. (inches)	SJM In Precip. (ft3)	SJM In TOTAL (ft3)	SJM Out Eto (inches)	SJM Out Evap. (inches)	SJM Out Evap. (ft3)	SJM Out to SDC (ft3)	SJM Out TOTAL (ft3)	SJM In "Other" (ft3)	Avg. SJM Flow-through (cfs)	Avg. Res. Time (days)
1999													
2000													
2001	106,572,105		1.03	276,276	106,848,381	26.54	27.87	7,458,220	103,805,908	111,264,129	4,415,748	6.7	14.0
2002	82,021,825		0.24	65,378	82,087,203	26.40	27.72	7,418,878	73,189,435	80,608,312	(1,478,891)	4.9	18.9
2003	92,193,888		2.87	767,667	92,961,554	30.60	32.13	8,599,154	79,231,340	87,830,494	(5,131,060)	5.4	17.1
2004	96,619,959		0.56	149,737	96,769,697	31.46	33.03	8,840,829	82,691,679	91,532,508	(5,237,189)	5.7	16.4
2005	78,252,556		1.97	526,189	78,778,745	24.39	25.61	6,854,031	71,109,111	77,963,142	(815,602)	4.7	19.7
2006	75,471,075	7,872,782	3.61	966,965	84,310,821	18.59	19.52	5,224,126	81,374,940	86,599,066	2,288,246	5.0	18.7
2009	84,923,914	2,959,536	0.27	71,705	87,955,155	31.04	32.59	8,722,802	75,220,872	83,943,674	(4,011,482)	5.1	18.3
2010	86,856,128	3,666,245	1.29	345,872	90,868,244	30.02	31.52	8,436,163	71,981,830	80,417,994	(10,450,251)	5.0	18.5
2011	82,884,547	5,623,179	0.55	146,574	88,654,299	31.33	32.90	8,804,297	91,196,045	100,000,342	11,346,043	5.5	16.9
2012	105,327,161	6,811,219	3.21	858,352	112,996,732	31.98	33.58	8,986,959	96,991,841	105,978,800	(7,017,932)	6.4	14.5
2013	80,503,963	5,904,110	0.67	179,263	86,587,336	31.27	32.83	8,787,436	75,811,892	84,599,328	(1,988,007)	4.9	18.8
TOTAL	971,627,120	32,837,070		4,353,977	1,008,818,166			88,132,897	902,604,892	990,737,789	(18,080,377)		
AVG (2001-2013)												**5.4**	**17.4**
AVG (2009-2013)								**9.9%**				**5.4**	**17.4**

RESULTS OF DRY SEASON ANALYSIS

Water Year	Existing Conditions: SJ Marsh Influent, Avg from SDC (cfs)	Existing Conditions: SJ Marsh Influent, Avg from MWRP dewater (cfs)	Existing Conditions: SJ Marsh Effluent, Avg (cfs)	Project Conditions: SJ Marsh Influent, Avg (cfs)
1999	4.5		3.4	4.5
2000	3.3		2.6	3.3
2001	6.7		6.6	6.4
2002	5.2		4.6	4.8
2003	5.8		5.0	5.3
2004	6.1		5.2	5.1
2005	4.9		4.5	4.9
2006	4.8	0.5	5.1	4.7
2009	5.4	0.2	4.8	3.9
2010	5.5	0.2	4.6	4.2
2011	5.2	0.4	5.8	4.2
2012	6.7	0.4	6.1	5.0
2013	5.1	0.4	4.8	4.1
AVG (2001-2013)	**5.3**		**4.9**	**4.8**
AVG (2009-2013)	**5.6**		**5.2**	**4.3**

WATER BALANCE - Sensitivity Analysis for Assumed Average SJ Marsh Depth

SJM, Ponds A,B,1-6, avg depth (ft): 3.0

SJM, Ponds A,B,1-6, total surf. area (ft2): 3,211,635

SJM, Ponds A,B,1-6, est. volume (ft3): 9,634,906

Existing Conditions

Kc = 1.05

Water Year	SJM In SDC Flow (ft3)	SJM In MWRP Flow (ft3)	SJM In Precip. (inches)	SJM In Precip. (ft3)	SJM In TOTAL (ft3)	SJM Out Eto (inches)	SJM Out Evap. (inches)	SJM Out Evap. (ft3)	SJM Out to SDC (ft3)	SJM Out TOTAL (ft3)	SJM In "Other" (ft3)	Avg. SJM Flow-through (cfs)	Avg. Res. Time (days)
1999													
2000													
2001	106,572,105		1.03	276,276	106,848,381	26.54	27.87	7,458,220	103,805,908	111,264,129	4,415,748	6.7	16.8
2002	82,021,825		0.24	65,378	82,087,203	26.40	27.72	7,418,878	73,189,435	80,608,312	(1,478,891)	4.9	22.7
2003	92,193,888		2.87	767,667	92,961,554	30.60	32.13	8,599,154	79,231,340	87,830,494	(5,131,060)	5.4	20.6
2004	96,619,959		0.56	149,737	96,769,697	31.46	33.03	8,840,829	82,691,679	91,532,508	(5,237,189)	5.7	19.7
2005	78,252,556		1.97	526,189	78,778,745	24.39	25.61	6,854,031	71,109,111	77,963,142	(815,602)	4.7	23.6
2006	75,471,075	7,872,782	3.61	966,965	84,310,821	18.59	19.52	5,224,126	81,374,940	86,599,066	2,288,246	5.0	22.5
2009	84,923,914	2,959,536	0.27	71,705	87,955,155	31.04	32.59	8,722,802	75,220,872	83,943,674	(4,011,482)	5.1	22.0
2010	86,856,128	3,666,245	1.29	345,872	90,868,244	30.02	31.52	8,436,163	71,981,830	80,417,994	(10,450,251)	5.0	22.2
2011	82,884,547	5,623,179	0.55	146,574	88,654,299	31.33	32.90	8,804,297	91,196,045	100,000,342	11,346,043	5.5	20.3
2012	105,327,161	6,811,219	3.21	858,352	112,996,732	31.98	33.58	8,986,959	96,991,841	105,978,800	(7,017,932)	6.4	17.4
2013	80,503,963	5,904,110	0.67	179,263	86,587,336	31.27	32.83	8,787,436	75,811,892	84,599,328	(1,988,007)	4.9	22.6
TOTAL	971,627,120	32,837,070		4,353,977	1,008,818,166			88,132,897	902,604,892	990,737,789	(18,080,377)		
AVG (2001-2013)												**5.4**	**20.9**
AVG (2009-2013)								**9.9%**				**5.4**	**20.9**

RESULTS OF DRY SEASON ANALYSIS

WATER BALANCE - Sensitivity Analysis for Assumed Average SJ Marsh Depth

SJM, Ponds A,B,1-6, avg depth (ft):	4.0
SJM, Ponds A,B,1-6, total surf. area (ft2):	3,211,635
SJM, Ponds A,B,1-6, est. volume (ft3):	12,846,542

	Existing Conditions			Project Conditions							Existing Conditions Kc = 1.05							
	SJ Marsh Influent, Avg		SJ Marsh	SJ Marsh		SJM In	SJM In	SJM In	SJM In	SJM In	SJM Out	SJM Out	SJM Out	SJM Out	SJM Out	SJM In	Avg. SJM	Avg.
	from SDC	from MWRP dewater	Effluent, Avg	Influent, Avg		SDC Flow	MWRP Flow	Precip.	Precip.	TOTAL	Eto	Evap.	Evap.	to SDC	TOTAL	"Other"	Flow-through	Res. Time
Water Year	(cfs)	(cfs)	(cfs)	(cfs)		(ft3)	(ft3)	(inches)	(ft3)	(ft3)	(inches)	(inches)	(ft3)	(ft3)	(ft3)	(ft3)	(cfs)	(days)
1999	4.5		3.4	4.5														
2000	3.3		2.6	3.3														
2001	6.7		6.6	6.4		106,572,105		1.03	276,276	106,848,381	26.54	27.87	7,458,220	103,805,908	111,264,129	4,415,748	6.7	22.3
2002	5.2		4.6	4.8		82,021,825		0.24	65,378	82,087,203	26.40	27.72	7,418,878	73,189,435	80,608,312	(1,478,891)	4.9	30.3
2003	5.8		5.0	5.3		92,193,888		2.87	767,667	92,961,554	30.60	32.13	8,599,154	79,231,340	87,830,494	(5,131,060)	5.4	27.4
2004	6.1		5.2	5.1		96,619,959		0.56	149,737	96,769,697	31.46	33.03	8,840,829	82,691,679	91,532,508	(5,237,189)	5.7	26.2
2005	4.9		4.5	4.9		78,252,556		1.97	526,189	78,778,745	24.39	25.61	6,854,031	71,109,111	77,963,142	(815,602)	4.7	31.5
2006	4.8	0.5	5.1	4.7		75,471,075	7,872,782	3.61	966,965	84,310,821	18.59	19.52	5,224,126	81,374,940	86,599,066	2,288,246	5.0	30.0
2009	5.4	0.2	4.8	3.9		84,923,914	2,959,536	0.27	71,705	87,955,155	31.04	32.59	8,722,802	75,220,872	83,943,674	(4,011,482)	5.1	29.4
2010	5.5	0.2	4.6	4.2		86,856,128	3,666,245	1.29	345,872	90,868,244	30.02	31.52	8,436,163	71,981,830	80,417,994	(10,450,251)	5.0	29.6
2011	5.2	0.4	5.8	4.2		82,884,547	5,623,179	0.55	146,574	88,654,299	31.33	32.90	8,804,297	91,196,045	100,000,342	11,346,043	5.5	27.0
2012	6.7	0.4	6.1	5.0		105,327,161	6,811,219	3.21	858,352	112,996,732	31.98	33.58	8,986,959	96,991,841	105,978,800	(7,017,932)	6.4	23.2
2013	5.1	0.4	4.8	4.1		80,503,963	5,904,110	0.67	179,263	86,587,336	31.27	32.83	8,787,436	75,811,892	84,599,328	(1,988,007)	4.9	30.1
					TOTAL	971,627,120	32,837,070		4,353,977	1,008,818,166			88,132,897	902,604,892	990,737,789	(18,080,377)		
AVG (2001-2013)	**5.3**		**4.9**	**4.8**													**5.4**	**27.9**
AVG (2009-2013)	**5.6**		**5.2**	**4.3**									**9.9%**				**5.4**	**27.9**

RESULTS OF DRY SEASON ANALYSIS

WATER BALANCE

SJM, Ponds A,B,1-6, avg depth (ft): 2.0

SJM, Ponds A,B,1-6, total surf. area (ft2): 3,211,635

SJM, Ponds A,B,1-6, est. volume (ft3): 6,551,005

	Existing Conditions			Project Conditions	Project Conditions									
	SJ Marsh Influent, Avg													
Water Year	from SDC (cfs)	from MWRP dewater (cfs)	SJ Marsh Effluent, Avg (cfs)	SJ Marsh Influent, Avg (cfs)	SJM In SDC Flow (ft3)	SJM In MWRP Flow (ft3)	SJM In Precip. (ft3)	SJM In "Other" (ft3)	SJM Out Evap. (ft3)	SJM Out to SDC (ft3)	SJM Out to SDC (cfs)	Avg. SJM Flow-through (cfs)	Avg. Res. Time (days)	Avg. Re-circ./ Flow-through increase (cfs)
1999	4.5		3.4	4.5										
2000	3.3		2.6	3.3										
2001	6.7		6.6	6.4	100,619,322		276,276	4,415,748	7,458,220	97,853,125	6.2	6.3	12.1	0.4
2002	5.2		4.6	4.8	75,502,866		65,378	(1,478,891)	7,418,878	66,670,475	4.2	4.5	16.9	0.4
2003	5.8		5.0	5.3	83,479,192		767,667	(5,131,060)	8,599,154	70,516,644	4.5	4.9	15.6	0.6
2004	6.1		5.2	5.1	80,496,839		149,737	(5,237,189)	8,840,829	66,568,558	4.2	4.7	16.3	1.0
2005	4.9		4.5	4.9	76,739,657		526,189	(815,602)	6,854,031	69,596,212	4.4	4.6	16.4	0.1
2006	4.8	0.5	5.1	4.7	74,325,355	7,872,782	966,965	2,288,246	5,224,126	80,229,220	5.1	4.9	15.5	0.1
2009	5.4	0.2	4.8	3.9	61,669,279	2,959,536	71,705	(4,011,482)	8,722,802	51,966,237	3.3	3.6	21.1	1.5
2010	5.5	0.2	4.6	4.2	66,838,975	3,666,245	345,872	(10,450,251)	8,436,163	51,964,677	3.3	3.8	20.2	1.3
2011	5.2	0.4	5.8	4.2	66,494,995	5,623,179	146,574	11,346,043	8,804,297	74,806,493	4.7	4.5	17.0	1.0
2012	6.7	0.4	6.1	5.0	78,334,358	6,811,219	858,352	(7,017,932)	8,986,959	69,999,038	4.4	4.7	16.2	1.7
2013	5.1	0.4	4.8	4.1	64,281,177	5,904,110	179,263	(1,988,007)	8,787,436	59,589,106	3.8	3.9	19.4	1.0
TOTAL					828,782,013	32,837,070	4,353,977		88,132,897	759,759,786				
AVG (2001-2013)	**5.3**		**4.9**	**4.8**							**4.4**	**4.6**	**17.0**	**0.8**
AVG (2009-2013)	**5.6**		**5.2**	**4.3**	**0.2**				**13.0%**		**3.9**	**4.1**	**18.8**	**1.3**

RESULTS OF DRY SEASON ANALYSIS

WATER BALANCE - Sensitivity Analysis for Assumed SJ Marsh Volume (removing volume/ponds to reduce Project Condition residence time)

SJM, Ponds A,B,1-6, avg depth (ft): 2.0

SJM, Ponds A,B,1-6, est. volume (ft3): 4,950,000

	Existing Conditions			Project Conditions		Project Conditions									
	SJ Marsh Influent, Avg														
Water Year	from SDC (cfs)	from MWRP dewater (cfs)	SJ Marsh Effluent, Avg (cfs)	SJ Marsh Influent, Avg (cfs)		SJM In SDC Flow (ft3)	SJM In MWRP Flow (ft3)	SJM In Precip. (ft3)	SJM In "Other" (ft3)	SJM Out Evap. (ft3)	SJM Out to SDC (ft3)	SJM Out to SDC (cfs)	Avg. SJM Flow-through (cfs)	Avg. Res. Time (days)	Avg. Re-circ./ Flow-through increase (cfs)
1999	4.5		3.4	4.5											
2000	3.3		2.6	3.3											
2001	6.7		6.6	6.4		100,619,322		212,908	2,768,464	5,747,569	97,853,125	6.2	6.3	9.1	0.4
2002	5.2		4.6	4.8		75,502,866		50,383	(3,165,523)	5,717,250	66,670,475	4.2	4.5	12.7	0.4
2003	5.8		5.0	5.3		83,479,192		591,591	(6,927,326)	6,626,813	70,516,644	4.5	4.9	11.8	0.6
2004	6.1		5.2	5.1		80,496,839		115,393	(7,230,617)	6,813,056	66,568,558	4.2	4.7	12.3	1.0
2005	4.9		4.5	4.9		76,739,657		405,500	(2,266,985)	5,281,959	69,596,212	4.4	4.6	12.4	0.1
2006	4.8	0.5	5.1	4.7		74,325,355	7,872,782	745,177	1,311,803	4,025,897	80,229,220	5.1	4.9	11.7	0.1
2009	5.4	0.2	4.8	3.9		61,669,279	2,959,536	55,259	(5,995,737)	6,722,100	51,966,237	3.3	3.6	15.9	1.5
2010	5.5	0.2	4.6	4.2		66,838,975	3,666,245	266,541	(12,305,877)	6,501,206	51,964,677	3.3	3.8	15.2	1.3
2011	5.2	0.4	5.8	4.2		66,494,995	5,623,179	112,955	9,360,268	6,784,903	74,806,493	4.7	4.5	12.8	1.0
2012	6.7	0.4	6.1	5.0		78,334,358	6,811,219	661,477	(8,882,347)	6,925,669	69,999,038	4.4	4.7	12.2	1.7
2013	5.1	0.4	4.8	4.1		64,281,177	5,904,110	138,146	(3,962,417)	6,771,909	59,589,106	3.8	3.9	14.6	1.0
					TOTAL	828,782,013	32,837,070	3,355,329		67,918,331	759,759,786				
AVG (2001-2013)	**5.3**		**4.9**	**4.8**								**4.4**	**4.6**	**12.8**	**0.8**
AVG (2009-2013)	**5.6**		**5.2**	**4.3**		**0.2**						**3.9**	**4.1**	**14.2**	**1.3**

APPENDIX D

Spreadsheet Model and Data Summaries

SUMMARY of SPREADSHEET MODEL RESULTS (all flows)

Entire Year units = cfs (except for Se load, in lbs) Project Conditions

	PCW Bar	PCW Bar (Loss)	SDC Campus **	SDC Campus, Base **	MWRP Dewtr	SJM In	SJM Out (SDC)	SDC Campus	Project - Diversion	Project - PCW Bar (Loss), Proj Div	Project - Diversion, Se Load	Project - PCW Bar	Project - SDC Campus **	Project - SJM In	Project - SDC Campus
Sum	80359.40	(121.39)	168050.63		1685.77	23627.85	20911.32	177247.75	9234.01	(55.61)	1983.41	71181.00	158876.26	20736.47	167980.56
Max	1970.00	0.00	7389.68		6.61	13.40	11.70	7950.00	2.60	0.00	0.56	1970.00	7389.68	12.42	7950.00
Avg	16.98	(0.03)	35.51		0.36	4.99	4.42	37.46	1.95	(0.01)	0.42	15.04	33.57	4.38	35.50
Median	5.90	0.00	9.20		0.31	5.33	4.72	9.10	2.16	0.00	0.47	3.66	7.03	4.68	6.80
20th Percentile	4.60	0.00	6.44		0.16	4.16	2.12	5.70	1.88	0.00	0.40	2.59	4.32	3.12	3.88
Min	2.60	(0.71)	0.25		0.00	0.00	0.00	0.42	0.00	(0.32)	0.00	1.44	0.00	0.00	0.00

Entire Year, WY 2009-2013

	PCW Bar	PCW Bar (Loss)	SDC Campus **	SDC Campus, Base	MWRP Dewtr	SJM In	SJM Out (SDC)	SDC Campus	Project - Diversion	Project - PCW Bar	Project - Diversion	Project - PCW Bar	Project - SDC Cam	Project - SJM In	Project - SDC Campus
Sum	35732.40	(34.09)	64195.77		598.66	10334.49	9667.99	67852.37	3575.35	(15.73)	769.22	32172.78	60639.92	8323.49	64722.42
Max	1970.00	0.00	7389.68		6.61	13.40	11.70	7950.00	2.60	0.00	0.56	1970.00	7389.68	12.42	7950.00
Avg	19.59	(0.02)	35.20		0.33	5.67	5.30	37.20	1.96	(0.01)	0.42	17.64	33.25	4.56	35.48
Median	5.60	0.00	6.91		0.28	5.65	5.36	6.80	2.12	0.00	0.46	3.41	4.80	4.49	4.71
20th Percentile	4.60	0.00	5.56		0.10	4.88	4.03	4.80	1.90	0.00	0.41	2.59	3.48	3.34	3.27
Min	2.70	(0.65)	0.25		0.00	0.00	0.00	0.42	0.00	(0.29)	0.00	1.48	0.00	0.00	0.00

Dry Season (Apr-Sep)

	PCW Bar	PCW Bar (Loss)	SDC Campus **	SDC Campus, Base	MWRP Dewtr	SJM In	SJM Out (SDC)	SDC Campus	Project - Diversion	Project - PCW Bar	Project - Diversion	Project - PCW Bar	Project - SDC Cam	Project - SJM In	Project - SDC Campus
Sum	17938.60	(57.95)	30643.48		858.56	12592.02	11463.79	31400.40	4987.62	(26.63)	1072.04	12977.61	25683.50	10945.80	26443.36
Max	577.00	0.00	1079.37		6.61	11.63	11.63	1160.00	2.60	0.00	0.56	577.00	1079.37	11.22	1160.00
Avg	7.59	(0.02)	12.96		0.36	5.33	4.85	13.28	2.11	(0.01)	0.45	5.49	10.86	4.63	11.19
Median	5.60	0.00	8.34		0.33	5.37	5.01	8.30	2.18	0.00	0.47	3.45	6.18	4.67	6.07
20th Percentile	4.50	0.00	6.17		0.18	4.53	3.50	5.70	1.97	0.00	0.43	2.51	4.06	3.59	3.83
Min	2.60	(0.71)	1.34		0.00	0.00	0.00	1.30	0.00	(0.32)	0.00	1.44	0.00	0.00	0.00

Dry Season (Apr-Sep), WY 2009-2013

	PCW Bar	PCW Bar (Loss)	SDC Campus **	SDC Campus, Base	MWRP Dewtr	SJM In	SJM Out (SDC)	SDC Campus	Project - Diversion	Project - PCW Bar	Project - Diversion	Project - PCW Bar	Project - SDC Cam	Project - SJM In	Project - SDC Campus
Sum	6644.10	(19.79)	8326.45		288.32	5086.30	4748.40	8302.30	1911.31	(9.13)	411.05	4741.92	6425.27	3898.77	6638.93
Max	300.00	0.00	561.86		6.61	11.22	10.28	605.00	2.60	0.00	0.56	300.00	561.86	11.22	605.00
Avg	7.28	(0.02)	9.12		0.32	5.57	5.20	9.09	2.09	(0.01)	0.45	5.19	7.04	4.27	7.27
Median	5.20	0.00	6.39		0.28	5.49	5.21	6.00	2.12	0.00	0.46	3.08	4.25	4.16	4.13
20th Percentile	4.40	0.00	5.46		0.15	4.86	4.19	4.80	1.95	0.00	0.42	2.43	3.37	3.32	3.30
Min	2.70	(0.65)	1.34		0.00	0.00	0.00	1.30	0.00	(0.29)	0.00	1.48	0.00	0.00	0.00

cubic feet (daily AVG)

Month (All months) Full Year

Row Labels	Average of PCW B	Average of PCW B	Average of SDC Ca	**Average of SDC Ca**	**Average of MWRF**	**Average of SJM In**	Average of SJM Ou	Average of SDC Ca	Average of Project	Average of Project	Average of Project	Average of Project	Average of Project	**Average of Projec**	Average of Project	**%Reduction in SJM inflow**
1999	11.69	0.00	22.48	**12.44**	**0.58**	**4.84**	3.82	23.03	2.18	0.00	0.47	9.51	20.30	**4.63**	20.81	**4.5%**
2000	9.53	(0.06)	24.03	**11.25**	**0.48**	**3.47**	2.32	24.69	1.99	(0.03)	0.42	7.57	22.08	**3.46**	22.47	**0.2%**
2001	16.26	(0.01)	35.56	**11.14**	**0.34**	**4.69**	4.18	37.68	2.03	(0.01)	0.44	14.24	33.54	**4.48**	35.31	**4.5%**
2002	7.61	(0.00)	13.72	**8.79**	**0.30**	**5.90**	4.84	13.62	2.08	(0.00)	0.45	5.53	11.64	**5.43**	11.50	**8.0%**
2003	19.73	(0.00)	41.22	**8.63**	**0.25**	**5.53**	4.28	42.95	1.96	(0.00)	0.42	17.77	39.26	**4.99**	40.96	**9.8%**
2004	9.85	(0.14)	24.50	**8.01**	**0.23**	**4.84**	4.23	25.55	1.72	(0.07)	0.36	8.20	22.85	**4.15**	24.03	**14.1%**
2005	37.95	(0.01)	98.54	**11.80**	**0.31**	**2.87**	3.10	106.14	1.69	(0.00)	0.36	36.26	96.85	**2.75**	103.88	**4.4%**
2006	10.40	(0.01)	26.08	**10.99**	**0.49**	**4.46**	4.16	27.72	1.91	(0.00)	0.41	8.49	24.17	**4.28**	25.54	**3.9%**
2009	14.40	(0.00)	25.08	**6.82**	**0.22**	**5.71**	4.86	25.84	2.01	(0.00)	0.43	12.40	23.08	**4.41**	24.13	**22.7%**
2010	22.92	(0.02)	46.17	**6.91**	**0.19**	**5.57**	5.11	48.92	1.89	(0.01)	0.41	21.04	44.29	**4.37**	47.28	**21.6%**
2011	31.68	(0.01)	73.45	**8.87**	**0.31**	**5.42**	6.10	79.48	1.86	(0.00)	0.40	29.82	71.59	**4.83**	77.58	**10.8%**
2012	16.23	(0.03)	17.14	**7.14**	**0.56**	**5.74**	5.72	18.08	2.02	(0.01)	0.43	14.22	15.13	**4.42**	16.33	**23.0%**
2013	12.71	(0.03)	14.11	**7.73**	**0.36**	**5.89**	4.71	13.65	2.02	(0.01)	0.43	10.70	12.11	**4.78**	12.07	**18.8%**
																11.3%
																7.4%
																19.4%

Month	(Apr-Sep)	Dry Season

Row Labels	Average of PCW B	Average of PCW B	Average of SDC Ca	**Average of SDC Ca**	**Average of MWRF**	**Average of SJM In**	Average of SJM Ou	Average of SDC Ca	Average of Project	Average of Project	Average of Project	Average of Project	Average of Project	**Average of Projec**	Average of Project - SDC Campus	
1999	9.36	0.00	17.03	**12.88**	**0.58**	**4.54**	3.40	17.17	2.23	0.00	0.48	7.13	14.80	**4.54**	14.77	**0.1%**
2000	5.99	(0.10)	15.77	**11.65**	**0.45**	**3.29**	2.57	16.23	2.07	(0.04)	0.44	3.97	13.74	**3.28**	14.03	**0.4%**
2001	7.48	0.00	12.39	**10.57**	**0.35**	**6.74**	6.57	13.06	2.33	0.00	0.50	5.15	10.06	**6.36**	10.55	**5.6%**
2002	6.03	(0.00)	8.19	**7.79**	**0.29**	**5.19**	4.63	8.15	2.15	(0.00)	0.46	3.88	6.04	**4.78**	5.94	**7.9%**
2003	10.13	(0.01)	19.33	**8.91**	**0.27**	**5.83**	5.01	19.75	2.10	(0.00)	0.45	8.04	17.23	**5.28**	17.75	**9.5%**
2004	4.73	(0.09)	9.52	**7.45**	**0.27**	**6.11**	5.23	9.14	1.90	(0.04)	0.40	2.87	7.66	**5.09**	7.48	**16.7%**
2005	8.54	(0.00)	18.76	**11.99**	**0.43**	**4.95**	4.50	19.71	2.18	(0.00)	0.47	6.36	16.58	**4.85**	17.15	**1.9%**
2006	10.20	(0.01)	22.34	**11.13**	**0.50**	**4.77**	5.15	24.40	2.01	(0.00)	0.43	8.19	20.34	**4.70**	21.81	**1.5%**
2009	5.12	(0.01)	6.08	**6.08**	**0.19**	**5.37**	4.76	5.59	2.09	(0.00)	0.45	3.03	3.99	**3.90**	3.78	**27.4%**
2010	6.72	(0.03)	10.45	**6.37**	**0.23**	**5.49**	4.55	10.04	1.98	(0.01)	0.43	4.75	8.49	**4.23**	8.37	**23.0%**
2011	6.80	(0.01)	9.16	**7.40**	**0.36**	**5.24**	5.77	10.09	2.10	(0.00)	0.45	4.70	7.06	**4.21**	7.98	**19.8%**
2012	10.77	(0.02)	11.39	**7.29**	**0.43**	**6.66**	6.13	11.15	2.16	(0.01)	0.46	8.62	9.24	**4.95**	9.56	**25.6%**
2013	6.99	(0.03)	8.51	**7.23**	**0.37**	**5.09**	4.79	8.59	2.13	(0.02)	0.46	4.88	6.41	**4.07**	6.67	**20.2%**
2009-2013						**5.57**								**4.27**		*12.3%*
																7.2%
																23.2%

Month	1.00	January

Row Labels	Average of PCW B	Average of PCW B	Average of SDC Ca	**Average of SDC Ca**	**Average of MWRF**	**Average of SJM In**	Average of SJM Ou	Average of SDC Ca	Average of Project	Average of Project	Average of Project	Average of Project	Average of Project	**Average of Projec**	Average of Project - SDC Campus
1999	20.96	0.00	47.94	**12.79**	**0.63**	**4.70**	4.60	51.45	2.02	0.00	0.44	18.93	45.92	**4.70**	49.28
2000	6.94	0.00	19.61	**11.90**	**0.56**	**3.47**	0.67	18.28	1.93	0.00	0.42	5.01	17.67	**3.47**	16.20
2001	39.29	(0.09)	110.55	**11.58**	**0.35**	**3.72**	2.80	117.95	1.37	(0.04)	0.29	37.96	109.22	**3.72**	116.08
2002	9.71	(0.00)	19.08	**8.63**	**0.34**	**6.54**	4.21	18.13	1.94	(0.00)	0.42	7.77	17.13	**5.59**	16.45
2003	6.08	(0.01)	10.05	**8.10**	**0.27**	**6.42**	4.06	8.31	2.08	(0.00)	0.45	4.01	7.98	**5.52**	6.46
2004	4.79	(0.19)	12.71	**7.66**	**0.20**	**0.00**	0.00	13.66	1.63	(0.09)	0.33	3.25	11.16	**0.00**	12.00
2005	145.77	0.00	322.76	**16.62**	**0.25**	**0.00**	2.41	349.47	0.60	0.00	0.13	145.17	322.16	**0.00**	346.41
2006	10.22	(0.01)	34.76	**10.70**	**0.57**	**6.35**	2.03	32.90	1.81	(0.00)	0.39	8.41	32.95	**5.94**	31.38
2009	10.44	0.00	13.81	**8.37**	**0.23**	**6.53**	4.42	12.37	2.17	0.00	0.47	8.27	11.64	**5.58**	10.72
2010	108.08	0.00	255.96	**6.88**	**0.17**	**4.89**	6.31	276.20	1.44	0.00	0.31	106.64	254.52	**3.82**	274.97
2011	22.61	0.00	39.71	**14.89**	**0.26**	**6.41**	7.19	43.48	1.34	0.00	0.29	21.27	38.37	**6.41**	42.04
2012	21.51	(0.06)	22.77	**6.38**	**0.78**	**4.52**	3.59	23.37	1.87	(0.03)	0.40	19.66	20.92	**3.43**	22.15
2013	23.20	(0.01)	27.96	**8.32**	**0.28**	**6.89**	6.29	29.02	1.92	(0.00)	0.41	21.28	26.04	**5.48**	27.52

Month	2.00	February

Row Labels	Average of PCW B	Average of PCW B	Average of SDC Ca	**Average of SDC Ca**	**Average of MWRF**	**Average of SJM In**	Average of SJM Ou	Average of SDC Ca	Average of Project	Average of Project	Average of Project	Average of Project	Average of Project	**Average of Projec**	Average of Project - SDC Campus
1999	8.49	0.00	18.05	**14.77**	**0.61**	**4.55**	4.03	18.89	2.05	0.00	0.44	6.44	16.01	**4.55**	16.69
2000	30.80	0.00	91.15	**13.21**	**0.55**	**3.71**	2.25	96.55	1.21	0.00	0.26	29.59	89.94	**3.71**	95.25
2001	88.23	0.00	171.60	**11.36**	**0.41**	**2.77**	2.85	184.59	1.44	0.00	0.31	86.79	170.16	**2.77**	181.32
2002	7.89	0.00	14.79	**11.44**	**0.37**	**6.90**	5.35	14.28	2.21	0.00	0.48	5.67	12.58	**6.66**	12.02
2003	53.89	0.00	146.61	**8.38**	**0.30**	**4.42**	3.63	156.84	1.51	0.00	0.33	52.37	145.10	**3.98**	154.54
2004	63.99	(0.08)	155.56	**6.78**	**0.22**	**3.28**	3.45	167.34	1.12	(0.04)	0.23	62.91	154.48	**3.09**	166.28
2005	127.20	0.00	395.01	**13.50**	**0.23**	**0.00**	2.16	426.90	0.58	0.00	0.13	126.62	394.43	**0.00**	424.11
2006	15.99	0.00	40.88	**10.43**	**0.62**	**6.51**	8.42	45.87	1.81	0.00	0.39	14.18	39.07	**6.17**	43.83
2009	49.72	0.00	90.51	**8.96**	**0.23**	**5.68**	4.05	95.39	1.37	0.00	0.30	48.35	89.14	**4.89**	94.56
2010	62.66	0.00	134.55	**11.55**	**0.24**	**6.11**	6.79	145.36	1.48	0.00	0.32	61.18	133.07	**5.94**	143.76
2011	37.89	0.00	76.75	**11.73**	**0.25**	**6.04**	6.97	83.46	1.76	0.00	0.38	36.13	74.98	**6.01**	81.56
2012	14.77	(0.03)	13.59	**5.45**	**0.73**	**4.75**	5.45	15.12	1.73	(0.02)	0.37	13.05	11.87	**3.38**	13.21
2013	14.26	(0.01)	15.69	**11.09**	**0.41**	**7.33**	5.67	15.02	2.17	(0.00)	0.47	12.09	13.52	**6.82**	12.94

Month	3.00	March

Row Labels	Average of PCW B	Average of PCW B	Average of SDC Ca	**Average of SDC Ca**	**Average of MWRF**	**Average of SJM In**	Average of SJM Ou	Average of SDC Ca	Average of Project	Average of Project	Average of Project	Average of Project	Average of Project	**Average of Projec**	Average of Project - SDC Campus
1999	14.57	0.00	29.64	**14.19**	**0.65**	**4.56**	0.73	28.05	2.04	0.00	0.44	12.53	27.60	**4.56**	25.85
2000	26.38	0.00	56.62	**11.65**	**0.57**	**2.39**	2.89	61.38	2.04	0.00	0.44	24.34	54.58	**2.39**	58.03
2001	9.39	0.00	21.36	**10.96**	**0.48**	**5.21**	4.28	21.99	1.48	0.00	0.32	7.92	19.88	**4.97**	20.13
2002	8.04	0.00	15.29	**9.86**	**0.40**	**6.38**	4.78	14.84	2.08	0.00	0.45	5.97	13.22	**6.10**	12.54
2003	57.75	0.00	107.75	**12.32**	**0.37**	**5.69**	4.48	114.65	1.58	0.00	0.34	56.17	106.17	**5.69**	112.95
2004	8.83	(0.00)	25.84	**9.81**	**0.26**	**0.82**	0.12	27.08	1.86	(0.00)	0.40	6.98	23.98	**0.82**	25.08
2005	15.48	0.00	35.66	**12.02**	**0.30**	**0.00**	0.00	38.35	1.45	0.00	0.31	14.03	34.21	**0.00**	36.79
2006	16.77	(0.01)	55.65	**11.13**	**0.61**	**6.51**	7.71	60.99	1.18	(0.01)	0.25	15.60	54.48	**6.24**	59.75
2009	6.77	0.00	8.47	**7.81**	**0.31**	**6.46**	6.02	8.64	2.18	0.00	0.47	4.60	6.30	**5.31**	6.46
2010	11.16	0.00	18.36	**11.42**	**0.25**	**7.20**	6.90	19.26	1.92	0.00	0.41	9.24	16.44	**6.66**	17.44
2011	37.00	0.00	76.58	**12.93**	**0.26**	**5.79**	7.22	83.77	1.85	0.00	0.40	35.15	74.73	**5.79**	81.79
2012	28.61	(0.02)	39.60	**7.83**	**0.64**	**5.41**	5.80	42.93	1.82	(0.01)	0.39	26.80	37.81	**4.70**	40.87
2013	12.42	(0.01)	15.54	**7.41**	**0.31**	**6.80**	6.02	15.54	2.10	(0.00)	0.45	10.32	13.51	**5.20**	13.82

Month	4.00	April

Row Labels	Average of PCW B	Average of PCW B	Average of SDC Ca	**Average of SDC Ca**	**Average of MWRF**	**Average of SJM In**	Average of SJM Ou	Average of SDC Ca	Average of Project	Average of Project	Average of Project	Average of Project	Average of Project	**Average of Projec**	Average of Project - SDC Campus
1999	13.70	0.00	34.56	13.50	0.70	4.36	3.62	36.43	2.07	0.00	0.45	11.63	32.50	4.36	34.21
2000	9.26	0.00	35.14	11.91	0.60	3.60	3.23	37.41	2.14	0.00	0.46	7.12	33.00	3.60	34.98
2001	8.04	0.00	20.59	10.16	0.42	6.83	7.91	22.96	1.96	0.00	0.42	6.08	18.64	6.18	20.81
2002	7.53	(0.00)	11.58	9.40	0.43	5.77	6.60	13.29	1.87	(0.00)	0.40	5.66	9.71	5.70	11.27
2003	26.50	0.00	56.42	10.27	0.36	7.59	6.71	59.15	1.98	0.00	0.43	24.52	54.44	6.77	57.75
2004	6.66	(0.06)	20.81	8.31	0.32	5.97	3.50	19.70	1.68	(0.03)	0.36	5.01	19.16	5.05	18.45
2005	13.98	0.00	43.52	14.15	0.43	4.69	3.60	45.71	1.97	0.00	0.43	12.02	41.56	4.69	43.21
2006	27.25	(0.01)	65.02	12.61	0.64	6.49	8.34	71.77	1.42	(0.01)	0.31	25.83	63.60	6.49	70.24
2009	6.38	0.00	7.14	7.14	0.29	6.13	5.98	7.40	2.28	0.00	0.49	4.11	4.86	4.60	5.15
2010	16.68	(0.01)	33.29	8.80	0.25	6.75	4.82	33.68	1.74	(0.00)	0.37	14.95	31.56	5.79	32.28
2011	9.12	0.00	15.73	11.97	0.27	6.38	6.79	17.12	2.24	0.00	0.48	6.89	13.50	5.74	14.87
2012	28.51	(0.00)	33.06	9.76	0.55	7.22	7.56	35.84	1.95	(0.00)	0.42	26.55	31.10	6.43	33.82
2013	6.51	(0.00)	6.24	6.24	0.26	6.21	5.67	5.52	2.29	(0.00)	0.49	4.23	3.96	3.96	3.89

Month	5.00	May

Row Labels	Average of PCW B	Average of PCW B	Average of SDC Ca	**Average of SDC Ca**	**Average of MWRF**	**Average of SJM In**	Average of SJM Ou	Average of SDC Ca	Average of Project	Average of Project	Average of Project	Average of Project	Average of Project	**Average of Projec**	Average of Project - SDC Campus
1999	9.59	0.00	15.48	14.93	0.75	4.50	4.05	16.19	2.26	0.00	0.49	7.33	13.22	4.50	13.76
2000	8.12	0.00	14.86	14.63	0.62	3.51	2.18	14.65	2.44	0.00	0.53	5.68	12.42	3.51	12.02
2001	7.29	0.00	10.36	9.93	0.42	6.28	6.28	10.96	2.33	0.00	0.50	4.97	8.03	5.68	8.64
2002	5.84	0.00	7.18	7.18	0.40	6.30	6.12	7.00	2.22	0.00	0.48	3.62	4.96	4.87	5.10
2003	9.61	0.00	22.02	10.90	0.33	6.15	6.05	23.58	2.12	0.00	0.46	7.49	19.90	6.12	21.31
2004	4.20	(0.07)	7.85	7.85	0.34	6.98	6.32	7.47	1.92	(0.03)	0.41	2.31	5.97	5.58	5.85
2005	10.62	0.00	21.90	13.39	0.59	6.04	7.26	24.73	2.21	0.00	0.48	8.41	19.69	5.80	21.52
2006	9.92	(0.01)	26.84	13.20	0.60	6.19	7.07	29.74	1.89	(0.00)	0.41	8.03	24.95	6.19	27.71
2009	4.54	(0.02)	5.78	5.78	0.22	5.24	4.29	4.54	1.99	(0.01)	0.43	2.56	3.80	3.61	3.15
2010	4.42	(0.06)	6.86	6.86	0.23	5.59	4.78	6.57	1.96	(0.03)	0.42	2.48	4.92	4.89	4.62
2011	7.91	0.00	11.40	6.76	0.30	5.63	5.82	11.33	2.01	0.00	0.43	5.91	9.39	3.93	9.98
2012	7.50	0.00	7.36	7.36	0.49	7.21	6.97	6.72	2.28	0.00	0.49	5.22	5.08	5.06	5.30
2013	14.42	(0.01)	14.56	6.93	0.41	5.83	5.68	15.01	2.14	(0.00)	0.46	12.29	12.45	4.20	13.17

Month	6.00	June

Row Labels	Average of PCW B	Average of PCW B	Average of SDC Ca	**Average of SDC Ca**	**Average of MWRF**	**Average of SJM In**	Average of SJM Ou	Average of SDC Ca	Average of Project	Average of Project	Average of Project	Average of Project	Average of Project	**Average of Projec**	Average of Project - SDC Campus
1999	12.57	0.00	18.57	16.57	0.64	4.07	3.40	19.30	2.08	0.00	0.45	10.49	16.49	4.07	17.06
2000	6.06	0.00	10.49	10.49	0.49	4.90	4.93	11.31	2.26	0.00	0.49	3.80	8.23	4.85	8.85
2001	7.16	0.00	10.47	10.47	0.40	6.08	5.77	10.89	2.42	0.00	0.52	4.74	8.05	5.75	8.08
2002	5.29	0.00	7.19	7.19	0.34	4.77	4.35	7.28	2.13	0.00	0.46	3.16	5.05	4.46	5.02
2003	5.90	0.00	9.67	9.67	0.30	5.33	4.11	9.12	2.24	0.00	0.48	3.66	7.43	4.61	6.78
2004	3.98	(0.12)	7.75	7.75	0.30	6.76	6.10	7.37	1.87	(0.05)	0.39	2.17	5.93	5.76	5.81
2005	7.07	0.00	13.90	13.26	0.37	3.70	2.69	13.93	2.16	0.00	0.47	4.91	11.74	3.59	11.44
2006	4.33	(0.03)	12.13	11.83	0.51	3.31	2.83	12.57	1.88	(0.01)	0.40	2.46	10.26	3.25	9.86
2009	5.23	0.00	6.05	6.05	0.20	5.47	4.77	5.45	2.13	0.00	0.46	3.10	3.92	3.92	3.69
2010	4.45	(0.06)	6.11	6.11	0.17	5.28	4.50	5.51	1.97	(0.03)	0.42	2.50	4.17	4.16	3.84
2011	5.53	0.00	6.73	6.73	0.35	5.41	5.57	7.26	2.18	0.00	0.47	3.35	4.56	4.42	5.04
2012	4.95	(0.01)	6.63	6.63	0.52	6.14	5.57	5.99	2.07	(0.00)	0.45	2.88	4.56	4.44	4.41
2013	6.47	(0.01)	7.14	7.14	0.44	4.69	4.93	7.86	2.27	(0.00)	0.49	4.21	4.88	4.01	5.46

Month	7.00	July

Row Labels	Average of PCW B	Average of PCW B	Average of SDC Ca	**Average of SDC Ca**	**Average of MWRF**	**Average of SJM In**	Average of SJM Ou	Average of SDC Ca	Average of Project	Average of Project	Average of Project	Average of Project	Average of Project	**Average of Projec**	Average of Project - SDC Campus
1999	8.34	0.00	13.53	12.94	0.54	4.23	1.79	12.10	2.44	0.00	0.53	5.90	11.08	4.23	9.47
2000	4.30	(0.10)	9.63	9.63	0.39	4.78	4.28	9.85	1.93	(0.05)	0.41	2.41	7.75	4.75	7.79
2001	7.70	0.00	10.37	10.37	0.29	6.82	6.54	10.87	2.48	0.00	0.54	5.23	7.89	6.53	8.23
2002	5.68	0.00	8.08	8.08	0.22	4.57	3.36	7.47	2.19	0.00	0.47	3.50	5.89	4.53	5.13
2003	7.54	0.00	7.35	6.13	0.24	5.31	4.43	6.51	2.21	0.00	0.48	5.33	5.14	3.79	4.75
2004	3.64	(0.24)	7.44	7.44	0.25	5.41	4.54	7.10	1.79	(0.11)	0.36	1.97	5.77	4.96	5.42
2005	6.94	0.00	12.07	12.07	0.37	6.27	5.93	12.63	2.39	0.00	0.52	4.55	9.68	6.27	10.07
2006	6.81	(0.00)	11.20	10.22	0.47	4.26	3.63	11.42	2.19	(0.00)	0.47	4.62	9.01	4.25	9.06
2009	4.95	0.00	6.14	6.14	0.17	5.20	4.67	5.87	2.07	0.00	0.45	2.87	4.07	4.00	3.91
2010	5.21	0.00	5.91	5.91	0.15	5.22	4.37	5.21	2.12	0.00	0.46	3.09	3.78	3.76	3.41
2011	4.87	(0.00)	6.35	6.35	0.40	4.90	5.32	7.20	2.06	(0.00)	0.44	2.82	4.29	3.82	4.93
2012	10.63	(0.00)	7.88	6.76	0.42	6.41	5.79	6.93	2.25	(0.00)	0.49	8.38	5.63	4.54	5.57
2013	5.21	(0.01)	7.90	7.90	0.45	3.45	3.06	8.01	2.11	(0.01)	0.45	3.10	5.80	2.98	5.99

Month	8.00	August														
Row Labels	Average of PCW B	Average of PCW B	Average of SDC Ca	**Average of SDC Ca**	**Average of MWRF**	**Average of SJM In**	Average of SJM Ou	Average of SDC Ca	Average of Project	Average of Project	Average of Project	Average of Project	Average of Project	**Average of Projec**	Average of Project - SDC Campus
1999	5.97	0.00	10.26	**10.26**	**0.45**	**5.03**	4.40	10.39	2.25	0.00	0.49	3.72	8.01	**5.03**	7.97
2000	3.55	(0.33)	11.88	**11.88**	**0.31**	**1.96**	0.60	11.42	1.74	(0.15)	0.34	1.95	10.29	**1.96**	9.71
2001	7.42	0.00	10.70	**10.70**	**0.29**	**7.14**	6.81	11.18	2.45	0.00	0.53	4.96	8.25	**6.89**	8.55
2002	5.78	0.00	7.86	**7.86**	**0.18**	**4.47**	3.38	7.36	2.22	0.00	0.48	3.56	5.64	**4.39**	4.99
2003	5.22	(0.01)	9.09	**9.09**	**0.23**	**5.30**	4.29	8.76	2.11	(0.00)	0.46	3.12	6.99	**5.27**	6.50
2004	5.13	(0.03)	6.66	**6.66**	**0.24**	**6.35**	5.72	6.13	2.10	(0.01)	0.45	3.05	4.58	**4.58**	4.43
2005	6.55	0.00	10.49	**10.49**	**0.42**	**5.44**	5.46	11.30	2.33	0.00	0.50	4.21	8.15	**5.34**	8.79
2006	6.09	0.00	8.92	**8.92**	**0.36**	**5.59**	4.47	8.47	2.26	0.00	0.49	3.83	6.66	**5.44**	6.04
2009	4.99	(0.00)	5.81	**5.81**	**0.21**	**5.11**	4.49	5.36	2.08	(0.00)	0.45	2.91	3.73	**3.72**	3.48
2010	5.01	(0.05)	5.56	**5.56**	**0.39**	**5.09**	4.48	4.98	2.07	(0.02)	0.44	2.96	3.51	**3.38**	3.35
2011	5.67	0.00	5.27	**5.27**	**0.41**	**4.64**	5.43	6.29	2.20	0.00	0.48	3.47	3.07	**3.02**	3.80
2012	4.55	(0.12)	6.55	**6.55**	**0.24**	**6.42**	5.46	5.59	1.97	(0.05)	0.41	2.64	4.64	**4.64**	4.30
2013	5.26	(0.02)	7.20	**7.20**	**0.20**	**5.09**	4.98	7.61	2.12	(0.01)	0.46	3.15	5.09	**4.60**	5.37

Month	9.00	September														
Row Labels	Average of PCW B	Average of PCW B	Average of SDC Ca	**Average of SDC Ca**	**Average of MWRF**	**Average of SJM In**	Average of SJM Ou	Average of SDC Ca	Average of Project	Average of Project	Average of Project	Average of Project	Average of Project	**Average of Projec**	Average of Project - SDC Campus
1999	6.11	0.00	10.20	**10.20**	**0.43**	**5.06**	3.14	9.04	2.27	0.00	0.49	3.84	7.93	**5.04**	6.60
2000	4.75	(0.15)	12.97	**11.46**	**0.26**	**1.00**	0.25	13.19	1.89	(0.07)	0.39	2.93	11.15	**1.00**	11.23
2001	7.25	0.00	12.03	**11.79**	**0.26**	**7.29**	6.08	11.73	2.35	0.00	0.51	4.90	9.69	**7.16**	9.22
2002	6.06	0.00	7.29	**7.29**	**0.15**	**5.26**	4.01	6.58	2.26	0.00	0.49	3.79	5.03	**4.71**	4.22
2003	4.44	(0.03)	7.88	**7.88**	**0.18**	**5.11**	4.10	7.45	1.97	(0.01)	0.42	2.48	5.92	**4.84**	5.37
2004	4.78	(0.06)	6.81	**6.81**	**0.17**	**5.18**	5.17	7.31	2.03	(0.03)	0.43	2.77	4.80	**4.63**	5.14
2005	6.11	(0.00)	11.08	**9.08**	**0.39**	**3.46**	1.87	10.33	2.01	(0.00)	0.43	4.11	9.07	**3.34**	8.22
2006	7.04	0.00	10.61	**10.61**	**0.41**	**2.73**	4.53	13.21	2.38	0.00	0.51	4.66	8.23	**2.52**	8.69
2009	4.62	(0.03)	5.55	**5.55**	**0.04**	**5.09**	4.36	4.90	2.00	(0.01)	0.43	2.63	3.56	**3.56**	3.27
2010	4.73	(0.02)	5.43	**5.43**	**0.20**	**5.05**	4.37	4.72	2.03	(0.01)	0.44	2.71	3.40	**3.40**	3.17
2011	7.73	(0.06)	9.62	**7.73**	**0.41**	**4.51**	5.70	11.53	1.94	(0.03)	0.41	5.83	7.71	**4.37**	9.42
2012	8.72	(0.01)	7.14	**7.14**	**0.36**	**6.59**	5.49	6.18	2.45	(0.01)	0.53	6.27	4.69	**4.63**	4.28
2013	3.93	(0.15)	7.91	**7.91**	**0.48**	**5.31**	4.48	7.36	1.86	(0.07)	0.39	2.15	6.12	**4.66**	5.98

Month	10.00	October														
Row Labels	Average of PCW B	Average of PCW B	Average of SDC Ca	**Average of SDC Ca**	**Average of MWRF**	**Average of SJM In**	Average of SJM Ou	Average of SDC Ca	Average of Project	Average of Project	Average of Project	Average of Project	Average of Project	**Average of Projec**	Average of Project - SDC Campus
1999	8.02	0.00	15.50	**15.17**	**0.50**	**5.81**	5.18	16.03	2.33	0.00	0.50	5.70	13.17	**5.81**	13.53
2000	6.24	(0.01)	10.65	**10.65**	**0.43**	**4.60**	4.10	10.95	2.27	(0.00)	0.49	3.97	8.38	**4.58**	8.50
2001	9.72	0.00	34.22	**11.53**	**0.25**	**0.34**	0.06	36.52	2.00	0.00	0.43	7.72	32.22	**0.34**	34.37
2002	7.31	0.00	9.84	**9.84**	**0.23**	**7.48**	7.02	9.96	2.43	0.00	0.53	4.88	7.41	**6.39**	7.51
2003	5.42	0.00	6.37	**6.37**	**0.12**	**5.12**	4.99	6.60	2.16	0.00	0.47	3.26	4.21	**3.98**	4.30
2004	3.36	(0.35)	8.38	**8.38**	**0.16**	**7.87**	7.12	7.52	1.71	(0.16)	0.33	1.82	6.83	**6.63**	6.74
2005	79.06	(0.01)	213.33	**7.74**	**0.10**	**4.52**	5.60	230.02	1.35	(0.01)	0.29	77.71	211.98	**3.60**	228.91
2006	7.06	0.00	19.26	**13.62**	**0.36**	**0.00**	0.00	20.71	2.01	0.00	0.43	5.06	17.25	**0.00**	18.55
2009	5.42	0.00	7.03	**7.03**	**0.27**	**6.09**	5.53	6.84	2.15	0.00	0.47	3.27	4.88	**4.82**	4.74
2010	10.63	(0.02)	10.72	**5.87**	**0.07**	**5.42**	4.89	10.64	2.02	(0.01)	0.43	8.62	8.71	**3.59**	9.01
2011	23.92	(0.03)	59.20	**7.83**	**0.28**	**4.99**	5.44	63.60	1.59	(0.02)	0.34	22.34	57.62	**4.30**	62.46
2012	19.62	(0.02)	23.03	**8.37**	**0.59**	**5.01**	6.05	25.75	2.17	(0.01)	0.47	17.46	20.87	**4.29**	23.23
2013	8.18	0.00	7.57	**7.57**	**0.35**	**5.74**	0.52	2.87	2.46	0.00	0.53	5.72	5.11	**4.24**	1.70

Month	11.00	November														
Row Labels	Average of PCW B	Average of PCW B	Average of SDC Ca	**Average of SDC Ca**	**Average of MWRF**	**Average of SJM In**	Average of SJM Ou	Average of SDC Ca	Average of Project	Average of Project	Average of Project	Average of Project	Average of Project	**Average of Projec**	Average of Project - SDC Campus
1999	16.23	0.00	29.22	**8.41**	**0.51**	**5.68**	5.19	30.67	2.31	0.00	0.50	13.92	26.91	**4.70**	28.57
2000	4.49	(0.05)	9.85	**9.85**	**0.45**	**3.53**	2.32	9.38	1.98	(0.02)	0.42	2.54	7.90	**3.53**	7.28
2001	5.02	(0.00)	12.70	**12.70**	**0.24**	**0.79**	0.00	12.87	2.09	(0.00)	0.45	2.94	10.62	**0.79**	10.63
2002	11.63	0.00	28.69	**9.31**	**0.24**	**6.20**	4.69	29.24	1.82	0.00	0.39	9.80	26.86	**5.71**	27.49
2003	23.68	(0.00)	48.88	**7.30**	**0.14**	**4.11**	2.48	50.93	1.89	(0.00)	0.41	21.79	46.99	**3.86**	48.85
2004	3.78	(0.42)	13.64	**9.74**	**0.15**	**7.07**	6.80	14.36	1.50	(0.19)	0.28	2.46	12.32	**6.65**	13.00
2005	6.17	(0.03)	32.75	**12.56**	**0.09**	**0.00**	0.00	35.22	1.69	(0.01)	0.36	4.49	31.08	**0.00**	33.42
2006	6.07	0.00	11.13	**10.16**	**0.40**	**0.00**	0.00	11.96	2.08	0.00	0.45	3.98	9.04	**0.00**	9.72
2009	29.08	0.00	50.26	**7.15**	**0.26**	**5.73**	6.30	54.41	1.95	0.00	0.42	27.13	48.31	**4.39**	52.32
2010	4.59	(0.04)	5.27	**5.27**	**0.07**	**4.91**	4.89	5.59	2.00	(0.02)	0.43	2.61	3.29	**3.28**	3.49
2011	19.03	0.00	28.08	**10.24**	**0.32**	**5.80**	6.52	30.92	2.07	0.00	0.45	16.96	26.01	**5.76**	28.69
2012	35.13	(0.00)	26.64	**7.54**	**0.69**	**4.66**	6.95	30.91	1.90	(0.00)	0.41	33.24	24.75	**3.86**	28.50
2013	17.01	(0.08)	12.45	**7.49**	**0.34**	**6.95**	6.30	11.61	1.73	(0.04)	0.37	15.31	10.76	**5.43**	11.08

Month	12.00	December														
Row Labels	Average of PCW B	Average of PCW B	Average of SDC Ca	**Average of SDC Ca**	**Average of MWRF**	**Average of SJM In**	Average of SJM Ou	Average of SDC Ca	Average of Project	Average of Project	Average of Project	Average of Project	Average of Project	**Average of Projec**	Average of Project - SDC Campus
1999	15.49	0.00	26.49	**6.83**	**0.59**	**5.51**	5.79	27.53	2.09	0.00	0.45	13.40	24.40	**3.95**	26.40
2000	4.40	(0.06)	9.01	**9.01**	**0.53**	**4.21**	0.24	5.72	1.96	(0.03)	0.42	2.48	7.08	**4.21**	3.64
2001	4.36	(0.07)	12.15	**12.15**	**0.26**	**2.93**	0.79	10.93	1.95	(0.03)	0.41	2.44	10.23	**2.93**	8.86
2002	10.56	0.00	27.87	**10.78**	**0.33**	**6.18**	4.32	28.11	1.59	0.00	0.34	8.96	26.28	**6.09**	26.44
2003	27.66	0.00	58.21	**8.55**	**0.20**	**5.61**	1.92	58.90	1.79	0.00	0.39	25.87	56.42	**5.18**	57.22
2004	7.94	(0.12)	27.47	**8.95**	**0.13**	**2.42**	1.98	29.02	1.44	(0.05)	0.30	6.55	26.08	**2.19**	27.60
2005	38.74	(0.08)	96.44	**10.48**	**0.13**	**0.00**	0.00	103.69	1.47	(0.04)	0.31	37.31	95.01	**0.00**	102.16
2006	7.86	0.00	17.80	**9.11**	**0.40**	**5.56**	1.28	14.77	1.97	0.00	0.43	5.90	15.83	**4.93**	13.34
2009	43.40	0.00	99.12	**7.39**	**0.21**	**5.73**	3.40	103.89	1.64	0.00	0.35	41.76	97.48	**4.53**	103.16
2010	39.34	0.00	70.20	**6.36**	**0.07**	**5.43**	4.33	73.91	1.92	0.00	0.41	37.42	68.28	**3.90**	72.64
2011	196.70	0.00	538.78	**9.70**	**0.25**	**4.58**	5.30	580.05	1.15	0.00	0.25	195.54	537.63	**4.55**	578.65
2012	10.24	(0.07)	11.01	**6.20**	**0.69**	**4.58**	4.07	11.32	1.80	(0.03)	0.38	8.48	9.25	**3.66**	9.99
2013	35.22	(0.07)	38.57	**8.35**	**0.37**	**6.52**	3.16	37.83	1.09	(0.03)	0.23	34.16	37.52	**5.95**	37.27

1999-2013	Average of SDC Campus, Base **	Average of SJM In	Average of Project - SJM In
Oct	9.23	4.84	4.04
Nov	9.05	4.26	3.69
Dec	8.76	4.56	4.01
Jan	10.22	4.65	4.13
Feb	10.67	4.77	4.46
Mar	10.72	4.86	4.49
Apr	10.32	6.00	5.34
May	9.67	5.80	4.92
Jun	9.22	5.07	4.41
Jul	8.46	5.14	4.49
Aug	8.17	5.20	4.48
Sep	8.37	4.74	4.14

2009-2013			
Oct	7.33	5.45	4.25
Nov	7.54	5.61	4.54
Dec	7.60	5.37	4.52
Jan	8.97	5.85	4.94
Feb	9.76	5.98	5.41
Mar	9.48	6.33	5.53
Apr	8.78	6.54	5.31
May	6.74	5.90	4.34
Jun	6.53	5.40	4.19
Jul	6.61	5.04	3.82
Aug	6.08	5.27	3.87
Sep	6.75	5.31	4.12

1999

	Average of SDC Campus, Base **	Average of SJM In	Average of Project - SJM In
Oct	15.17	5.81	5.81
Nov	8.41	5.68	4.70
Dec	6.83	5.51	3.95
Jan	12.79	4.70	4.70
Feb	14.77	4.55	4.55
Mar	14.19	4.56	4.56
Apr	13.50	4.36	4.36
May	14.93	4.50	4.50
Jun	16.57	4.07	4.07
Jul	12.94	4.23	4.23
Aug	10.26	5.03	5.03
Sep	10.20	5.06	5.04

2000

	Average of SDC Campus, Base **	Average of SJM In	Average of Project - SJM In
Oct	10.65	4.60	4.58
Nov	9.85	3.53	3.53
Dec	9.01	4.21	4.21
Jan	11.90	3.47	3.47
Feb	13.21	3.71	3.71
Mar	11.65	2.39	2.39
Apr	11.91	3.60	3.60
May	14.63	3.51	3.51
Jun	10.49	4.90	4.85
Jul	9.63	4.78	4.75
Aug	11.88	1.96	1.96
Sep	11.46	1.00	1.00

2001	Average of SDC Campus, Base **	Average of SJM In	Average of Project - SJM In
Oct	11.53	0.34	0.34
Nov	12.70	0.79	0.79
Dec	12.15	2.93	2.93
Jan	11.58	3.72	3.72
Feb	11.36	2.77	2.77
Mar	10.96	5.21	4.97
Apr	10.16	6.83	6.18
May	9.93	6.28	5.68
Jun	10.47	6.08	5.75
Jul	10.37	6.82	6.53
Aug	10.70	7.14	6.89
Sep	11.79	7.29	7.16

2002	Average of SDC Campus, Base **	Average of SJM In	Average of Project - SJM In
Oct	9.84	7.48	6.39
Nov	9.31	6.20	5.71
Dec	10.78	6.18	6.09
Jan	8.63	6.54	5.59
Feb	11.44	6.90	6.66
Mar	9.86	6.38	6.10
Apr	9.40	5.77	5.70
May	7.18	6.30	4.87
Jun	7.19	4.77	4.46
Jul	8.08	4.57	4.53
Aug	7.86	4.47	4.39
Sep	7.29	5.26	4.71

2003

	Average of SDC Campus, Base **	Average of SJM In	Average of Project - SJM In
Oct	6.37	5.12	3.98
Nov	7.30	4.11	3.86
Dec	8.55	5.61	5.18
Jan	8.10	6.42	5.52
Feb	8.38	4.42	3.98
Mar	12.32	5.69	5.69
Apr	10.27	7.59	6.77
May	10.90	6.15	6.12
Jun	9.67	5.33	4.61
Jul	6.13	5.31	3.79
Aug	9.09	5.30	5.27
Sep	7.88	5.11	4.84

2004

	Average of SDC Campus, Base **	Average of SJM In	Average of Project - SJM In
Oct	8.38	7.87	6.63
Nov	9.74	7.07	6.65
Dec	8.95	2.42	2.19
Jan	7.66	0.00	0.00
Feb	6.78	3.28	3.09
Mar	9.81	0.82	0.82
Apr	8.31	5.97	5.05
May	7.85	6.98	5.58
Jun	7.75	6.76	5.76
Jul	7.44	5.41	4.96
Aug	6.66	6.35	4.58
Sep	6.81	5.18	4.63

2005

	Average of SDC Campus, Base **	Average of SJM In	Average of Project - SJM In
Oct	7.74	4.52	3.60
Nov	12.56	0.00	0.00
Dec	10.48	0.00	0.00
Jan	16.62	0.00	0.00
Feb	13.50	0.00	0.00
Mar	12.02	0.00	0.00
Apr	14.15	4.69	4.69
May	13.39	6.04	5.80
Jun	13.26	3.70	3.59
Jul	12.07	6.27	6.27
Aug	10.49	5.44	5.34
Sep	9.08	3.46	3.34

2006

	Average of SDC Campus, Base **	Average of SJM In	Average of Project - SJM In
Oct	13.62	0.00	0.00
Nov	10.16	0.00	0.00
Dec	9.11	5.56	4.93
Jan	10.70	6.35	5.94
Feb	10.43	6.51	6.17
Mar	11.13	6.51	6.24
Apr	12.61	6.49	6.49
May	13.20	6.19	6.19
Jun	11.83	3.31	3.25
Jul	10.22	4.26	4.25
Aug	8.92	5.59	5.44
Sep	10.61	2.73	2.52

2009

	Average of SDC Campus, Base **	Average of SJM In	Average of Project - SJM In
Oct	7.03	6.09	4.82
Nov	7.15	5.73	4.39
Dec	7.39	5.73	4.53
Jan	8.37	6.53	5.58
Feb	8.96	5.68	4.89
Mar	7.81	6.46	5.31
Apr	7.14	6.13	4.60
May	5.78	5.24	3.61
Jun	6.05	5.47	3.92
Jul	6.14	5.20	4.00
Aug	5.81	5.11	3.72
Sep	5.55	5.09	3.56

2010

	Average of SDC Campus, Base **	Average of SJM In	Average of Project - SJM In
Oct	5.87	5.42	3.59
Nov	5.27	4.91	3.28
Dec	6.36	5.43	3.90
Jan	6.88	4.89	3.82
Feb	11.55	6.11	5.94
Mar	11.42	7.20	6.66
Apr	8.80	6.75	5.79
May	6.86	5.59	4.89
Jun	6.11	5.28	4.16
Jul	5.91	5.22	3.76
Aug	5.56	5.09	3.38
Sep	5.43	5.05	3.40

2011

	Average of SDC Campus, Base **	Average of SJM In	Average of Project - SJM In
Oct	7.83	4.99	4.30
Nov	10.24	5.80	5.76
Dec	9.70	4.58	4.55
Jan	14.89	6.41	6.41
Feb	11.73	6.04	6.01
Mar	12.93	5.79	5.79
Apr	11.97	6.38	5.74
May	6.76	5.63	3.93
Jun	6.73	5.41	4.42
Jul	6.35	4.90	3.82
Aug	5.27	4.64	3.02
Sep	7.73	4.51	4.37

2012

	Average of SDC Campus, Base **	Average of SJM In	Average of Project - SJM In
Oct	8.37	5.01	4.29
Nov	7.54	4.66	3.86
Dec	6.20	4.58	3.66
Jan	6.38	4.52	3.43
Feb	5.45	4.75	3.38
Mar	7.83	5.41	4.70
Apr	9.76	7.22	6.43
May	7.36	7.21	5.06
Jun	6.63	6.14	4.44
Jul	6.76	6.41	4.54
Aug	6.55	6.42	4.64
Sep	7.14	6.59	4.63

2013

	Average of SDC Campus, Base **	Average of SJM In	Average of Project - SJM In
Oct	7.57	5.74	4.24
Nov	7.49	6.95	5.43
Dec	8.35	6.52	5.95
Jan	8.32	6.89	5.48
Feb	11.09	7.33	6.82
Mar	7.41	6.80	5.20
Apr	6.24	6.21	3.96
May	6.93	5.83	4.20
Jun	7.14	4.69	4.01
Jul	7.90	3.45	2.98
Aug	7.20	5.09	4.60
Sep	7.91	5.31	4.66

SUMMARY of SPREADSHEET MODEL RESULTS (averages excluding storm flows)

Entire Year units = cfs

	PCW Bar (non-storm)	SDC Campus ** (non-stor	SDC Campus (non-storm)	Project - Diversion	Project - PCW Bar (non-storm)	Project - SDC Campus ** (non-storn	Project - SDC Campus (non-storm)
Sum	25699.00	38642.04	37826.75	9234.01	16520.60	29467.67	28778.08
Max	50.00	18.60	26.00	2.60	47.40	16.61	20.20
Avg	6.14	9.23	9.03	2.21	3.95	7.04	6.87
Median	5.60	8.58	8.40	2.19	3.41	6.42	6.10
20th Percentile	4.50	6.25	5.50	1.99	2.51	4.14	3.71
Min	2.60	0.25	0.42	1.48	1.44	0.00	0.00

Entire Year, WY 2009-2013

	PCW Bar (non-storm)	SDC Campus ** (non-stor	SDC Campus (non-storm)	Project - Diversion	Project - PCW Bar (non-storm)	Project - SDC Campus ** (non-storn	Project - SDC Campus (non-storm)
Sum	10353.00	12130.76	11663.37	3575.35	6793.38	8574.91	8555.28
Max	50.00	18.56	23.00	2.60	47.40	16.15	20.20
Avg	6.37	7.47	7.18	2.20	4.18	5.28	5.26
Median	5.40	6.65	6.30	2.16	3.24	4.53	4.32
20th Percentile	4.50	5.49	4.70	1.99	2.51	3.38	3.16
Min	2.70	0.25	0.42	1.51	1.48	0.00	0.00

Dry Season (Apr-Sep)

	PCW Bar (non-storm)	SDC Campus ** (non-stor	SDC Campus (non-storm)	Project - Diversion	Project - PCW Bar (non-storm)	Project - SDC Campus ** (non-storn	Project - SDC Campus (non-storm)
Sum	13455.40	20326.21	20277.40	4987.62	8494.41	15366.23	15335.90
Max	38.00	18.60	26.00	2.60	35.40	16.61	19.42
Avg	5.91	8.93	8.91	2.19	3.73	6.75	6.74
Median	5.60	8.11	8.00	2.19	3.41	5.98	5.86
20th Percentile	4.50	6.12	5.60	1.99	2.51	4.01	3.79
Min	2.60	1.34	1.30	1.48	1.44	0.00	0.00

Dry Season (Apr-Sep), WY 2009-2013

	PCW Bar (non-storm)	SDC Campus ** (non-stor	SDC Campus (non-storm)	Project - Diversion	Project - PCW Bar (non-storm)	Project - SDC Campus ** (non-storn	Project - SDC Campus (non-storm)
Sum	4994.10	6149.44	5950.30	1911.31	3091.92	4248.27	4293.77
Max	38.00	18.23	22.00	2.60	35.40	15.78	19.42
Avg	5.58	6.87	6.65	2.14	3.45	4.75	4.80
Median	5.20	6.34	6.00	2.12	3.08	4.24	4.10
20th Percentile	4.40	5.45	4.80	1.97	2.43	3.35	3.27
Min	2.70	1.34	1.30	1.51	1.48	0.00	0.00

Daily Flow, Existing Conditions and Project Conditions Spreadsheet Model for WY 1999-2013

Notes: 1) excluded WY 2007-2008 for PCW (gage not recording and/or construction activity effected flows); 2) removed 6/10/03-6/22/03 (no SJM Outflow data); 3) removed 1/17/05, 5/13/09, and 5/14/12 (SJM inflow not working or other flows seemed like anomalous values, eg., large SJM Outflow and unchanged SDC at Campus flow)

								Existing Condition								With Project Diversion					
													0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
						Est. Loss,		San Joaquin Marsh Operations					**Adjusted	**Adjusted		Est. Loss,	39.7 ppb	16.5 ppm		**Adjusted	using SDC at Can
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	San Diego Cr (SDC) at Campus (cfs)	San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	San Diego Cr (SDC) at Campus (cfs)	SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
10/1/1998	1998	1999	10	8.20		0.00	0.49	5.74	7.21	4.65	16.00		15.89	15.89	2.55	0.00	0.55	228.90	5.65	13.34	5.74
10/2/1998	1998	1999	10	8.90		0.00	0.49	5.22	6.53	5.05	15.00		14.11	14.11	2.60	0.00	0.56	233.51	6.30	11.51	5.22
10/3/1998	1998	1999	10	7.80		0.00	0.49	5.95	7.54	5.58	17.00		16.15	16.15	2.50	0.00	0.54	224.71	5.30	13.65	5.95
10/4/1998	1998	1999	10	7.20		0.00	0.50	6.22	8.14	6.28	16.00		14.82	14.82	2.43	0.00	0.52	218.00	4.77	12.40	6.22
10/5/1998	1998	1999	10	7.20		0.00	0.49	5.80	7.14	6.56	15.00		13.24	13.24	2.43	0.00	0.52	218.00	4.77	10.81	5.80
10/6/1998	1998	1999	10	6.20		0.00	0.47	5.91	6.93	5.25	14.00		13.64	13.64	2.29	0.00	0.49	205.47	3.91	11.35	5.91
10/7/1998	1998	1999	10	8.50		0.00	0.49	5.56	6.37	5.22	15.00		14.26	14.26	2.58	0.00	0.56	231.91	5.92	11.68	5.56
10/8/1998	1998	1999	10	10.00		0.00	0.50	5.74	4.32	3.61	18.00		18.72		0.00	0.00	0.00	0.00	10.00	18.72	5.74
10/9/1998	1998	1999	10	10.00		0.00	0.47	5.04	3.65	3.03	16.00		16.75	16.75	2.60	0.00	0.56	233.51	7.40	14.15	5.04
10/10/1998	1998	1999	10	9.80		0.00	0.47	5.79	4.67	3.90	18.00		18.50	18.50	2.60	0.00	0.56	233.51	7.20	15.90	5.79
10/11/1998	1998	1999	10	9.10		0.00	0.48	6.74	6.13	4.87	17.00		17.56	17.56	2.60	0.00	0.56	233.51	6.50	14.96	6.74
10/12/1998	1998	1999	10	9.30		0.00	0.43	6.31	5.21	4.44	16.00		16.62	16.62	2.60	0.00	0.56	233.51	6.70	14.02	6.31
10/13/1998	1998	1999	10	8.50		0.00	0.49	5.92	5.85	5.44	17.00		16.26	16.26	2.58	0.00	0.56	231.91	5.92	13.67	5.92
10/14/1998	1998	1999	10	8.40		0.00	0.47	5.25	5.07	4.84	19.00		18.05	18.05	2.57	0.00	0.56	230.92	5.83	15.48	5.25
10/15/1998	1998	1999	10	8.70		0.00	0.49	5.92	5.77	5.64	19.00		17.93	17.93	2.60	0.00	0.56	233.51	6.10	15.33	5.92
10/16/1998	1998	1999	10	8.20		0.00	0.48	5.10	4.31	4.21	17.00		16.64	16.64	2.55	0.00	0.55	228.90	5.65	14.09	5.10
10/17/1998	1998	1999	10	8.10		0.00	0.48	5.82	5.57	5.40	17.00		16.20	16.20	2.54	0.00	0.55	227.87	5.56	13.67	5.82
10/18/1998	1998	1999	10	7.90		0.00	0.48	6.47	6.13	5.63	17.00		16.59	16.59	2.51	0.00	0.54	225.78	5.39	14.08	6.47
10/19/1998	1998	1999	10	8.50		0.00	0.46	5.78	4.49	4.61	16.00		15.97	15.97	2.58	0.00	0.56	231.91	5.92	13.39	5.78
10/20/1998	1998	1999	10	9.30		0.00	0.51	5.91	4.89	4.73	16.00		15.98	15.98	2.60	0.00	0.56	233.51	6.70	13.38	5.91
10/21/1998	1998	1999	10	9.60		0.00	0.46	5.87	5.81	5.63	16.00		15.10	15.10	2.60	0.00	0.56	233.51	7.00	12.50	5.87
10/22/1998	1998	1999	10	7.90		0.00	0.51	6.03	6.82	6.55	15.00		13.46	13.46	2.51	0.00	0.54	225.78	5.39	10.95	6.03
10/23/1998	1998	1999	10	6.80		0.00	0.63	4.72	5.17	5.07	16.00		14.55	14.55	2.37	0.00	0.51	213.21	4.43	12.17	4.72
10/24/1998	1998	1999	10	6.50		0.00	0.63	6.14	6.91	6.68	16.00		14.38	14.38	2.33	0.00	0.50	209.43	4.17	12.05	6.14
10/25/1998	1998	1999	10	8.80		0.00	0.63	6.79	7.96	7.48	24.00		21.68		0.00	0.00	0.00	0.00	8.80	21.68	6.79
10/26/1998	1998	1999	10	6.20		0.00	0.44	6.04	6.06	5.99	14.00		13.06	13.06	2.29	0.00	0.49	205.47	3.91	10.77	6.04
10/27/1998	1998	1999	10	5.90		0.00	0.47	5.48	5.55	5.24	13.00		12.31	12.31	2.24	0.00	0.48	201.32	3.66	10.07	5.48
10/28/1998	1998	1999	10	6.20		0.00	0.45	6.10	5.39	5.38	14.00		13.69	13.69	2.29	0.00	0.49	205.47	3.91	11.40	6.10
10/29/1998	1998	1999	10	6.80		0.00	0.52	5.51	5.54	4.47	13.00		13.05	13.05	2.37	0.00	0.51	213.21	4.43	10.68	5.51
10/30/1998	1998	1999	10	6.70		0.00	0.48	5.44	4.51	4.51	13.00		12.96	12.96	2.36	0.00	0.51	211.97	4.34	10.60	5.44
10/31/1998	1998	1999	10	7.50		0.00	0.48	5.74	4.51	4.51	12.00		12.31	12.31	2.47	0.00	0.53	221.42	5.03	9.84	5.74
11/1/1998	1998	1999	11	7.60		0.00	0.48	6.57	7.44	6.79	13.00		11.88	11.88	2.48	0.00	0.54	222.53	5.12	9.41	6.57
11/2/1998	1998	1999	11	8.30		0.00	0.47	5.60	5.48	5.44	13.00		12.24	12.24	2.56	0.00	0.55	229.92	5.74	9.68	5.60
11/3/1998	1998	1999	11	8.80		0.00	0.52	6.28	5.97	5.87	13.00		12.48	12.48	2.60	0.00	0.56	233.51	6.20	9.88	6.28
11/4/1998	1998	1999	11	8.30		0.00	0.45	5.33	5.13	4.75	13.00		12.64	12.64	2.56	0.00	0.55	229.92	5.74	10.08	5.33
11/5/1998	1998	1999	11	7.80		0.00	0.48	6.23	6.07	5.94	14.00		13.29	13.29	2.50	0.00	0.54	224.71	5.30	10.78	6.23
11/6/1998	1998	1999	11	8.10		0.00	0.46	4.74	4.38	4.32	17.00		16.20	16.20	2.54	0.00	0.55	227.87	5.56	13.67	4.74
11/7/1998	1998	1999	11	7.60		0.00	0.46	5.76	5.67	5.42	15.00		14.26	14.26	2.48	0.00	0.54	222.53	5.12	11.79	5.76
11/8/1998	1998	1999	11	176.00	E	0.00	0.46	6.42	6.47	6.29	452.00		420.47		0.00	0.00	0.00	0.00	176.00	420.47	6.42
11/9/1998	1998	1999	11	9.20		0.00	0.50	5.88	6.03	5.75	11.00		10.36	10.36	2.60	0.00	0.56	233.51	6.60	7.76	5.88
11/10/1998	1998	1999	11	8.40		0.00	0.48	6.46	6.45	6.34	7.80	E	7.36	7.36	2.57	0.00	0.56	230.92	5.83	4.79	4.79
11/11/1998	1998	1999	11	13.00		0.00	0.50	5.34	5.10	5.09	8.80	E	8.42	8.42	2.60	0.00	0.56	233.51	10.40	5.82	5.34
11/12/1998	1998	1999	11	8.60		0.00	0.51	5.08	5.25	5.18	7.70	E	7.06	7.06	2.59	0.00	0.56	232.89	6.01	4.47	4.47
11/13/1998	1998	1999	11	7.70		0.00	0.51	4.86	4.82	4.84	7.20	E	6.71	6.71	2.49	0.00	0.54	223.63	5.21	4.22	4.22
11/14/1998	1998	1999	11	7.80		0.00	0.50	5.67	5.00	4.94	7.30	E	7.47	7.47	2.50	0.00	0.54	224.71	5.30	4.96	4.96
11/15/1998	1998	1999	11	7.80		0.00	0.51	6.60	6.97	6.88	7.40	E	6.62	6.62	2.50	0.00	0.54	224.71	5.30	4.12	4.12
11/16/1998	1998	1999	11	7.60		0.00	0.50	5.42	5.11	5.05	7.70	E	7.50	7.50	2.48	0.00	0.54	222.53	5.12	5.03	5.03
11/17/1998	1998	1999	11	7.50		0.00	0.51	5.68	5.44	5.29	7.50	E	7.34	7.34	2.47	0.00	0.53	221.42	5.03	4.87	4.87
11/18/1998	1998	1999	11	6.80		0.00	0.54	5.83	5.28	5.57	7.70	E	7.40	7.40	2.37	0.00	0.51	213.21	4.43	5.03	5.03
11/19/1998	1998	1999	11	5.80		0.00	0.52	5.42	6.24	5.82	7.90	E	6.98	6.98	2.23	0.00	0.48	199.89	3.57	4.75	4.75
11/20/1998	1998	1999	11	5.90		0.00	0.55	4.69	4.50	4.52	5.50	E	5.27	5.27	2.24	0.00	0.48	201.32	3.66	3.03	3.03
11/21/1998	1998	1999	11	6.50		0.00	0.55	5.58	4.16	4.11	3.70	E	5.58	5.58	2.33	0.00	0.50	209.43	4.17	3.25	3.25
11/22/1998	1998	1999	11	6.80		0.00	0.55	6.55	4.54	4.40	4.00	E	6.55	6.55	2.37	0.00	0.51	213.21	4.43	4.17	4.17
11/23/1998	1998	1999	11	7.20		0.00	0.49	5.66	4.99	5.01	4.10	E	5.66	5.66	2.43	0.00	0.52	218.00	4.77	3.23	3.23
11/24/1998	1998	1999	11	7.10		0.00	0.53	5.38	4.50	4.22	4.10	E	5.38	5.38	2.41	0.00	0.52	216.83	4.69	2.97	2.97
11/25/1998	1998	1999	11	7.40		0.00	0.55	5.01	4.68	4.86	4.10	E	5.01	5.01	2.45	0.00	0.53	220.30	4.95	2.56	2.56
11/26/1998	1998	1999	11	7.50		0.00	0.55	5.58	5.13	5.09	4.00	E	5.58	5.58	2.47	0.00	0.53	221.42	5.03	3.12	3.12
11/27/1998	1998	1999	11	9.30		0.00	0.55	5.73	4.86	4.78	3.90	E	5.73	5.73	2.60	0.00	0.56	233.51	6.70	3.13	3.13
11/28/1998	1998	1999	11	92.00		0.00	0.55	5.45	5.26	5.21	237.00		220.63		0.00	0.00	0.00	0.00	92.00	220.63	5.45
11/29/1998	1998	1999	11	8.00		0.00	0.55	6.20	6.16	5.88	7.90	E	7.65	7.65	2.53	0.00	0.55	226.83	5.47	5.12	5.12
11/30/1998	1998	1999	11	6.50		0.00	0.56	5.55	1.79	2.03	3.90	E	6.90	6.90	2.33	0.00	0.50	209.43	4.17	4.57	4.57
12/1/1998	1998	1999	12	139.00		0.00	0.55	6.56	2.66	2.49	348.00		327.42		0.00	0.00	0.00	0.00	139.00	327.42	6.56
12/2/1998	1998	1999	12	11.00		0.00	0.55	5.05	5.02	5.02	36.00		33.51		0.00	0.00	0.00	0.00	11.00	33.51	5.05
12/3/1998	1998	1999	12	9.80		0.00	0.55	5.88	6.55	6.46	7.40	E	6.34	6.34	2.60	0.00	0.56	233.51	7.20	3.74	3.74
12/4/1998	1998	1999	12	9.90		0.00	0.58	5.36	6.16	5.96	20.00		18.04	18.04	2.60	0.00	0.56	233.51	7.30	15.44	5.36
12/5/1998	1998	1999	12	21.00		0.00	0.58	5.36	6.16	5.96	71.00		65.47		0.00	0.00	0.00	0.00	21.00	65.47	5.36
12/6/1998	1998	1999	12	86.00		0.00	0.58	5.36	6.16	5.96	211.00		195.67		0.00	0.00	0.00	0.00	86.00	195.67	5.36

									Existing Condition										With Project Diversion		
													0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
						Est. Loss,		San Joaquin Marsh Operations					**Adjusted	**Adjusted		Est. Loss,	39.7 ppb	16.5 ppm		**Adjusted	using SDC at Can
				Peters Canyon Wash (PCW) at Barranca (cfs)		Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)		San Diego Cr (SDC) at Campus (cfs)	San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	San Diego Cr (SDC) at Campus (cfs)	SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	Water Year	Month		QC							QC									
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW Ba	Project - Diversi	Project - Diversi	Project - PCW Ba	Project - SDC Ca	Project - SJM In
12/7/1998	1998	1999	12	7.60		0.00	0.53	5.00	5.57	5.61	6.10	E	5.11	5.11	2.48	0.00	0.54	222.53	5.12	2.63	2.63
12/8/1998	1998	1999	12	6.90		0.00	0.59	5.93	6.76	6.70	4.80	E	5.93	5.93	2.39	0.00	0.52	214.44	4.51	3.54	3.54
12/9/1998	1998	1999	12	6.90		0.00	0.57	5.33	5.87	5.71	4.00	E	5.33	5.33	2.39	0.00	0.52	214.44	4.51	2.94	2.94
12/10/1998	1998	1999	12	6.80		0.00	0.59	5.43	5.85	5.84	3.70	E	5.43	5.43	2.37	0.00	0.51	213.21	4.43	3.06	3.06
12/11/1998	1998	1999	12	7.30		0.00	0.59	5.59	6.26	5.70	3.50	E	5.59	5.59	2.44	0.00	0.53	219.16	4.86	3.14	3.14
12/12/1998	1998	1999	12	7.10		0.00	0.59	5.59	6.26	5.70	3.60	E	5.59	5.59	2.41	0.00	0.52	216.83	4.69	3.17	3.17
12/13/1998	1998	1999	12	7.10		0.00	0.59	5.59	6.26	5.70	3.50	E	5.59	5.59	2.41	0.00	0.52	216.83	4.69	3.17	3.17
12/14/1998	1998	1999	12	7.40		0.00	0.55	5.67	6.14	5.71	3.60	E	5.67	5.67	2.45	0.00	0.53	220.30	4.95	3.22	3.22
12/15/1998	1998	1999	12	7.10		0.00	0.57	5.35	5.85	5.74	3.80	E	5.35	5.35	2.41	0.00	0.52	216.83	4.69	2.93	2.93
12/16/1998	1998	1999	12	5.90		0.00	0.57	5.79	6.84	6.55	3.90	E	5.79	5.79	2.24	0.00	0.48	201.32	3.66	3.55	3.55
12/17/1998	1998	1999	12	7.00		0.00	0.57	5.45	6.75	5.72	3.90	E	5.45	5.45	2.40	0.00	0.52	215.64	4.60	3.05	3.05
12/18/1998	1998	1999	12	8.00		0.00	0.65	5.65	6.78	6.43	4.10	E	5.65	5.65	2.53	0.00	0.55	226.83	5.47	3.12	3.12
12/19/1998	1998	1999	12	14.00		0.00	0.65	5.65	6.78	6.43	14.00		12.29	12.29	2.60	0.00	0.56	233.51	11.40	9.69	5.65
12/20/1998	1998	1999	12	11.00		0.00	0.65	5.65	6.78	6.43	24.00		21.59		0.00	0.00	0.00	0.00	11.00	21.59	5.65
12/21/1998	1998	1999	12	7.00		0.00	0.57	6.33	7.19	7.20	5.00	E	6.33	6.33	2.40	0.00	0.52	215.64	4.60	3.93	3.93
12/22/1998	1998	1999	12	8.10		0.00	0.57	4.83	5.71	5.47	5.10	E	4.83	4.83	2.54	0.00	0.55	227.87	5.56	2.29	2.29
12/23/1998	1998	1999	12	9.10		0.00	0.58	5.29	5.95	5.69	6.40	E	5.57	5.57	2.60	0.00	0.56	233.51	6.50	2.97	2.97
12/24/1998	1998	1999	12	10.00		0.00	0.58	5.29	5.95	5.69	8.80	E	7.80	7.80	2.60	0.00	0.56	233.51	7.40	5.20	5.20
12/25/1998	1998	1999	12	10.00		0.00	0.58	5.29	5.95	5.69	9.10	E	8.08	8.08	2.60	0.00	0.56	233.51	7.40	5.48	5.29
12/26/1998	1998	1999	12	7.70		0.00	0.58	5.29	5.95	5.69	4.40	E	5.29	5.29	2.49	0.00	0.54	223.63	5.21	2.80	2.80
12/27/1998	1998	1999	12	7.40		0.00	0.58	5.29	5.95	5.69	4.30	E	5.29	5.29	2.45	0.00	0.53	220.30	4.95	2.83	2.83
12/28/1998	1998	1999	12	8.50		0.00	0.58	5.80	5.64	5.71	4.50	E	5.80	5.80	2.58	0.00	0.56	231.91	5.92	3.22	3.22
12/29/1998	1998	1999	12	8.70		0.00	0.63	5.76	5.95	5.58	4.30	E	5.76	5.76	2.60	0.00	0.56	233.51	6.10	3.16	3.16
12/30/1998	1998	1999	12	8.30		0.00	0.57	5.54	5.59	5.44	9.70	E	9.11	9.11	2.56	0.00	0.55	229.92	5.74	6.55	5.54
12/31/1998	1998	1999	12	8.70		0.00	0.71	5.03	5.75	5.63	12.00		10.61	10.61	2.60	0.00	0.56	233.51	6.10	8.01	5.03
1/1/1999	1999	1999	1	7.80		0.00	0.71	5.03	5.75	5.63	12.00		10.61	10.61	2.50	0.00	0.54	224.71	5.30	8.11	5.03
1/2/1999	1999	1999	1	9.10		0.00	0.71	5.03	5.75	5.63	12.00		10.61	10.61	2.60	0.00	0.56	233.51	6.50	8.01	5.03
1/3/1999	1999	1999	1	9.40		0.00	0.71	5.03	5.75	5.63	15.00		13.40	13.40	2.60	0.00	0.56	233.51	6.80	10.80	5.03
1/4/1999	1999	1999	1	8.60		0.00	0.60	5.84	5.78	5.89	13.00		12.05	12.05	2.59	0.00	0.56	232.89	6.01	9.46	5.84
1/5/1999	1999	1999	1	7.90		0.00	0.62	5.24	5.71	5.68	13.00		11.68	11.68	2.51	0.00	0.54	225.78	5.39	9.17	5.24
1/6/1999	1999	1999	1	9.10		0.00	0.63	4.15	5.65	5.61	13.00		10.73	10.73	2.60	0.00	0.56	233.51	6.50	8.13	4.15
1/7/1999	1999	1999	1	10.00		0.00	0.60	5.22	5.87	5.82	15.00		13.39	13.39	2.60	0.00	0.56	233.51	7.40	10.79	5.22
1/8/1999	1999	1999	1	8.30		0.00	0.70	4.58	5.59	5.36	14.00		12.30	12.30	2.56	0.00	0.55	229.92	5.74	9.74	4.58
1/9/1999	1999	1999	1	7.50		0.00	0.70	4.58	5.59	5.36	13.00		11.37	11.37	2.47	0.00	0.53	221.42	5.03	8.90	4.58
1/10/1999	1999	1999	1	8.00		0.00	0.70	4.58	5.59	5.36	13.00		11.37	11.37	2.53	0.00	0.55	226.83	5.47	8.84	4.58
1/11/1999	1999	1999	1	7.90		0.00	0.62	5.34	5.24	5.53	14.00		12.85	12.85	2.51	0.00	0.54	225.78	5.39	10.33	5.34
1/12/1999	1999	1999	1	8.60		0.00	0.57	5.29	5.56	5.47	14.00		12.85	12.85	2.59	0.00	0.56	232.89	6.01	10.26	5.29
1/13/1999	1999	1999	1	8.20		0.00	0.60	4.25	5.74	5.60	13.00		10.83	10.83	2.55	0.00	0.55	228.90	5.65	8.29	4.25
1/14/1999	1999	1999	1	8.00		0.00	0.63	4.25	5.13	5.13	14.00		12.20	12.20	2.53	0.00	0.55	226.83	5.47	9.67	4.25
1/15/1999	1999	1999	1	7.80		0.00	0.59	4.25	2.76	2.67	14.00		14.49	14.49	2.50	0.00	0.54	224.71	5.30	11.99	4.25
1/16/1999	1999	1999	1	8.40		0.00	0.60	4.25	2.76	2.67	13.00		13.56	13.56	2.57	0.00	0.56	230.92	5.83	10.99	4.25
1/17/1999	1999	1999	1	8.40		0.00	0.60	4.25	2.76	2.67	13.00		13.56	13.56	2.57	0.00	0.56	230.92	5.83	10.99	4.25
1/18/1999	1999	1999	1	8.70		0.00	0.62	4.87	0.83	0.87	12.00		14.88	14.88	2.60	0.00	0.56	233.51	6.10	12.28	4.87
1/19/1999	1999	1999	1	8.10		0.00	0.60	4.95	0.00	0.00	11.00		14.83	14.83	2.54	0.00	0.55	227.87	5.56	12.30	4.95
1/20/1999	1999	1999	1	18.00		0.00	0.60	4.95	3.79	3.15	44.00		42.59		0.00	0.00	0.00	0.00	18.00	42.59	4.95
1/21/1999	1999	1999	1	8.20		0.00	0.64	4.89	4.71	4.00	21.00		20.36		0.00	0.00	0.00	0.00	8.20	20.36	4.89
1/22/1999	1999	1999	1	7.50		0.00	0.61	5.02	4.09	3.87	15.00		15.02	15.02	2.47	0.00	0.53	221.42	5.03	12.55	5.02
1/23/1999	1999	1999	1	6.90		0.00	0.61	5.02	4.09	3.87	13.00		13.16	13.16	2.39	0.00	0.52	214.44	4.51	10.77	5.02
1/24/1999	1999	1999	1	6.90		0.00	0.61	5.02	4.09	3.87	12.00		12.23	12.23	2.39	0.00	0.52	214.44	4.51	9.84	5.02
1/25/1999	1999	1999	1	86.00		0.00	0.57	4.76	5.25	4.30	284.00		264.55		0.00	0.00	0.00	0.00	86.00	264.55	4.76
1/26/1999	1999	1999	1	199.00		0.00	0.60	4.14	4.34	4.34	361.00		335.54		0.00	0.00	0.00	0.00	199.00	335.54	4.14
1/27/1999	1999	1999	1	48.00		0.00	0.63	2.30	6.57	4.50	302.00		278.82		0.00	0.00	0.00	0.00	48.00	278.82	2.30
1/28/1999	1999	1999	1	6.30		0.00	0.62	4.59	5.57	5.50	19.00		16.82	16.82	2.30	0.00	0.50	206.81	4.00	14.52	4.59
1/29/1999	1999	1999	1	6.90		0.00	0.63	4.68	6.42	6.24	16.00		13.43	13.43	2.39	0.00	0.52	214.44	4.51	11.04	4.68
1/30/1999	1999	1999	1	6.20		0.00	0.63	4.68	6.42	6.24	14.00		11.57	11.57	2.29	0.00	0.49	205.47	3.91	9.28	4.68
1/31/1999	1999	1999	1	90.00		0.00	0.63	4.68	6.42	6.24	243.00		224.54		0.00	0.00	0.00	0.00	90.00	224.54	4.68
2/1/1999	1999	1999	2	6.80		0.00	0.58	5.17	6.40	4.93	21.00		19.76		0.00	0.00	0.00	0.00	6.80	19.76	5.17
2/2/1999	1999	1999	2	6.10		0.00	0.63	4.17	5.29	4.40	14.00		12.80	12.80	2.27	0.00	0.49	204.11	3.83	10.53	4.17
2/3/1999	1999	1999	2	7.10		0.00	0.64	4.11	5.61	4.68	13.00		11.57	11.57	2.41	0.00	0.52	216.83	4.69	9.15	4.11
2/4/1999	1999	1999	2	12.00		0.00	0.64	4.58	5.74	4.84	28.00		25.79		0.00	0.00	0.00	0.00	12.00	25.79	4.58
2/5/1999	1999	1999	2	16.00		0.00	0.64	4.59	5.73	4.82	58.00		53.72		0.00	0.00	0.00	0.00	16.00	53.72	4.59
2/6/1999	1999	1999	2	7.20		0.00	0.64	4.59	5.73	4.82	16.00		14.66	14.66	2.43	0.00	0.52	218.00	4.77	12.24	4.59
2/7/1999	1999	1999	2	6.90		0.00	0.64	4.59	5.73	4.82	14.00		12.80	12.80	2.39	0.00	0.52	214.44	4.51	10.42	4.59
2/8/1999	1999	1999	2	6.70		0.00	0.62	4.80	5.58	5.24	13.00		11.69	11.69	2.36	0.00	0.51	211.97	4.34	9.33	4.80
2/9/1999	1999	1999	2	15.00		0.00	0.59	4.78	5.77	5.59	38.00		34.58		0.00	0.00	0.00	0.00	15.00	34.58	4.78
2/10/1999	1999	1999	2	8.80		0.00	0.50	4.57	5.56	5.31	35.00		31.85		0.00	0.00	0.00	0.00	8.80	31.85	4.57
2/11/1999	1999	1999	2	6.50		0.00	0.61	4.60	5.21	5.30	15.00		13.29	13.29	2.33	0.00	0.50	209.43	4.17	10.96	4.60
2/12/1999	1999	1999	2	7.10		0.00	0.60	4.68	5.50	5.23	14.00		12.51	12.51	2.41	0.00	0.52	216.83	4.69	10.09	4.68
2/13/1999	1999	1999	2	8.40		0.00	0.60	4.68	5.50	5.23	15.00		13.44	13.44	2.57	0.00	0.56	230.92	5.83	10.86	4.68
2/14/1999	1999	1999	2	8.00		0.00	0.60	4.68	5.50	5.23	15.00		13.44	13.44	2.53	0.00	0.55	226.83	5.47	10.91	4.68
2/15/1999	1999	1999	2	7.50		0.00	0.60	4.68	5.50	5.23	16.00		14.37	14.37	2.47	0.00	0.53	221.42	5.03	11.90	4.68

Existing Condition | **With Project Diversion**

0.93 | 20.00 cfs | PROJ. Div | 39.7 ppb | 16.5 ppm | 39.7 ppb | 16.5 ppm

San Joaquin Marsh Operations

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW Ba	Project - Diversi	Project - Diversi	Project - PCW Ba	Project - SDC Ca	Project - SJM In
2/16/1999	1999	1999	2	7.50		0.00	0.57	4.76	5.43	4.88	16.00		14.77	14.77	2.47	0.00	0.53	221.42	5.03	12.31	4.76
2/17/1999	1999	1999	2	8.10		0.00	0.62	4.70	3.92	3.17	16.00		16.30	16.30	2.54	0.00	0.55	227.87	5.56	13.76	4.70
2/18/1999	1999	1999	2	8.00		0.00	0.60	4.28	3.17	2.37	16.00		16.65	16.65	2.53	0.00	0.55	226.83	5.47	14.13	4.28
2/19/1999	1999	1999	2	7.80		0.00	0.60	3.72	3.44	2.97	16.00		15.57	15.57	2.50	0.00	0.54	224.71	5.30	13.07	3.72
2/20/1999	1999	1999	2	8.10		0.00	0.60	3.72	3.44	2.97	16.00		15.57	15.57	2.54	0.00	0.55	227.87	5.56	13.03	3.72
2/21/1999	1999	1999	2	7.80		0.00	0.60	3.72	3.44	2.97	17.00		16.50	16.50	2.50	0.00	0.54	224.71	5.30	14.00	3.72
2/22/1999	1999	1999	2	7.90		0.00	0.62	4.30	4.23	0.22	15.00		17.74	17.74	2.51	0.00	0.54	225.78	5.39	15.23	4.30
2/23/1999	1999	1999	2	8.60		0.00	0.55	4.78	4.20	2.84	15.00		15.75	15.75	2.59	0.00	0.56	232.89	6.01	13.16	4.78
2/24/1999	1999	1999	2	9.00		0.00	0.60	4.80	4.50	3.24	16.00		16.32	16.32	2.60	0.00	0.56	233.51	6.40	13.72	4.80
2/25/1999	1999	1999	2	9.00		0.00	0.59	4.82	3.96	3.11	16.00		16.47	16.47	2.60	0.00	0.56	233.51	6.40	13.87	4.82
2/26/1999	1999	1999	2	8.90		0.00	0.65	4.83	4.06	2.78	16.00		16.79	16.79	2.60	0.00	0.56	233.51	6.30	14.19	4.83
2/27/1999	1999	1999	2	9.00		0.00	0.65	4.83	4.06	2.78	15.00		15.86	15.86	2.60	0.00	0.56	233.51	6.40	13.26	4.83
2/28/1999	1999	1999	2	7.90		0.00	0.65	4.83	4.06	2.78	14.00		14.93	14.93	2.51	0.00	0.54	225.78	5.39	12.41	4.83
3/1/1999	1999	1999	3	8.50		0.00	0.61	4.86	3.37	0.24	14.00		17.31	17.31	2.58	0.00	0.56	231.91	5.92	14.73	4.86
3/2/1999	1999	1999	3	9.60		0.00	0.63	5.18	4.70	0.00	14.00		17.84	17.84	2.60	0.00	0.56	233.51	7.00	15.24	5.18
3/3/1999	1999	1999	3	11.00		0.00	0.64	4.45	4.54	1.99	15.00		16.24	16.24	2.60	0.00	0.56	233.51	8.40	13.64	4.45
3/4/1999	1999	1999	3	11.00		0.00	0.66	4.71	4.79	2.58	20.00		20.58		0.00	0.00	0.00	0.00	11.00	20.58	4.71
3/5/1999	1999	1999	3	8.90		0.00	0.65	4.79	4.84	2.55	14.00		15.10	15.10	2.60	0.00	0.56	233.51	6.30	12.50	4.79
3/6/1999	1999	1999	3	8.90		0.00	0.65	4.79	4.84	2.55	12.00		13.24	13.24	2.60	0.00	0.56	233.51	6.30	10.64	4.79
3/7/1999	1999	1999	3	9.00		0.00	0.65	4.79	4.84	2.55	15.00		16.03	16.03	2.60	0.00	0.56	233.51	6.40	13.43	4.79
3/8/1999	1999	1999	3	8.30		0.00	0.61	4.72	4.68	0.00	11.00		14.62	14.62	2.56	0.00	0.55	229.92	5.74	12.06	4.72
3/9/1999	1999	1999	3	8.70		0.00	0.65	4.80	4.91	0.00	10.00		13.76	13.76	2.60	0.00	0.56	233.51	6.10	11.16	4.80
3/10/1999	1999	1999	3	9.00		0.00	0.65	4.94	4.29	0.00	11.00		14.82	14.82	2.60	0.00	0.56	233.51	6.40	12.22	4.94
3/11/1999	1999	1999	3	13.00		0.00	0.65	4.45	4.83	0.00	24.00		26.46		0.00	0.00	0.00	0.00	13.00	26.46	4.45
3/12/1999	1999	1999	3	9.30		0.00	0.64	4.62	4.79	0.37	13.00		16.04	16.04	2.60	0.00	0.56	233.51	6.70	13.44	4.62
3/13/1999	1999	1999	3	9.70		0.00	0.64	4.62	4.79	0.00	11.00		14.53	14.53	2.60	0.00	0.56	233.51	7.10	11.93	4.62
3/14/1999	1999	1999	3	9.40		0.00	0.64	4.62	4.79	0.00	10.00		13.60	13.60	2.60	0.00	0.56	233.51	6.80	11.00	4.62
3/15/1999	1999	1999	3	36.00		0.00	0.64	4.40	4.32	0.00	93.00		90.58		0.00	0.00	0.00	0.00	36.00	90.58	4.40
3/16/1999	1999	1999	3	9.80		0.00	1.05	4.54	4.45	0.00	15.00		18.18	18.18	2.60	0.00	0.56	233.51	7.20	15.58	4.54
3/17/1999	1999	1999	3	8.40		0.00	0.64	4.60	4.29	0.00	9.50		13.11	13.11	2.57	0.00	0.56	230.92	5.83	10.54	4.60
3/18/1999	1999	1999	3	8.30		0.00	0.60	4.76	4.49	0.00	9.60		13.36	13.36	2.56	0.00	0.55	229.92	5.74	10.80	4.76
3/19/1999	1999	1999	3	8.20		0.00	0.57	4.54	4.21	0.00	9.40		12.97	12.97	2.55	0.00	0.55	228.90	5.65	10.42	4.54
3/20/1999	1999	1999	3	11.00		0.00	0.57	4.54	4.21	0.00	16.00		19.10		0.00	0.00	0.00	0.00	11.00	19.10	4.54
3/21/1999	1999	1999	3	8.30		0.00	0.57	4.54	4.21	0.00	12.00		15.38	15.38	2.56	0.00	0.55	229.92	5.74	12.82	4.54
3/22/1999	1999	1999	3	7.40		0.00	0.34	4.55	4.41	2.74	9.00		10.05	10.05	2.45	0.00	0.53	220.30	4.95	7.60	4.55
3/23/1999	1999	1999	3	7.60		0.00	0.74	4.67	4.84	0.18	10.00		13.47	13.47	2.48	0.00	0.54	222.53	5.12	11.00	4.67
3/24/1999	1999	1999	3	7.50		0.00	0.59	4.62	4.38	0.00	10.00		13.60	13.60	2.47	0.00	0.53	221.42	5.03	11.13	4.62
3/25/1999	1999	1999	3	163.00	E	0.00	0.68	1.88	4.66	2.34	405.00		376.22		0.00	0.00	0.00	0.00	163.00	376.22	1.88
3/26/1999	1999	1999	3	7.30		0.00	0.70	4.52	4.82	0.00	29.00		31.17		0.00	0.00	0.00	0.00	7.30	31.17	4.52
3/27/1999	1999	1999	3	5.90		0.00	0.70	4.52	4.82	0.00	11.00		14.43	14.43	2.24	0.00	0.48	201.32	3.66	12.19	4.52
3/28/1999	1999	1999	3	6.40		0.00	0.70	4.52	4.82	0.00	9.00		12.57	12.57	2.32	0.00	0.50	208.13	4.08	10.25	4.52
3/29/1999	1999	1999	3	7.10		0.00	0.69	4.63	4.92	0.04	8.80		12.46	12.46	2.41	0.00	0.52	216.83	4.69	10.05	4.63
3/30/1999	1999	1999	3	7.40		0.00	0.71	4.50	4.50	2.53	9.40		10.57	10.57	2.45	0.00	0.53	220.30	4.95	8.12	4.50
3/31/1999	1999	1999	3	7.70		0.00	0.65	4.58	3.83	1.99	9.70		11.43	11.43	2.49	0.00	0.54	223.63	5.21	8.94	4.58
4/1/1999	1999	1999	4	7.20		0.00	0.68	4.53	3.70	3.59	11.00		11.11	11.11	2.43	0.00	0.52	218.00	4.77	8.68	4.53
4/2/1999	1999	1999	4	6.40		0.00	0.68	4.53	3.70	3.59	12.00		12.04	12.04	2.32	0.00	0.50	208.13	4.08	9.72	4.53
4/3/1999	1999	1999	4	6.80		0.00	0.68	4.53	3.70	3.59	13.00		12.97	12.97	2.37	0.00	0.51	213.21	4.43	10.60	4.53
4/4/1999	1999	1999	4	7.00		0.00	0.68	4.53	3.70	3.59	13.00		12.97	12.97	2.40	0.00	0.52	215.64	4.60	10.57	4.53
4/5/1999	1999	1999	4	7.10		0.00	0.70	4.15	4.35	3.56	11.00		10.78	10.78	2.41	0.00	0.52	216.83	4.69	8.37	4.15
4/6/1999	1999	1999	4	26.00		0.00	0.71	4.57	5.36	5.08	64.00		59.04		0.00	0.00	0.00	0.00	26.00	59.04	4.57
4/7/1999	1999	1999	4	43.00		0.00	0.70	3.99	4.51	4.57	161.00		149.19		0.00	0.00	0.00	0.00	43.00	149.19	3.99
4/8/1999	1999	1999	4	11.00		0.00	0.68	4.33	4.86	4.78	18.00		16.32	16.32	2.60	0.00	0.56	233.51	8.40	13.72	4.33
4/9/1999	1999	1999	4	10.00		0.00	0.69	4.68	5.09	5.01	32.00		29.45		0.00	0.00	0.00	0.00	10.00	29.45	4.68
4/10/1999	1999	1999	4	7.70		0.00	0.69	4.68	5.09	5.01	11.00		9.92	9.92	2.49	0.00	0.54	223.63	5.21	7.44	4.68
4/11/1999	1999	1999	4	75.00		0.00	0.69	4.68	5.09	5.01	200.00		185.69		0.00	0.00	0.00	0.00	75.00	185.69	4.68
4/12/1999	1999	1999	4	63.00		0.00	0.65	3.52	3.82	3.79	297.00		275.97		0.00	0.00	0.00	0.00	63.00	275.97	3.52
4/13/1999	1999	1999	4	8.60		0.00	0.71	4.52	5.05	3.03	15.00		15.34	15.34	2.59	0.00	0.56	232.89	6.01	12.75	4.52
4/14/1999	1999	1999	4	8.10		0.00	0.77	4.47	4.64	2.95	11.00		11.65	11.65	2.54	0.00	0.55	227.87	5.56	9.11	4.47
4/15/1999	1999	1999	4	7.70		0.00	0.67	4.23	4.47	4.11	11.00		10.34	10.34	2.49	0.00	0.54	223.63	5.21	7.85	4.23
4/16/1999	1999	1999	4	7.80		0.00	0.71	4.23	4.37	4.30	11.00		10.17	10.17	2.50	0.00	0.54	224.71	5.30	7.66	4.23
4/17/1999	1999	1999	4	8.00		0.00	0.71	4.23	4.37	4.30	11.00		10.17	10.17	2.53	0.00	0.55	226.83	5.47	7.64	4.23
4/18/1999	1999	1999	4	8.00		0.00	0.71	4.23	4.37	4.30	12.00		11.10	11.10	2.53	0.00	0.55	226.83	5.47	8.57	4.23
4/19/1999	1999	1999	4	8.30		0.00	0.68	4.30	4.74	2.08	12.00		13.22	13.22	2.56	0.00	0.55	229.92	5.74	10.66	4.30
4/20/1999	1999	1999	4	8.30		0.00	0.71	4.36	4.65	1.03	12.00		14.25	14.25	2.56	0.00	0.55	229.92	5.74	11.69	4.36
4/21/1999	1999	1999	4	8.00		0.00	0.70	4.37	4.59	2.44	13.00		13.88	13.88	2.53	0.00	0.55	226.83	5.47	11.36	4.37
4/22/1999	1999	1999	4	6.90		0.00	0.71	4.30	4.62	3.19	15.00		14.98	14.98	2.39	0.00	0.52	214.44	4.51	12.59	4.30
4/23/1999	1999	1999	4	7.20		0.00	0.69	4.31	4.54	4.04	16.00		15.13	15.13	2.43	0.00	0.52	218.00	4.77	12.70	4.31
4/24/1999	1999	1999	4	7.20		0.00	0.69	4.31	4.54	4.04	17.00		16.06	16.06	2.43	0.00	0.52	218.00	4.77	13.63	4.31
4/25/1999	1999	1999	4	7.30		0.00	0.64	4.31	4.54	4.04	18.00		16.99	16.99	2.44	0.00	0.53	219.16	4.86	14.55	4.31
4/26/1999	1999	1999	4	7.60		0.00	0.70	4.52	4.58	1.91	16.00		17.31	17.31	2.48	0.00	0.54	222.53	5.12	14.83	4.52
4/27/1999	1999	1999	4	7.80		0.00	0.73	4.13	4.50	4.16	16.00		14.85	14.85	2.50	0.00	0.54	224.71	5.30	12.35	4.13

Existing Condition | **San Joaquin Marsh Operations** | **With Project Diversion**

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
													0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
																	39.7 ppb	16.5 ppm			
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
4/28/1999	1999	1999	4	8.20		0.00	0.73	4.55	4.41	1.67	16.00		17.55	17.55	2.55	0.00	0.55	228.90	5.65	15.00	4.55
4/29/1999	1999	1999	4	7.60		0.00	0.69	4.01	4.30	1.68	14.00		15.19	15.19	2.48	0.00	0.54	222.53	5.12	12.71	4.01
4/30/1999	1999	1999	4	8.20		0.00	0.71	4.54	4.44	4.24	14.00		13.30	13.30	2.55	0.00	0.55	228.90	5.65	10.75	4.54
5/1/1999	1999	1999	5	8.40		0.00	0.71	4.54	4.44	4.24	14.00		13.30	13.30	2.57	0.00	0.56	230.92	5.83	10.73	4.54
5/2/1999	1999	1999	5	8.90		0.00	0.71	4.54	4.44	4.24	14.00		13.30	13.30	2.60	0.00	0.56	233.51	6.30	10.70	4.54
5/3/1999	1999	1999	5	8.80		0.00	0.71	4.54	4.47	1.68	14.00		15.68	15.68	2.60	0.00	0.56	233.51	6.20	13.08	4.54
5/4/1999	1999	1999	5	8.60		0.00	0.75	4.77	4.87	1.62	13.00		15.02	15.02	2.59	0.00	0.56	232.89	6.01	12.43	4.77
5/5/1999	1999	1999	5	8.90		0.00	0.75	4.58	4.52	1.50	12.00		14.03	14.03	2.60	0.00	0.56	233.51	6.30	11.43	4.58
5/6/1999	1999	1999	5	11.00		0.00	0.75	4.25	4.50	2.23	18.00		18.61		0.00	0.00	0.00	0.00	11.00	18.61	4.25
5/7/1999	1999	1999	5	9.30		0.00	0.70	4.58	6.88	6.44	15.00		12.22	12.22	2.60	0.00	0.56	233.51	6.70	9.62	4.58
5/8/1999	1999	1999	5	9.90		0.00	0.70	4.58	6.88	6.44	17.00		14.08	14.08	2.60	0.00	0.56	233.51	7.30	11.48	4.58
5/9/1999	1999	1999	5	10.00		0.00	0.70	4.58	6.88	6.44	17.00		14.08	14.08	2.60	0.00	0.56	233.51	7.40	11.48	4.58
5/10/1999	1999	1999	5	9.70		0.00	0.72	4.74	4.58	3.75	15.00		14.87	14.87	2.60	0.00	0.56	233.51	7.10	12.27	4.74
5/11/1999	1999	1999	5	9.30		0.00	0.75	4.34	3.61	0.25	14.00		16.83	16.83	2.60	0.00	0.56	233.51	6.70	14.23	4.34
5/12/1999	1999	1999	5	9.60		0.00	0.75	4.60	3.48	1.27	13.00		15.19	15.19	2.60	0.00	0.56	233.51	7.00	12.59	4.60
5/13/1999	1999	1999	5	10.00		0.00	0.74	4.45	4.86	0.68	17.00		19.32		0.00	0.00	0.00	0.00	10.00	19.32	4.45
5/14/1999	1999	1999	5	8.30		0.00	0.72	4.46	6.13	5.80	14.00		11.78	11.78	2.56	0.00	0.55	229.92	5.74	9.22	4.46
5/15/1999	1999	1999	5	8.80		0.00	0.72	4.46	6.13	5.80	16.00		13.64	13.64	2.60	0.00	0.56	233.51	6.20	11.04	4.46
5/16/1999	1999	1999	5	9.20		0.00	0.72	4.46	6.13	5.80	17.00		14.57	14.57	2.60	0.00	0.56	233.51	6.60	11.97	4.46
5/17/1999	1999	1999	5	10.00		0.00	0.68	4.49	6.47	6.26	18.00		15.10	15.10	2.60	0.00	0.56	233.51	7.40	12.50	4.49
5/18/1999	1999	1999	5	10.00		0.00	0.76	4.43	6.15	3.92	18.00		17.21	17.21	2.60	0.00	0.56	233.51	7.40	14.61	4.43
5/19/1999	1999	1999	5	10.00		0.00	0.75	4.51	5.63	3.87	16.00		15.48	15.48	2.60	0.00	0.56	233.51	7.40	12.88	4.51
5/20/1999	1999	1999	5	10.00		0.00	0.74	4.23	5.06	3.57	15.00		14.56	14.56	2.60	0.00	0.56	233.51	7.40	11.96	4.23
5/21/1999	1999	1999	5	10.00		0.00	0.74	4.50	5.70	5.33	16.00		14.11	14.11	2.60	0.00	0.56	233.51	7.40	11.51	4.50
5/22/1999	1999	1999	5	9.70		0.00	0.74	4.50	5.70	5.33	17.00		15.04	15.04	2.60	0.00	0.56	233.51	7.10	12.44	4.50
5/23/1999	1999	1999	5	10.00		0.00	0.74	4.50	5.70	5.33	21.00		18.76		0.00	0.00	0.00	0.00	10.00	18.76	4.50
5/24/1999	1999	1999	5	10.00		0.00	0.44	4.59	5.62	5.01	19.00		17.28	17.28	2.60	0.00	0.56	233.51	7.40	14.68	4.59
5/25/1999	1999	1999	5	10.00		0.00	0.87	4.26	4.61	3.65	18.00		17.31	17.31	2.60	0.00	0.56	233.51	7.40	14.71	4.26
5/26/1999	1999	1999	5	11.00		0.00	0.75	4.60	4.93	3.72	17.00		16.62	16.62	2.60	0.00	0.56	233.51	8.40	14.02	4.60
5/27/1999	1999	1999	5	11.00		0.00	0.73	4.36	4.54	3.80	21.00		20.05		0.00	0.00	0.00	0.00	11.00	20.05	4.36
5/28/1999	1999	1999	5	9.90		0.00	0.96	4.54	4.53	4.39	18.00		16.88	16.88	2.60	0.00	0.56	233.51	7.30	14.28	4.54
5/29/1999	1999	1999	5	8.80		0.00	0.96	4.54	4.53	4.39	16.00		15.02	15.02	2.60	0.00	0.56	233.51	6.20	12.42	4.54
5/30/1999	1999	1999	5	8.80		0.00	0.96	4.54	4.53	4.39	16.00		15.02	15.02	2.60	0.00	0.56	233.51	6.20	12.42	4.54
5/31/1999	1999	1999	5	9.40		0.00	0.96	4.54	4.53	4.39	16.00		15.02	15.02	2.60	0.00	0.56	233.51	6.80	12.42	4.54
6/1/1999	1999	1999	6	10.00		0.00	0.69	4.53	4.79	1.55	17.00		18.59	18.59	2.60	0.00	0.56	233.51	7.40	15.99	4.53
6/2/1999	1999	1999	6	27.00		0.00	0.67	4.26	4.69	2.77	58.00		55.33		0.00	0.00	0.00	0.00	27.00	55.33	4.26
6/3/1999	1999	1999	6	17.00		0.00	0.69	4.35	4.49	2.92	26.00		25.51		0.00	0.00	0.00	0.00	17.00	25.51	4.35
6/4/1999	1999	1999	6	15.00		0.00	0.69	2.80	4.52	4.20	18.00		15.44	15.44	2.60	0.00	0.56	233.51	12.40	12.84	2.80
6/5/1999	1999	1999	6	14.00		0.00	0.69	2.80	4.52	4.20	19.00		16.37	16.37	2.60	0.00	0.56	233.51	11.40	13.77	2.80
6/6/1999	1999	1999	6	13.00		0.00	0.69	2.80	4.52	4.20	20.00		17.30	17.30	2.60	0.00	0.56	233.51	10.40	14.70	2.80
6/7/1999	1999	1999	6	13.00		0.00	0.68	3.71	2.96	1.29	18.00		19.00		0.00	0.00	0.00	0.00	13.00	19.00	3.71
6/8/1999	1999	1999	6	13.00		0.00	0.65	4.64	4.24	3.48	15.00		15.03	15.03	2.60	0.00	0.56	233.51	10.40	12.43	4.64
6/9/1999	1999	1999	6	12.00		0.00	0.68	4.29	4.10	3.09	15.00		15.07	15.07	2.60	0.00	0.56	233.51	9.40	12.47	4.29
6/10/1999	1999	1999	6	12.00		0.00	0.70	4.66	4.43	4.77	16.00		14.78	14.78	2.60	0.00	0.56	233.51	9.40	12.18	4.66
6/11/1999	1999	1999	6	11.00		0.00	0.61	4.33	4.47	3.59	17.00		16.50	16.50	2.60	0.00	0.56	233.51	8.40	13.90	4.33
6/12/1999	1999	1999	6	11.00		0.00	0.61	4.33	4.47	3.59	18.00		17.43	17.43	2.60	0.00	0.56	233.51	8.40	14.83	4.33
6/13/1999	1999	1999	6	11.00		0.00	0.78	4.33	4.47	3.59	19.00		18.36	18.36	2.60	0.00	0.56	233.51	8.40	15.76	4.33
6/14/1999	1999	1999	6	12.00		0.00	0.67	4.10	4.50	3.12	20.00		19.51		0.00	0.00	0.00	0.00	12.00	19.51	4.10
6/15/1999	1999	1999	6	11.00		0.00	0.68	4.14	4.22	1.56	19.00		20.07		0.00	0.00	0.00	0.00	11.00	20.07	4.14
6/16/1999	1999	1999	6	11.00		0.00	0.64	4.30	4.17	0.64	18.00		20.14		0.00	0.00	0.00	0.00	11.00	20.14	4.30
6/17/1999	1999	1999	6	11.00		0.00	0.63	4.17	4.10	3.58	18.00		17.28	17.28	2.60	0.00	0.56	233.51	8.40	14.68	4.17
6/18/1999	1999	1999	6	11.00		0.00	0.64	4.20	4.37	3.42	19.00		18.40	18.40	2.60	0.00	0.56	233.51	8.40	15.80	4.20
6/19/1999	1999	1999	6	11.00		0.00	0.64	4.20	4.37	3.42	19.00		18.40	18.40	2.60	0.00	0.56	233.51	8.40	15.80	4.20
6/20/1999	1999	1999	6	12.00		0.00	0.64	4.20	4.37	3.42	18.00		17.47	17.47	2.60	0.00	0.56	233.51	9.40	14.87	4.20
6/21/1999	1999	1999	6	11.00		0.00	0.59	3.81	3.96	3.51	17.00		16.09	16.09	2.60	0.00	0.56	233.51	8.40	13.49	3.81
6/22/1999	1999	1999	6	11.00		0.00	0.59	4.40	4.37	4.30	17.00		15.91	15.91	2.60	0.00	0.56	233.51	8.40	13.31	4.40
6/23/1999	1999	1999	6	11.00		0.00	0.61	4.16	4.35	3.94	17.00		16.01	16.01	2.60	0.00	0.56	233.51	8.40	13.41	4.16
6/24/1999	1999	1999	6	12.00		0.00	0.61	4.15	4.59	4.37	17.00		15.61	15.61	2.60	0.00	0.56	233.51	9.40	13.01	4.15
6/25/1999	1999	1999	6	12.00		0.00	0.58	4.08	4.50	4.23	18.00		16.60	16.60	2.60	0.00	0.56	233.51	9.40	14.00	4.08
6/26/1999	1999	1999	6	12.00		0.00	0.58	4.08	4.50	4.23	18.00		16.60	16.60	2.60	0.00	0.56	233.51	9.40	14.00	4.08
6/27/1999	1999	1999	6	12.00		0.00	0.58	4.08	4.50	4.23	17.00		15.67	15.67	2.60	0.00	0.56	233.51	9.40	13.07	4.08
6/28/1999	1999	1999	6	13.00		0.00	0.58	3.90	4.52	3.87	18.00		16.76	16.76	2.60	0.00	0.56	233.51	10.40	14.16	3.90
6/29/1999	1999	1999	6	13.00		0.00	0.57	4.10	4.58	4.02	19.00		17.75	17.75	2.60	0.00	0.56	233.51	10.40	15.15	4.10
6/30/1999	1999	1999	6	12.00		0.00	0.55	4.10	3.31	2.87	14.00		14.16	14.16	2.60	0.00	0.56	233.51	9.40	11.56	4.10
7/1/1999	1999	1999	7	7.90		0.00	0.55	3.80	3.19	1.97	12.00		12.87	12.87	2.51	0.00	0.54	225.78	5.39	10.35	3.80
7/2/1999	1999	1999	7	7.50		0.00	0.57	4.07	3.53	2.33	11.00		11.85	11.85	2.47	0.00	0.53	221.42	5.03	9.38	4.07
7/3/1999	1999	1999	7	8.70		0.00	0.57	4.07	3.53	2.33	12.00		12.78	12.78	2.60	0.00	0.56	233.51	6.10	10.18	4.07
7/4/1999	1999	1999	7	7.90		0.00	0.57	4.07	3.53	2.33	9.90		10.83	10.83	2.51	0.00	0.54	225.78	5.39	8.31	4.07
7/5/1999	1999	1999	7	8.50		0.00	0.57	4.07	3.53	2.33	8.80		9.80	9.80	2.58	0.00	0.56	231.91	5.92	7.22	4.07
7/6/1999	1999	1999	7	9.00		0.00	0.58	3.73	3.82	3.35	8.90		8.63	8.63	2.60	0.00	0.56	233.51	6.40	6.03	3.73
7/7/1999	1999	1999	7	8.60		0.00	0.61	4.14	2.56	1.45	11.00		12.73	12.73	2.59	0.00	0.56	232.89	6.01	10.14	4.14

Existing Condition | **_With Project Diversion_**

San Joaquin Marsh Operations

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Cam SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
7/8/1999	1999	1999	7	13.00		0.00	0.54	3.78	2.49	1.44	31.00		31.00		0.00	0.00	0.00	0.00	13.00	31.00	3.78
7/9/1999	1999	1999	7	9.90		0.00	0.58	4.02	3.37	2.50	16.00		16.29	16.29	2.60	0.00	0.56	233.51	7.30	13.69	4.02
7/10/1999	1999	1999	7	9.00		0.00	0.58	4.02	3.37	2.50	15.00		15.36	15.36	2.60	0.00	0.56	233.51	6.40	12.76	4.02
7/11/1999	1999	1999	7	7.90		0.00	0.58	4.02	3.37	2.50	13.00		13.50	13.50	2.51	0.00	0.54	225.78	5.39	10.99	4.02
7/12/1999	1999	1999	7	8.50		0.00	0.54	3.79	4.15	3.90	13.00		11.99	11.99	2.58	0.00	0.56	231.91	5.92	9.41	3.79
7/13/1999	1999	1999	7	8.00		0.00	0.55	3.93	3.23	2.67	11.00		11.40	11.40	2.53	0.00	0.55	226.83	5.47	8.87	3.93
7/14/1999	1999	1999	7	7.70		0.00	0.57	3.60	3.64	0.00	11.00		13.57	13.57	2.49	0.00	0.54	223.63	5.21	11.08	3.60
7/15/1999	1999	1999	7	7.60		0.00	0.54	3.66	2.26	0.11	11.00		13.54	13.54	2.48	0.00	0.54	222.53	5.12	11.06	3.66
7/16/1999	1999	1999	7	7.70		0.00	0.56	3.57	2.54	0.77	10.00		11.90	11.90	2.49	0.00	0.54	223.63	5.21	9.41	3.57
7/17/1999	1999	1999	7	8.60		0.00	0.56	3.57	2.54	0.77	9.70		11.62	11.62	2.59	0.00	0.56	232.89	6.01	9.02	3.57
7/18/1999	1999	1999	7	7.50		0.00	0.56	3.57	2.54	0.77	9.30		11.25	11.25	2.47	0.00	0.53	221.42	5.03	8.78	3.57
7/19/1999	1999	1999	7	7.80		0.00	0.54	3.57	1.02	0.52	12.00		13.99	13.99	2.50	0.00	0.54	224.71	5.30	11.49	3.57
7/20/1999	1999	1999	7	7.80		0.00	0.56	3.74	0.68	0.27	12.00		14.40	14.40	2.50	0.00	0.54	224.71	5.30	11.89	3.74
7/21/1999	1999	1999	7	8.10		0.00	0.54	3.64	0.55	0.00	12.00		14.55	14.55	2.54	0.00	0.55	227.87	5.56	12.01	3.64
7/22/1999	1999	1999	7	8.60		0.00	0.52	5.09	1.60	0.86	13.00		16.02	16.02	2.59	0.00	0.56	232.89	6.01	13.43	5.09
7/23/1999	1999	1999	7	9.00		0.00	0.52	5.11	2.72	1.64	13.00		15.32	15.32	2.60	0.00	0.56	233.51	6.40	12.72	5.11
7/24/1999	1999	1999	7	9.10		0.00	0.52	5.11	2.72	1.64	13.00		15.32	15.32	2.60	0.00	0.56	233.51	6.50	12.72	5.11
7/25/1999	1999	1999	7	9.60		0.00	0.52	5.11	2.72	1.64	12.00		14.39	14.39	2.60	0.00	0.56	233.51	7.00	11.79	5.11
7/26/1999	1999	1999	7	9.70		0.00	0.48	5.08	2.08	1.87	14.00		16.01	16.01	2.60	0.00	0.56	233.51	7.10	13.41	5.08
7/27/1999	1999	1999	7	8.60		0.00	0.55	5.19	3.51	2.76	11.00		12.49	12.49	2.59	0.00	0.56	232.89	6.01	9.89	5.19
7/28/1999	1999	1999	7	7.80		0.00	0.46	5.08	3.94	2.10	9.70		11.79	11.79	2.50	0.00	0.54	224.71	5.30	9.29	5.08
7/29/1999	1999	1999	7	6.80		0.00	0.50	4.93	3.84	2.03	9.30		11.35	11.35	2.37	0.00	0.51	213.21	4.43	8.97	4.93
7/30/1999	1999	1999	7	6.00		0.00	0.48	5.06	4.71	3.00	9.40		10.66	10.66	2.26	0.00	0.49	202.73	3.74	8.41	5.06
7/31/1999	1999	1999	7	6.20		0.00	0.48	5.06	4.71	3.00	11.00		12.15	12.15	2.29	0.00	0.49	205.47	3.91	9.86	5.06
8/1/1999	1999	1999	8	6.50		0.00	0.48	5.06	4.71	3.00	10.00		11.22	11.22	2.33	0.00	0.50	209.43	4.17	8.89	5.06
8/2/1999	1999	1999	8	6.80		0.00	0.00	5.10	4.51	3.99	10.00		10.33	10.33	2.37	0.00	0.51	213.21	4.43	7.96	5.10
8/3/1999	1999	1999	8	7.00		0.00	0.47	5.23	4.82	1.47	11.00		13.73	13.73	2.40	0.00	0.52	215.64	4.60	11.33	5.23
8/4/1999	1999	1999	8	6.60		0.00	0.50	4.85	5.16	2.72	9.60		10.90	10.90	2.35	0.00	0.51	210.71	4.25	8.56	4.85
8/5/1999	1999	1999	8	6.30		0.00	0.51	5.07	5.38	3.61	9.30		10.00	10.00	2.30	0.00	0.50	206.81	4.00	7.70	5.07
8/6/1999	1999	1999	8	6.30		0.00	0.49	5.04	5.51	3.90	8.70		9.15	9.15	2.30	0.00	0.50	206.81	4.00	6.84	5.04
8/7/1999	1999	1999	8	6.50		0.00	0.49	5.04	5.51	3.90	9.30		9.70	9.70	2.33	0.00	0.50	209.43	4.17	7.37	5.04
8/8/1999	1999	1999	8	6.80		0.00	0.49	5.04	5.51	3.90	9.50		9.89	9.89	2.37	0.00	0.51	213.21	4.43	7.52	5.04
8/9/1999	1999	1999	8	6.40		0.00	0.47	5.01	5.93	5.51	9.60		8.45	8.45	2.32	0.00	0.50	208.13	4.08	6.14	5.01
8/10/1999	1999	1999	8	5.90		0.00	0.47	5.24	8.90	8.37	11.00		7.32	7.32	2.24	0.00	0.48	201.32	3.66	5.07	5.07
8/11/1999	1999	1999	8	5.60		0.00	0.49	4.83	8.39	7.28	11.00		7.94	7.94	2.19	0.00	0.47	196.95	3.41	5.75	4.83
8/12/1999	1999	1999	8	5.60		0.00	0.49	5.22	8.74	7.32	12.00		9.21	9.21	2.19	0.00	0.47	196.95	3.41	7.02	5.22
8/13/1999	1999	1999	8	5.60		0.00	0.48	5.04	6.23	4.64	13.00		12.46	12.46	2.19	0.00	0.47	196.95	3.41	10.27	5.04
8/14/1999	1999	1999	8	5.80		0.00	0.48	5.04	6.23	4.64	13.00		12.46	12.46	2.23	0.00	0.48	199.89	3.57	10.23	5.04
8/15/1999	1999	1999	8	6.00		0.00	0.48	5.04	6.23	4.64	12.00		11.53	11.53	2.26	0.00	0.49	202.73	3.74	9.27	5.04
8/16/1999	1999	1999	8	6.20		0.00	0.46	5.16	5.23	4.84	12.00		11.45	11.45	2.29	0.00	0.49	205.47	3.91	9.17	5.16
8/17/1999	1999	1999	8	6.20		0.00	0.45	5.03	5.17	3.74	13.00		13.28	13.28	2.29	0.00	0.49	205.47	3.91	10.99	5.03
8/18/1999	1999	1999	8	5.90		0.00	0.46	4.99	5.20	3.51	11.00		11.61	11.61	2.24	0.00	0.48	201.32	3.66	9.37	4.99
8/19/1999	1999	1999	8	5.70		0.00	0.48	4.97	5.21	3.60	10.00		10.58	10.58	2.21	0.00	0.48	198.43	3.49	8.37	4.97
8/20/1999	1999	1999	8	5.90		0.00	0.46	5.05	5.39	3.87	10.00		10.39	10.39	2.24	0.00	0.48	201.32	3.66	8.15	5.05
8/21/1999	1999	1999	8	5.80		0.00	0.46	5.05	5.39	3.87	10.00		10.39	10.39	2.23	0.00	0.48	199.89	3.57	8.17	5.05
8/22/1999	1999	1999	8	6.00		0.00	0.46	5.05	5.39	3.87	9.70		10.11	10.11	2.26	0.00	0.49	202.73	3.74	7.86	5.05
8/23/1999	1999	1999	8	6.50		0.00	0.45	4.88	5.27	4.89	10.00		9.29	9.29	2.33	0.00	0.50	209.43	4.17	6.96	4.88
8/24/1999	1999	1999	8	6.00		0.00	0.44	5.04	5.55	4.86	10.00		9.47	9.47	2.26	0.00	0.49	202.73	3.74	7.22	5.04
8/25/1999	1999	1999	8	5.80		0.00	0.44	5.07	5.69	4.08	9.40		9.67	9.67	2.23	0.00	0.48	199.89	3.57	7.44	5.07
8/26/1999	1999	1999	8	6.30		0.00	0.46	5.05	5.73	3.99	9.50		9.82	9.82	2.30	0.00	0.50	206.81	4.00	7.51	5.05
8/27/1999	1999	1999	8	4.90		0.00	0.44	4.98	5.67	4.14	10.00		10.08	10.08	2.07	0.00	0.45	185.76	2.83	8.02	4.98
8/28/1999	1999	1999	8	5.40		0.00	0.44	4.98	5.67	4.14	9.80		9.90	9.90	2.16	0.00	0.47	193.90	3.24	7.74	4.98
8/29/1999	1999	1999	8	4.90		0.00	0.44	4.98	5.67	4.14	10.00		10.08	10.08	2.07	0.00	0.45	185.76	2.83	8.02	4.98
8/30/1999	1999	1999	8	4.60		0.00	0.41	4.98	5.65	5.17	8.80		8.01	8.01	2.01	0.00	0.43	180.46	2.59	6.00	4.98
8/31/1999	1999	1999	8	5.20		0.00	0.43	4.92	5.43	4.74	10.00		9.48	9.48	2.12	0.00	0.46	190.74	3.08	7.35	4.92
9/1/1999	1999	1999	9	5.10		0.00	0.43	4.74	5.50	3.85	10.00		10.13	10.13	2.11	0.00	0.46	189.11	2.99	8.02	4.74
9/2/1999	1999	1999	9	6.20		0.00	0.43	5.06	5.92	4.18	9.40		9.56	9.56	2.29	0.00	0.49	205.47	3.91	7.28	5.06
9/3/1999	1999	1999	9	5.30		0.00	0.43	4.95	5.80	4.51	9.10		8.87	8.87	2.14	0.00	0.46	192.33	3.16	6.72	4.95
9/4/1999	1999	1999	9	4.90		0.00	0.43	4.95	5.80	4.51	9.00		8.77	8.77	2.07	0.00	0.45	185.76	2.83	6.70	4.95
9/5/1999	1999	1999	9	5.10		0.00	0.43	4.95	5.80	4.51	9.10		8.87	8.87	2.11	0.00	0.46	189.11	2.99	6.76	4.95
9/6/1999	1999	1999	9	5.60		0.00	0.43	4.95	5.80	4.51	10.00		9.70	9.70	2.19	0.00	0.47	196.95	3.41	7.51	4.95
9/7/1999	1999	1999	9	5.80		0.00	0.43	4.95	6.16	5.46	12.00		10.69	10.69	2.23	0.00	0.48	199.89	3.57	8.47	4.95
9/8/1999	1999	1999	9	5.20		0.00	0.43	5.29	6.50	5.71	11.00		9.84	9.84	2.12	0.00	0.46	190.74	3.08	7.71	5.29
9/9/1999	1999	1999	9	6.10		0.00	0.43	4.84	6.00	5.83	13.00		11.17	11.17	2.27	0.00	0.49	204.11	3.83	8.89	4.84
9/10/1999	1999	1999	9	6.70		0.00	0.43	5.03	6.37	4.66	12.00		11.51	11.51	2.36	0.00	0.51	211.97	4.34	9.15	5.03
9/11/1999	1999	1999	9	6.90		0.00	0.43	5.03	6.37	4.66	9.90		9.56	9.56	2.39	0.00	0.52	214.44	4.51	7.17	5.03
9/12/1999	1999	1999	9	7.00		0.00	0.43	5.03	6.37	4.66	10.00		9.65	9.65	2.40	0.00	0.52	215.64	4.60	7.25	5.03
9/13/1999	1999	1999	9	7.40		0.00	0.43	4.90	4.71	0.17	8.70		12.49	12.49	2.45	0.00	0.53	220.30	4.95	10.04	4.90
9/14/1999	1999	1999	9	6.50		0.00	0.43	5.46	5.80	2.32	7.90		10.26	10.26	2.33	0.00	0.50	209.43	4.17	7.93	5.46
9/15/1999	1999	1999	9	5.70		0.00	0.43	4.66	4.47	0.76	7.80		10.88	10.88	2.21	0.00	0.48	198.43	3.49	8.67	4.66
9/16/1999	1999	1999	9	5.40		0.00	0.43	5.14	4.78	0.76	7.90		11.42	11.42	2.16	0.00	0.47	193.90	3.24	9.26	5.14

Existing Condition

San Joaquin Marsh Operations

With Project Diversion

0.93	20.00 cfs	PROJ. Div	39.7 ppb	16.5 ppm
			39.7 ppb	16.5 ppm

DATE	Year	Water Year (WY)	Month	Peters Canyon Wash (PCW) at Barranca (cfs) PCW Bar	QC PCW	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs) PCW Bar (Loss)	MWRP Dewatering Discharge (cfs) MWRP Dewtr	SJ Marsh Inflow (from SDC) (cfs) SJM In	SJ Marsh Outflow (#002A) (cfs) SJM Out (2A)	SJ Marsh Outflow (to SDC, #002B) (cfs) SJM Out (SDC)	San Diego Cr (SDC) at Campus (cfs) SDC Campus	QC SDC	**Adjusted San Diego Cr (SDC) at Campus (cfs) SDC Campus **	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs) SDC Campus, Ba	Est. PROJECT Diversion (cfs) Project - Diversi	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs) Project - PCW Ba	Daily Se Load, Est. PROJ. Diversion (lbs) Project - Diversi	Daily NO3 Load, Est. PROJ. Diversion (lbs) Project - Diversi	Peters Canyon Wash (PCW) at Barranca (cfs) Project - PCW Ba	**Adjusted San Diego Cr (SDC) at Campus (cfs) Project - SDC Ca	using SDC at Can SJ Marsh Inflow (from SDC) (cfs) Project - SJM In
9/17/1999	1999	1999	9	5.10		0.00	0.43	5.13	4.77	0.78	8.30		11.76	11.76	2.11	0.00	0.46	189.11	2.99	9.66	5.13
9/18/1999	1999	1999	9	5.30		0.00	0.43	5.13	4.77	0.78	7.60		11.11	11.11	2.14	0.00	0.46	192.33	3.16	8.97	5.13
9/19/1999	1999	1999	9	4.90		0.00	0.43	5.13	4.77	0.78	7.60		11.11	11.11	2.07	0.00	0.45	185.76	2.83	9.04	5.13
9/20/1999	1999	1999	9	5.60		0.00	0.43	5.08	5.17	3.23	9.80		10.84	10.84	2.19	0.00	0.47	196.95	3.41	8.65	5.08
9/21/1999	1999	1999	9	6.10		0.00	0.43	5.16	4.97	3.57	12.00		12.64	12.64	2.27	0.00	0.49	204.11	3.83	10.37	5.16
9/22/1999	1999	1999	9	6.60		0.00	0.43	5.17	5.35	2.26	11.00		12.94	12.94	2.35	0.00	0.51	210.71	4.25	10.59	5.17
9/23/1999	1999	1999	9	6.70		0.00	0.43	5.29	5.07	1.63	8.00		10.84	10.84	2.36	0.00	0.51	211.97	4.34	8.48	5.29
9/24/1999	1999	1999	9	7.20		0.00	0.43	5.09	4.98	4.26	7.30		7.56	7.56	2.43	0.00	0.52	218.00	4.77	5.13	5.09
9/25/1999	1999	1999	9	6.30		0.00	0.43	5.09	4.98	4.26	6.90		7.19	7.19	2.30	0.00	0.50	206.81	4.00	4.88	4.88
9/26/1999	1999	1999	9	6.20		0.00	0.43	5.09	4.98	4.26	6.70		7.00	7.00	2.29	0.00	0.49	205.47	3.91	4.71	4.71
9/27/1999	1999	1999	9	6.70		0.00	0.43	5.03	4.98	1.62	6.60		9.32	9.32	2.36	0.00	0.51	211.97	4.34	6.96	5.03
9/28/1999	1999	1999	9	7.60		0.00	0.43	5.32	5.27	1.77	6.70		9.54	9.54	2.48	0.00	0.54	222.53	5.12	7.06	5.32
9/29/1999	1999	1999	9	6.80		0.00	0.43	4.99	4.90	1.87	7.40		9.78	9.78	2.37	0.00	0.51	213.21	4.43	7.41	4.99
9/30/1999	1999	1999	9	7.20		0.00	0.43	5.31	5.21	1.95	8.40		10.93	10.93	2.43	0.00	0.52	218.00	4.77	8.50	5.31
10/1/1999	1999	2000	10	7.60		0.00	0.43	5.20	5.18	1.91	7.10		9.66	9.66	2.48	0.00	0.54	222.53	5.12	7.19	5.20
10/2/1999	1999	2000	10	8.00		0.00	0.43	5.20	5.18	1.91	7.80		10.31	10.31	2.53	0.00	0.55	226.83	5.47	7.79	5.20
10/3/1999	1999	2000	10	7.70		0.00	0.43	5.20	5.18	1.91	8.30		10.78	10.78	2.49	0.00	0.54	223.63	5.21	8.29	5.20
10/4/1999	1999	2000	10	7.90		0.00	0.43	5.01	4.87	4.42	9.10		9.01	9.01	2.51	0.00	0.54	225.78	5.39	6.50	5.01
10/5/1999	1999	2000	10	7.50		0.00	0.43	5.55	7.58	7.52	11.00		8.40	8.40	2.47	0.00	0.53	221.42	5.03	5.93	5.55
10/6/1999	1999	2000	10	7.80		0.00	0.43	5.08	6.71	6.81	12.00		9.55	9.55	2.50	0.00	0.54	224.71	5.30	7.05	5.08
10/7/1999	1999	2000	10	6.90		0.00	0.43	5.20	7.52	4.52	11.00		10.86	10.86	2.39	0.00	0.52	214.44	4.51	8.47	5.20
10/8/1999	1999	2000	10	7.30		0.00	0.43	5.22	7.25	4.76	10.00		9.73	9.73	2.44	0.00	0.53	219.16	4.86	7.29	5.22
10/9/1999	1999	2000	10	7.60		0.00	0.43	5.22	7.25	4.76	11.00		10.66	10.66	2.48	0.00	0.54	222.53	5.12	8.18	5.22
10/10/1999	1999	2000	10	7.50		0.00	0.43	5.22	7.25	4.76	13.00		12.52	12.52	2.47	0.00	0.53	221.42	5.03	10.05	5.22
10/11/1999	1999	2000	10	7.40		0.00	0.43	5.22	7.25	4.76	12.00		11.59	11.59	2.45	0.00	0.53	220.30	4.95	9.13	5.22
10/12/1999	1999	2000	10	7.60		0.00	0.43	5.08	7.34	5.25	12.00		11.01	11.01	2.48	0.00	0.54	222.53	5.12	8.53	5.08
10/13/1999	1999	2000	10	7.10		0.00	0.43	5.31	7.32	5.38	13.00		12.03	12.03	2.41	0.00	0.52	216.83	4.69	9.61	5.31
10/14/1999	1999	2000	10	6.70		0.00	0.43	5.24	7.06	5.03	11.00		10.43	10.43	2.36	0.00	0.51	211.97	4.34	8.07	5.24
10/15/1999	1999	2000	10	6.60		0.00	0.43	3.76	4.76	3.51	19.00		17.90	17.90	2.35	0.00	0.51	210.71	4.25	15.56	3.76
10/16/1999	1999	2000	10	7.00		0.00	0.43	3.76	4.76	0.00	14.00		16.52	16.52	2.40	0.00	0.52	215.64	4.60	14.11	3.76
10/17/1999	1999	2000	10	5.70		0.00	0.43	0.00	4.76	0.00	13.00		12.09	12.09	2.21	0.00	0.48	198.43	3.49	9.88	0.00
10/18/1999	1999	2000	10	5.40		0.00	0.43	0.00	3.62	0.00	12.00		11.16	11.16	2.16	0.00	0.47	193.90	3.24	9.00	0.00
10/19/1999	1999	2000	10	5.50		0.00	0.43	0.00	3.06	0.00	10.00		9.30	9.30	2.18	0.00	0.47	195.44	3.32	7.12	0.00
10/20/1999	1999	2000	10	5.40		0.00	0.43	5.20	4.52	1.61	9.90		12.55	12.55	2.16	0.00	0.47	193.90	3.24	10.39	5.20
10/21/1999	1999	2000	10	5.40		0.00	0.43	5.08	4.30	1.88	9.10		11.44	11.44	2.16	0.00	0.47	193.90	3.24	9.28	5.08
10/22/1999	1999	2000	10	5.10		0.00	0.43	5.18	6.39	6.21	8.20		6.66	6.66	2.11	0.00	0.46	189.11	2.99	4.56	4.56
10/23/1999	1999	2000	10	5.90		0.00	0.43	5.18	6.39	6.21	10.00		8.34	8.34	2.24	0.00	0.48	201.32	3.66	6.09	5.18
10/24/1999	1999	2000	10	5.20		0.00	0.43	5.18	6.39	6.21	11.00		9.27	9.27	2.12	0.00	0.46	190.74	3.08	7.14	5.18
10/25/1999	1999	2000	10	4.90		0.00	0.43	5.06	6.01	5.98	11.00		9.38	9.38	2.07	0.00	0.45	185.76	2.83	7.31	5.06
10/26/1999	1999	2000	10	5.20		0.00	0.43	5.24	6.16	5.93	11.00		9.58	9.58	2.12	0.00	0.46	190.74	3.08	7.46	5.24
10/27/1999	1999	2000	10	5.30		0.00	0.43	5.29	4.92	5.02	10.00		9.55	9.55	2.14	0.00	0.46	192.33	3.16	7.41	5.29
10/28/1999	1999	2000	10	4.00		(0.09)	0.43	5.03	5.17	5.16	9.80		9.00	9.00	1.88	(0.04)	0.40	165.12	2.16	7.16	5.03
10/29/1999	1999	2000	10	3.90		(0.12)	0.43	5.27	5.24	5.19	11.00		10.30	10.30	1.86	(0.06)	0.39	161.49	2.10	8.50	5.27
10/30/1999	1999	2000	10	3.90		(0.12)	0.43	5.27	5.24	5.19	11.00		10.30	10.30	1.86	(0.06)	0.39	161.49	2.10	8.50	5.27
10/31/1999	1999	2000	10	4.30		0.00	0.43	5.27	5.24	5.19	11.00		10.30	10.30	1.95	0.00	0.42	174.81	2.35	8.35	5.27
11/1/1999	1999	2000	11	4.40		0.00	0.43	5.45	5.69	2.99	10.00		11.59	11.59	1.97	0.00	0.43	176.74	2.43	9.62	5.45
11/2/1999	1999	2000	11	4.00		(0.09)	0.43	4.96	4.90	2.47	9.10		10.78	10.78	1.88	(0.04)	0.40	165.12	2.16	8.94	4.96
11/3/1999	1999	2000	11	4.90		0.00	0.42	5.08	4.88	2.64	10.00		11.57	11.57	2.07	0.00	0.45	185.76	2.83	9.50	5.08
11/4/1999	1999	2000	11	3.70		(0.20)	0.44	4.90	4.72	2.18	9.00		10.90	10.90	1.81	(0.09)	0.37	153.91	1.99	9.18	4.90
11/5/1999	1999	2000	11	3.30		(0.36)	0.45	5.13	5.15	2.07	8.00		10.28	10.28	1.70	(0.17)	0.33	137.48	1.77	8.75	5.13
11/6/1999	1999	2000	11	3.30		(0.36)	0.45	5.13	5.15	2.07	6.90		9.26	9.26	1.70	(0.17)	0.33	137.48	1.77	7.73	5.13
11/7/1999	1999	2000	11	3.70		(0.20)	0.45	5.13	5.15	2.07	6.70		9.08	9.08	1.81	(0.09)	0.37	153.91	1.99	7.36	5.13
11/8/1999	1999	2000	11	4.40		0.00	0.42	4.82	4.88	1.87	9.30		11.39	11.39	1.97	0.00	0.43	176.74	2.43	9.42	4.82
11/9/1999	1999	2000	11	4.50		0.00	0.36	4.82	5.20	2.15	12.00		13.64	13.64	1.99	0.00	0.43	178.62	2.51	11.65	4.82
11/10/1999	1999	2000	11	4.40		0.00	0.47	5.12	5.30	2.27	9.20		11.20	11.20	1.97	0.00	0.43	176.74	2.43	9.24	5.12
11/11/1999	1999	2000	11	4.50		0.00	0.41	3.56	5.28	2.33	8.90		9.43	9.43	1.99	0.00	0.43	178.62	2.51	7.44	3.56
11/12/1999	1999	2000	11	5.30		0.00	0.46	3.30	5.21	2.24	8.90		9.27	9.27	2.14	0.00	0.46	192.33	3.16	7.12	3.30
11/13/1999	1999	2000	11	5.40		0.00	0.46	3.30	5.21	2.24	9.10		9.45	9.45	2.16	0.00	0.47	193.90	3.24	7.29	3.30
11/14/1999	1999	2000	11	4.50		0.00	0.46	3.30	5.21	2.24	9.30		9.64	9.64	1.99	0.00	0.43	178.62	2.51	7.65	3.30
11/15/1999	1999	2000	11	4.50		0.00	0.47	3.34	5.23	2.29	10.00		10.27	10.27	1.99	0.00	0.43	178.62	2.51	8.28	3.34
11/16/1999	1999	2000	11	4.50		0.00	0.50	3.06	5.19	2.37	11.00		10.87	10.87	1.99	0.00	0.43	178.62	2.51	8.88	3.06
11/17/1999	1999	2000	11	3.90		(0.12)	0.43	2.95	5.33	4.47	11.00		8.82	8.82	1.86	(0.06)	0.39	161.49	2.10	7.02	2.95
11/18/1999	1999	2000	11	4.10		(0.05)	0.47	2.73	5.18	2.71	12.00		11.18	11.18	1.90	(0.02)	0.41	168.66	2.22	9.30	2.73
11/19/1999	1999	2000	11	5.20		0.00	0.48	2.49	5.11	2.36	11.00		10.35	10.35	2.12	0.00	0.46	190.74	3.08	8.22	2.49
11/20/1999	1999	2000	11	5.70		0.00	0.48	2.49	5.11	2.36	11.00		10.35	10.35	2.21	0.00	0.48	198.43	3.49	8.14	2.49
11/21/1999	1999	2000	11	4.90		0.00	0.48	2.49	5.11	2.36	10.00		9.42	9.42	2.07	0.00	0.45	185.76	2.83	7.35	2.49
11/22/1999	1999	2000	11	4.30		0.00	0.47	2.55	4.90	2.02	9.90		9.70	9.70	1.95	0.00	0.42	174.81	2.35	7.75	2.55
11/23/1999	1999	2000	11	5.50		0.00	0.51	2.77	5.08	2.11	10.00		9.91	9.91	2.18	0.00	0.47	195.44	3.32	7.74	2.77
11/24/1999	1999	2000	11	4.70		0.00	0.39	2.33	5.12	2.12	8.30		7.92	7.92	2.03	0.00	0.44	182.26	2.67	5.89	2.33
11/25/1999	1999	2000	11	4.40		0.00	0.39	2.33	5.12	2.12	9.20		8.75	8.75	1.97	0.00	0.43	176.74	2.43	6.78	2.33
11/26/1999	1999	2000	11	5.20		0.00	0.39	2.33	5.12	2.12	9.80		9.31	9.31	2.12	0.00	0.46	190.74	3.08	7.19	2.33

									Existing Condition									With Project Diversion			
													0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
									San Joaquin Marsh Operations								39.7 ppb	16.5 ppm			
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCV	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Bo	Project - Diversio	Project - Diversio	Project - PCW Bo	Project - SDC Ca	Project - SJM In
11/27/1999	1999	2000	11	4.60		0.00	0.39	2.33	5.12	2.12	9.10		8.66	8.66	2.01	0.00	0.43	180.46	2.59	6.65	2.33
11/28/1999	1999	2000	11	4.90		0.00	0.39	2.33	5.12	2.12	7.80		7.45	7.45	2.07	0.00	0.45	185.76	2.83	5.38	2.33
11/29/1999	1999	2000	11	3.80		(0.16)	0.51	2.68	5.08	2.20	7.50		7.42	7.42	1.83	(0.07)	0.38	157.75	2.04	5.66	2.68
11/30/1999	1999	2000	11	4.20		(0.02)	0.52	2.60	4.70	1.75	7.50		7.76	7.76	1.92	(0.01)	0.41	172.10	2.28	5.85	2.60
12/1/1999	1999	2000	12	4.10		(0.05)	0.51	2.71	4.44	1.82	7.60		7.90	7.90	1.90	(0.02)	0.41	168.66	2.22	6.03	2.71
12/2/1999	1999	2000	12	4.30		0.00	0.54	2.53	4.53	2.14	8.60		8.36	8.36	1.95	0.00	0.42	174.81	2.35	6.41	2.53
12/3/1999	1999	2000	12	3.40		(0.32)	0.52	4.92	2.97	1.20	4.80		7.93	7.93	1.73	(0.15)	0.34	141.76	1.82	6.35	4.92
12/4/1999	1999	2000	12	4.00		(0.09)	0.52	4.92	2.97	1.20	4.60		7.74	7.74	1.88	(0.04)	0.40	165.12	2.16	5.90	4.92
12/5/1999	1999	2000	12	4.40		0.00	0.52	4.92	2.97	1.20	5.60		8.67	8.67	1.97	0.00	0.43	176.74	2.43	6.70	4.92
12/6/1999	1999	2000	12	3.70		(0.20)	0.52	4.67	3.36	0.00	4.70		8.71	8.71	1.81	(0.09)	0.37	153.91	1.99	7.00	4.67
12/7/1999	1999	2000	12	3.30		(0.36)	0.53	4.95	3.46	0.00	4.50		8.79	8.79	1.70	(0.17)	0.33	137.48	1.77	7.26	4.95
12/8/1999	1999	2000	12	4.20		(0.02)	0.49	4.88	4.03	0.00	3.90		8.16	8.16	1.92	(0.01)	0.41	172.10	2.28	6.24	4.88
12/9/1999	1999	2000	12	4.00		(0.09)	0.53	5.36	4.34	0.00	4.10		8.79	8.79	1.88	(0.04)	0.40	165.12	2.16	6.96	5.36
12/10/1999	1999	2000	12	4.00		(0.09)	0.53	4.73	3.92	0.00	4.20		8.30	8.30	1.88	(0.04)	0.40	165.12	2.16	6.46	4.73
12/11/1999	1999	2000	12	4.20		(0.02)	0.53	4.73	3.92	0.00	4.00		8.12	8.12	1.92	(0.01)	0.41	172.10	2.28	6.20	4.73
12/12/1999	1999	2000	12	3.70		(0.20)	0.53	4.73	3.92	0.00	3.80		7.93	7.93	1.81	(0.09)	0.37	153.91	1.99	6.22	4.73
12/13/1999	1999	2000	12	3.80		(0.16)	0.50	4.86	4.09	0.00	4.60		8.80	8.80	1.83	(0.07)	0.38	157.75	2.04	7.04	4.86
12/14/1999	1999	2000	12	3.90		(0.12)	0.52	4.81	4.16	0.00	11.00		14.70	14.70	1.86	(0.06)	0.39	161.49	2.10	12.90	4.81
12/15/1999	1999	2000	12	4.30		0.00	0.58	5.26	4.46	0.00	6.20		10.66	10.66	1.95	0.00	0.42	174.81	2.35	8.71	5.26
12/16/1999	1999	2000	12	4.80		0.00	0.51	4.39	3.83	0.00	5.50		9.20	9.20	2.05	0.00	0.44	184.03	2.75	7.15	4.39
12/17/1999	1999	2000	12	4.00		(0.09)	0.54	4.87	4.60	0.00	4.70		8.90	8.90	1.88	(0.04)	0.40	165.12	2.16	7.06	4.87
12/18/1999	1999	2000	12	5.20		0.00	0.54	4.87	4.60	0.00	5.60		9.74	9.74	2.12	0.00	0.46	190.74	3.08	7.62	4.87
12/19/1999	1999	2000	12	4.10		(0.05)	0.54	4.87	4.60	0.00	5.80		9.93	9.93	1.90	(0.02)	0.41	168.66	2.22	8.05	4.87
12/20/1999	1999	2000	12	4.60		0.00	0.54	4.82	4.61	0.00	4.90		9.04	9.04	2.01	0.00	0.43	180.46	2.59	7.03	4.82
12/21/1999	1999	2000	12	5.60		0.00	0.53	4.65	4.61	0.00	5.70		9.62	9.62	2.19	0.00	0.47	196.95	3.41	7.43	4.65
12/22/1999	1999	2000	12	4.50		0.00	0.55	3.34	4.65	0.00	6.80		9.43	9.43	1.99	0.00	0.43	178.62	2.51	7.44	3.34
12/23/1999	1999	2000	12	4.00		(0.09)	0.56	3.41	4.74	0.00	5.90		8.66	8.66	1.88	(0.04)	0.40	165.12	2.16	6.82	3.41
12/24/1999	1999	2000	12	4.60		0.00	0.56	3.41	4.74	0.00	5.90		8.66	8.66	2.01	0.00	0.43	180.46	2.59	6.65	3.41
12/25/1999	1999	2000	12	4.20		(0.02)	0.56	3.41	4.74	0.00	6.40		9.13	9.13	1.92	(0.01)	0.41	172.10	2.28	7.21	3.41
12/26/1999	1999	2000	12	4.30		0.00	0.56	3.41	4.74	0.00	6.10		8.85	8.85	1.95	0.00	0.42	174.81	2.35	6.90	3.41
12/27/1999	1999	2000	12	4.40		0.00	0.52	3.28	4.54	0.00	5.80		8.44	8.44	1.97	0.00	0.43	176.74	2.43	6.48	3.28
12/28/1999	1999	2000	12	5.30		0.00	0.55	3.46	4.82	0.00	5.60		8.43	8.43	2.14	0.00	0.46	192.33	3.16	6.29	3.46
12/29/1999	1999	2000	12	4.80		0.00	0.51	3.29	4.54	0.00	5.60		8.27	8.27	2.05	0.00	0.44	184.03	2.75	6.22	3.29
12/30/1999	1999	2000	12	5.50		0.00	0.57	3.09	4.54	0.00	5.60		8.08	8.08	2.18	0.00	0.47	195.44	3.32	5.91	3.09
12/31/1999	1999	2000	12	7.30		0.00	0.57	3.09	4.54	0.00	9.10		11.34	11.34	2.44	0.00	0.53	219.16	4.86	8.90	3.09
1/1/2000	2000	2000	1	6.30		0.00	0.57	3.09	4.54	0.00	16.00		17.75	17.75	2.30	0.00	0.50	206.81	4.00	15.45	3.09
1/2/2000	2000	2000	1	4.90		0.00	0.57	3.09	4.54	0.00	15.00		16.82	16.82	2.07	0.00	0.45	185.76	2.83	14.76	3.09
1/3/2000	2000	2000	1	4.80		0.00	0.60	3.18	4.35	0.00	11.00		13.19	13.19	2.05	0.00	0.44	184.03	2.75	11.14	3.18
1/4/2000	2000	2000	1	4.50		0.00	0.59	3.23	4.36	0.00	9.80		12.12	12.12	1.99	0.00	0.43	178.62	2.51	10.13	3.23
1/5/2000	2000	2000	1	5.60		0.00	0.46	3.22	3.32	0.21	8.80		10.98	10.98	2.19	0.00	0.47	196.95	3.41	8.79	3.22
1/6/2000	2000	2000	1	4.40		0.00	0.47	3.20	3.78	3.54	7.40		6.57	6.57	1.97	0.00	0.43	176.74	2.43	4.60	3.20
1/7/2000	2000	2000	1	4.60		0.00	0.55	3.15	3.63	3.50	8.20		7.30	7.30	2.01	0.00	0.43	180.46	2.59	5.29	3.15
1/8/2000	2000	2000	1	4.90		0.00	0.55	3.15	3.63	3.50	9.10		8.14	8.14	2.07	0.00	0.45	185.76	2.83	6.07	3.15
1/9/2000	2000	2000	1	5.10		0.00	0.55	3.15	3.63	3.50	9.30		8.33	8.33	2.11	0.00	0.46	189.11	2.99	6.22	3.15
1/10/2000	2000	2000	1	5.40		0.00	0.54	2.87	1.84	1.69	8.70		9.18	9.18	2.16	0.00	0.47	193.90	3.24	7.02	2.87
1/11/2000	2000	2000	1	5.40		0.00	0.55	2.89	1.62	1.54	8.90		9.53	9.53	2.16	0.00	0.47	193.90	3.24	7.37	2.89
1/12/2000	2000	2000	1	5.30		0.00	0.57	2.80	3.11	2.86	9.20		8.51	8.51	2.14	0.00	0.46	192.33	3.16	6.36	2.80
1/13/2000	2000	2000	1	4.90		0.00	0.54	2.49	3.08	0.41	11.00		12.17	12.17	2.07	0.00	0.45	185.76	2.83	10.10	2.49
1/14/2000	2000	2000	1	4.90		0.00	0.58	3.12	3.16	0.00	9.90		12.11	12.11	2.07	0.00	0.45	185.76	2.83	10.04	3.12
1/15/2000	2000	2000	1	4.60		0.00	0.58	3.12	3.16	0.00	9.80		12.02	12.02	2.01	0.00	0.43	180.46	2.59	10.01	3.12
1/16/2000	2000	2000	1	4.90		0.00	0.58	3.12	3.16	0.00	10.00		12.21	12.21	2.07	0.00	0.45	185.76	2.83	10.14	3.12
1/17/2000	2000	2000	1	5.30		0.00	0.53	3.12	3.14	0.00	11.00		13.14	13.14	2.14	0.00	0.46	192.33	3.16	10.99	3.12
1/18/2000	2000	2000	1	5.40		0.00	0.58	3.12	3.14	0.00	11.00		13.14	13.14	2.16	0.00	0.47	193.90	3.24	10.98	3.12
1/19/2000	2000	2000	1	5.60		0.00	0.56	3.12	1.33	0.00	12.00		14.07	14.07	2.19	0.00	0.47	196.95	3.41	11.87	3.12
1/20/2000	2000	2000	1	5.90		0.00	0.57	3.47	0.00	0.00	11.00		13.46	13.46	2.24	0.00	0.48	201.32	3.66	11.22	3.47
1/21/2000	2000	2000	1	6.10		0.00	0.58	4.24	0.34	0.00	11.00		14.17	14.17	2.27	0.00	0.49	204.11	3.83	11.90	4.24
1/22/2000	2000	2000	1	6.00		0.00	0.58	4.24	0.34	0.00	11.00		14.17	14.17	2.26	0.00	0.49	202.73	3.74	11.91	4.24
1/23/2000	2000	2000	1	6.30		0.00	0.58	4.24	0.34	0.00	11.00		14.17	14.17	2.30	0.00	0.50	206.81	4.00	11.87	4.24
1/24/2000	2000	2000	1	6.10		0.00	0.55	4.51	3.75	0.00	12.00		15.35	15.35	2.27	0.00	0.49	204.11	3.83	13.08	4.51
1/25/2000	2000	2000	1	36.00		0.00	0.60	3.72	2.98	0.00	120.00		115.06		0.00	0.00	0.00	0.00	36.00	115.06	3.72
1/26/2000	2000	2000	1	17.00		0.00	0.55	4.30	4.08	0.00	112.00		108.16		0.00	0.00	0.00	0.00	17.00	108.16	4.30
1/27/2000	2000	2000	1	6.00		0.00	0.58	4.00	3.78	0.00	10.00		13.02	13.02	2.26	0.00	0.49	202.73	3.74	10.76	4.00
1/28/2000	2000	2000	1	5.60		0.00	0.55	4.16	4.15	0.00	7.60		10.94	10.94	2.19	0.00	0.47	196.95	3.41	8.74	4.16
1/29/2000	2000	2000	1	5.30		0.00	0.55	4.16	4.15	0.00	6.90		10.29	10.29	2.14	0.00	0.46	192.33	3.16	8.15	4.16
1/30/2000	2000	2000	1	5.00		0.00	0.55	4.16	4.15	0.00	7.10		10.47	10.47	2.09	0.00	0.45	187.45	2.91	8.39	4.16
1/31/2000	2000	2000	1	13.00		0.00	0.54	4.18	4.18	0.00	51.00		51.31		0.00	0.00	0.00	0.00	13.00	51.31	4.18
2/1/2000	2000	2000	2	4.40		0.00	0.56	4.29	4.14	0.00	14.00		17.01	17.01	1.97	0.00	0.43	176.74	2.43	15.04	4.29
2/2/2000	2000	2000	2	4.50		0.00	0.55	4.23	4.19	0.00	9.00		12.31	12.31	1.99	0.00	0.43	178.62	2.51	10.32	4.23
2/3/2000	2000	2000	2	4.40		0.00	0.57	4.16	3.32	0.00	9.30		12.51	12.51	1.97	0.00	0.43	176.74	2.43	10.55	4.16
2/4/2000	2000	2000	2	4.40		0.00	0.57	4.23	3.34	0.00	8.20		11.56	11.56	1.97	0.00	0.43	176.74	2.43	9.59	4.23
2/5/2000	2000	2000	2	4.40		0.00	0.57	4.23	3.34	0.00	9.50		12.77	12.77	1.97	0.00	0.43	176.74	2.43	10.80	4.23

Existing Condition | **With Project Diversion**

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	San Joaquin Marsh Operations: SJ Marsh Inflow (from SDC) (cfs)	San Joaquin Marsh Operations: SJ Marsh Outflow (#002A) (cfs)	San Joaquin Marsh Operations: SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversic	Project - PCW Bc	Project - Diversic	Project - Diversic	Project - PCW Bc	Project - SDC Ca	Project - SJM In
2/6/2000	2000	2000	2	4.70		0.00	0.57	4.23	3.34	0.00	8.30		11.65	11.65	2.03	0.00	0.44	182.26	2.67	9.62	4.23
2/7/2000	2000	2000	2	4.80		0.00	0.56	4.32	1.68	0.00	8.80		12.20	12.20	2.05	0.00	0.44	184.03	2.75	10.15	4.32
2/8/2000	2000	2000	2	4.90		0.00	0.55	4.22	4.13	1.80	8.80		10.44	10.44	2.07	0.00	0.45	185.76	2.83	8.37	4.22
2/9/2000	2000	2000	2	5.30		0.00	0.56	3.85	4.65	3.31	14.00		13.52	13.52	2.14	0.00	0.46	192.33	3.16	11.38	3.85
2/10/2000	2000	2000	2	19.00		0.00	0.60	3.38	4.59	3.11	108.00		100.69		0.00	0.00	0.00	0.00	19.00	100.69	3.38
2/11/2000	2000	2000	2	12.00		0.00	0.55	2.92	4.40	3.98	80.00		73.41		0.00	0.00	0.00	0.00	12.00	73.41	2.92
2/12/2000	2000	2000	2	61.00		0.00	0.55	2.92	4.40	3.98	420.00	E	389.61		0.00	0.00	0.00	0.00	61.00	389.61	2.92
2/13/2000	2000	2000	2	9.40		0.00	0.55	2.92	4.40	3.98	15.00	E	12.96	12.96	2.60	0.00	0.56	233.51	6.80	10.36	2.92
2/14/2000	2000	2000	2	8.10		0.00	0.55	3.04	4.90	2.98	14.00	E	13.07	13.07	2.54	0.00	0.55	227.87	5.56	10.53	3.04
2/15/2000	2000	2000	2	6.90		0.00	0.56	3.04	4.58	3.12	16.00		14.81	14.81	2.39	0.00	0.52	214.44	4.51	12.42	3.04
2/16/2000	2000	2000	2	22.00		0.00	0.45	1.61	5.07	3.44	64.00	E	57.82		0.00	0.00	0.00	0.00	22.00	57.82	1.61
2/17/2000	2000	2000	2	9.20		0.00	0.67	4.32	4.49	3.86	29.00		27.40		0.00	0.00	0.00	0.00	9.20	27.40	4.32
2/18/2000	2000	2000	2	6.90		0.00	0.54	3.60	4.57	1.94	14.00		14.56	14.56	2.39	0.00	0.52	214.44	4.51	12.17	3.60
2/19/2000	2000	2000	2	6.00		0.00	0.54	3.60	4.57	1.94	12.00		12.70	12.70	2.26	0.00	0.49	202.73	3.74	10.44	3.60
2/20/2000	2000	2000	2	55.00		0.00	0.54	3.60	4.57	1.94	285.00		266.59		0.00	0.00	0.00	0.00	55.00	266.59	3.60
2/21/2000	2000	2000	2	341.00		0.00	0.54	3.60	4.57	1.94	903.00	E	841.33		0.00	0.00	0.00	0.00	341.00	841.33	3.60
2/22/2000	2000	2000	2	16.00		0.00	0.54	4.25	4.66	1.94	52.00	E	50.51		0.00	0.00	0.00	0.00	16.00	50.51	4.25
2/23/2000	2000	2000	2	210.00		0.00	0.56	0.89	4.56	1.94	525.00		487.27		0.00	0.00	0.00	0.00	210.00	487.27	0.89
2/24/2000	2000	2000	2	14.00		0.00	0.57	4.52	4.85	3.46	55.00		52.13		0.00	0.00	0.00	0.00	14.00	52.13	4.52
2/25/2000	2000	2000	2	7.80		0.00	0.55	4.32	4.98	3.63	20.00		19.24		0.00	0.00	0.00	0.00	7.80	19.24	4.32
2/26/2000	2000	2000	2	7.20		0.00	0.55	4.32	4.98	3.63	15.00		14.59	14.59	2.43	0.00	0.52	218.00	4.77	12.16	4.32
2/27/2000	2000	2000	2	19.00		0.00	0.55	4.32	4.98	3.63	36.00		34.12		0.00	0.00	0.00	0.00	19.00	34.12	4.32
2/28/2000	2000	2000	2	14.00		0.00	0.54	4.42	5.22	3.02	33.00		31.99		0.00	0.00	0.00	0.00	14.00	31.99	4.42
2/29/2000	2000	2000	2	6.80		0.00	0.56	4.40	5.17	2.58	14.00		14.71	14.71	2.37	0.00	0.51	213.21	4.43	12.34	4.40
3/1/2000	2000	2000	3	6.40		0.00	0.54	4.27	5.06	2.35	12.00		12.95	12.95	2.32	0.00	0.50	208.13	4.08	10.63	4.27
3/2/2000	2000	2000	3	6.60		0.00	0.59	4.36	4.92	2.69	11.00		11.78	11.78	2.35	0.00	0.51	210.71	4.25	9.44	4.36
3/3/2000	2000	2000	3	44.00		0.00	0.54	2.41	5.12	2.49	87.00		80.84		0.00	0.00	0.00	0.00	44.00	80.84	2.41
3/4/2000	2000	2000	3	31.00		0.00	0.54	0.00	5.12	2.49	105.00		95.33		0.00	0.00	0.00	0.00	31.00	95.33	0.00
3/5/2000	2000	2000	3	294.00		0.00	0.54	0.00	5.12	2.49	774.00		717.50		0.00	0.00	0.00	0.00	294.00	717.50	0.00
3/6/2000	2000	2000	3	18.00		0.00	0.56	4.60	5.46	2.67	51.00		49.22		0.00	0.00	0.00	0.00	18.00	49.22	4.60
3/7/2000	2000	2000	3	11.00		0.00	0.57	0.09	4.83	1.69	16.00		13.39	13.39	2.60	0.00	0.56	233.51	8.40	10.79	0.09
3/8/2000	2000	2000	3	211.00		0.00	0.51	4.04	5.43	3.30	530.00		493.59		0.00	0.00	0.00	0.00	211.00	493.59	4.04
3/9/2000	2000	2000	3	13.00		0.00	0.36	0.00	4.56	2.46	32.00		27.47		0.00	0.00	0.00	0.00	13.00	27.47	0.00
3/10/2000	2000	2000	3	10.00		0.00	0.58	0.00	4.75	2.74	16.00		12.33	12.33	2.60	0.00	0.56	233.51	7.40	9.73	0.00
3/11/2000	2000	2000	3	9.50		0.00	0.58	2.97	4.75	2.74	12.00		11.38	11.38	2.60	0.00	0.56	233.51	6.90	8.78	2.97
3/12/2000	2000	2000	3	8.60		0.00	0.58	2.97	4.75	2.74	11.00		10.45	10.45	2.59	0.00	0.56	232.89	6.01	7.85	2.97
3/13/2000	2000	2000	3	8.10		0.00	0.57	4.67	4.93	2.74	9.20		10.36	10.36	2.54	0.00	0.55	227.87	5.56	7.82	4.67
3/14/2000	2000	2000	3	8.30		0.00	0.57	4.58	4.78	2.78	9.30		10.33	10.33	2.56	0.00	0.55	229.92	5.74	7.77	4.58
3/15/2000	2000	2000	3	8.20		0.00	0.57	4.34	4.60	2.61	9.40		10.35	10.35	2.55	0.00	0.55	228.90	5.65	7.80	4.34
3/16/2000	2000	2000	3	7.90		0.00	0.58	4.08	4.43	2.32	9.30		10.29	10.29	2.51	0.00	0.54	225.78	5.39	7.77	4.08
3/17/2000	2000	2000	3	8.70		0.00	0.60	4.44	4.77	2.41	10.00		11.19	11.19	2.60	0.00	0.56	233.51	6.10	8.59	4.44
3/18/2000	2000	2000	3	7.10		0.00	0.60	4.44	4.77	2.41	9.70		10.91	10.91	2.41	0.00	0.52	216.83	4.69	8.49	4.44
3/19/2000	2000	2000	3	9.50		0.00	0.60	4.44	4.77	2.41	10.00		11.19	11.19	2.60	0.00	0.56	233.51	6.90	8.59	4.44
3/20/2000	2000	2000	3	8.90		0.00	0.57	4.52	5.25	2.69	11.00		11.94	11.94	2.60	0.00	0.56	233.51	6.30	9.34	4.52
3/21/2000	2000	2000	3	8.00		0.00	0.56	4.05	5.18	2.05	10.00		11.16	11.16	2.53	0.00	0.55	226.83	5.47	8.63	4.05
3/22/2000	2000	2000	3	8.70		0.00	0.58	0.00	6.02	2.88	15.00		11.27	11.27	2.60	0.00	0.56	233.51	6.10	8.67	0.00
3/23/2000	2000	2000	3	8.10		0.00	0.58	0.00	5.67	3.16	20.00		15.66	15.66	2.54	0.00	0.55	227.87	5.56	13.13	0.00
3/24/2000	2000	2000	3	7.90		0.00	0.57	0.00	6.12	3.89	16.00		11.26	11.26	2.51	0.00	0.54	225.78	5.39	8.75	0.00
3/25/2000	2000	2000	3	8.30		0.00	0.57	0.00	6.12	3.89	19.00		14.05	14.05	2.56	0.00	0.55	229.92	5.74	11.49	0.00
3/26/2000	2000	2000	3	8.50		0.00	0.57	0.00	6.12	3.89	18.00		13.12	13.12	2.58	0.00	0.56	231.91	5.92	10.54	0.00
3/27/2000	2000	2000	3	8.00		0.00	0.56	0.00	6.63	4.34	18.00		12.70	12.70	2.53	0.00	0.55	226.83	5.47	10.18	0.00
3/28/2000	2000	2000	3	7.80		0.00	0.57	0.00	5.79	3.88	14.00		9.41	9.41	2.50	0.00	0.54	224.71	5.30	6.91	0.00
3/29/2000	2000	2000	3	7.80		0.00	0.61	0.15	6.56	4.07	15.00		10.30	10.30	2.50	0.00	0.54	224.71	5.30	7.80	0.15
3/30/2000	2000	2000	3	7.30		0.00	0.62	4.18	5.68	3.91	12.00		11.42	11.42	2.44	0.00	0.53	219.16	4.86	8.98	4.18
3/31/2000	2000	2000	3	7.70		0.00	0.60	4.49	3.79	2.42	11.00		12.15	12.15	2.49	0.00	0.54	223.63	5.21	9.66	4.49
4/1/2000	2000	2000	4	7.40		0.00	0.60	4.49	3.79	2.42	10.00		11.22	11.22	2.45	0.00	0.53	220.30	4.95	8.77	4.49
4/2/2000	2000	2000	4	7.50		0.00	0.60	4.49	3.79	2.42	9.80		11.04	11.04	2.47	0.00	0.53	221.42	5.03	8.57	4.49
4/3/2000	2000	2000	4	7.70		0.00	0.63	4.79	0.00	0.00	8.90		12.73	12.73	2.49	0.00	0.54	223.63	5.21	10.24	4.79
4/4/2000	2000	2000	4	8.00		0.00	0.58	4.19	0.00	0.00	9.70		12.92	12.92	2.53	0.00	0.55	226.83	5.47	10.39	4.19
4/5/2000	2000	2000	4	9.10		0.00	0.59	4.99	7.04	4.01	11.00		11.13	11.13	2.60	0.00	0.56	233.51	6.50	8.53	4.99
4/6/2000	2000	2000	4	9.50		0.00	0.62	3.88	5.69	3.96	14.00		12.95	12.95	2.60	0.00	0.56	233.51	6.90	10.35	3.88
4/7/2000	2000	2000	4	8.30		0.00	0.59	4.44	6.41	3.57	13.00		12.91	12.91	2.56	0.00	0.55	229.92	5.74	10.35	4.44
4/8/2000	2000	2000	4	8.20		0.00	0.59	4.44	6.41	3.57	12.00		11.98	11.98	2.55	0.00	0.55	228.90	5.65	9.43	4.44
4/9/2000	2000	2000	4	7.40		0.00	0.59	4.44	6.41	3.57	11.00		11.05	11.05	2.45	0.00	0.53	220.30	4.95	8.59	4.44
4/10/2000	2000	2000	4	7.10		0.00	0.59	4.60	6.51	4.20	12.00		11.53	11.53	2.41	0.00	0.52	216.83	4.69	9.12	4.60
4/11/2000	2000	2000	4	7.20		0.00	0.59	4.80	6.83	4.09	13.00		12.75	12.75	2.43	0.00	0.52	218.00	4.77	10.32	4.80
4/12/2000	2000	2000	4	7.30		0.00	0.60	3.84	5.40	3.74	14.00		13.12	13.12	2.44	0.00	0.53	219.16	4.86	10.68	3.84
4/13/2000	2000	2000	4	6.90		0.00	0.61	4.41	6.19	4.07	14.00		13.34	13.34	2.39	0.00	0.52	214.44	4.51	10.95	4.41
4/14/2000	2000	2000	4	7.10		0.00	0.60	4.41	6.19	4.07	12.00		11.48	11.48	2.41	0.00	0.52	216.83	4.69	9.06	4.41
4/15/2000	2000	2000	4	7.20		0.00	0.60	4.41	6.19	4.07	15.00		14.27	14.27	2.43	0.00	0.52	218.00	4.77	11.84	4.41
4/16/2000	2000	2000	4	5.30		0.00	0.60	4.41	6.19	4.07	11.00		10.55	10.55	2.14	0.00	0.46	192.33	3.16	8.41	4.41

Existing Condition | **With Project Diversion**

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	San Joaquin Marsh Operations: SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW Ba	Project - Diversi	Project - Diversi	Project - PCW Ba	Project - SDC Ca	Project - SJM In
4/17/2000	2000	2000	4	54.00		0.00	0.58	1.29	6.46	4.11	452.00		417.74		0.00	0.00	0.00	0.00	54.00	417.74	1.29
4/18/2000	2000	2000	4	30.00		0.00	0.58	0.00	5.80	3.79	317.00		291.29		0.00	0.00	0.00	0.00	30.00	291.29	0.00
4/19/2000	2000	2000	4	6.20		0.00	0.60	4.30	6.24	3.99	25.00		23.54		0.00	0.00	0.00	0.00	6.20	23.54	4.30
4/20/2000	2000	2000	4	6.50		0.00	0.61	4.34	6.47	4.16	12.00		11.32	11.32	2.33	0.00	0.50	209.43	4.17	8.99	4.34
4/21/2000	2000	2000	4	6.50		0.00	0.61	4.34	6.47	4.16	12.00		11.32	11.32	2.33	0.00	0.50	209.43	4.17	8.99	4.34
4/22/2000	2000	2000	4	5.50		0.00	0.61	4.34	6.47	4.16	12.00		11.32	11.32	2.18	0.00	0.47	195.44	3.32	9.15	4.34
4/23/2000	2000	2000	4	6.30		0.00	0.61	4.34	6.47	4.16	11.00		10.39	10.39	2.30	0.00	0.50	206.81	4.00	8.09	4.34
4/24/2000	2000	2000	4	6.50		0.00	0.59	4.38	6.31	4.17	11.00		10.43	10.43	2.33	0.00	0.50	209.43	4.17	8.10	4.38
4/25/2000	2000	2000	4	5.90		0.00	0.58	3.95	5.78	3.96	12.00		11.16	11.16	2.24	0.00	0.48	201.32	3.66	8.92	3.95
4/26/2000	2000	2000	4	5.40		0.00	0.59	4.31	6.49	4.11	11.00		10.42	10.42	2.16	0.00	0.47	193.90	3.24	8.26	4.31
4/27/2000	2000	2000	4	5.50		0.00	0.62	1.30	6.44	4.20	13.00		9.39	9.39	2.18	0.00	0.47	195.44	3.32	7.22	1.30
4/28/2000	2000	2000	4	5.80		0.00	0.60	0.00	4.89	0.15	17.00		15.67	15.67	2.23	0.00	0.48	199.89	3.57	13.44	0.00
4/29/2000	2000	2000	4	6.10		0.00	0.60	0.00	4.89	0.00	14.00		13.02	13.02	2.27	0.00	0.49	204.11	3.83	10.75	0.00
4/30/2000	2000	2000	4	6.30		0.00	0.60	0.00	4.89	0.00	13.00		12.09	12.09	2.30	0.00	0.50	206.81	4.00	9.79	0.00
5/1/2000	2000	2000	5	6.70		0.00	0.57	0.00	4.47	0.00	15.00		13.95	13.95	2.36	0.00	0.51	211.97	4.34	11.59	0.00
5/2/2000	2000	2000	5	7.10		0.00	0.57	0.00	4.69	0.00	14.00		13.02	13.02	2.41	0.00	0.52	216.83	4.69	10.61	0.00
5/3/2000	2000	2000	5	7.40		0.00	0.59	0.00	5.11	0.00	15.00		13.95	13.95	2.45	0.00	0.53	220.30	4.95	11.50	0.00
5/4/2000	2000	2000	5	7.90		0.00	0.60	0.00	4.78	0.00	16.00		14.88	14.88	2.51	0.00	0.54	225.78	5.39	12.37	0.00
5/5/2000	2000	2000	5	8.40		0.00	0.61	0.00	5.03	0.00	18.00		16.74	16.74	2.57	0.00	0.56	230.92	5.83	14.17	0.00
5/6/2000	2000	2000	5	7.80		0.00	0.61	0.00	5.03	0.00	19.00		17.67	17.67	2.50	0.00	0.54	224.71	5.30	15.17	0.00
5/7/2000	2000	2000	5	7.80		0.00	0.61	0.00	5.03	0.00	18.00		16.74	16.74	2.50	0.00	0.54	224.71	5.30	14.24	0.00
5/8/2000	2000	2000	5	8.40		0.00	0.55	0.31	5.82	3.54	22.00		17.46	17.46	2.57	0.00	0.56	230.92	5.83	14.88	0.31
5/9/2000	2000	2000	5	7.90		0.00	0.61	1.42	6.20	3.78	19.00		15.47	15.47	2.51	0.00	0.54	225.78	5.39	12.96	1.42
5/10/2000	2000	2000	5	7.60		0.00	0.59	4.76	5.50	2.05	16.00		17.40	17.40	2.48	0.00	0.54	222.53	5.12	14.92	4.76
5/11/2000	2000	2000	5	7.50		0.00	0.63	4.33	3.68	1.08	13.00		15.11	15.11	2.47	0.00	0.53	221.42	5.03	12.65	4.33
5/12/2000	2000	2000	5	7.70		0.00	0.60	5.12	1.27	0.42	12.00		15.53	15.53	2.49	0.00	0.54	223.63	5.21	13.04	5.12
5/13/2000	2000	2000	5	7.90		0.00	0.60	5.12	1.27	0.42	11.00		14.60	14.60	2.51	0.00	0.54	225.78	5.39	12.09	5.12
5/14/2000	2000	2000	5	8.40		0.00	0.60	5.12	1.27	0.42	11.00		14.60	14.60	2.57	0.00	0.56	230.92	5.83	12.03	5.12
5/15/2000	2000	2000	5	8.40		0.00	0.60	4.30	0.00	0.00	11.00		14.23	14.23	2.57	0.00	0.56	230.92	5.83	11.66	4.30
5/16/2000	2000	2000	5	11.00		0.00	0.60	5.30	0.00	0.00	18.00		21.66		0.00	0.00	0.00	0.00	11.00	21.66	5.30
5/17/2000	2000	2000	5	7.70		0.00	0.61	4.61	3.80	1.25	12.00		14.29	14.29	2.49	0.00	0.54	223.63	5.21	11.80	4.61
5/18/2000	2000	2000	5	8.50		0.00	0.56	4.81	6.29	3.54	11.00		11.41	11.41	2.58	0.00	0.56	231.91	5.92	8.83	4.81
5/19/2000	2000	2000	5	8.20		0.00	0.59	5.09	6.84	3.85	12.00		12.32	12.32	2.55	0.00	0.55	228.90	5.65	9.77	5.09
5/20/2000	2000	2000	5	7.50		0.00	0.59	5.09	6.84	3.85	13.00		13.25	13.25	2.47	0.00	0.53	221.42	5.03	10.78	5.09
5/21/2000	2000	2000	5	8.00		0.00	0.59	5.09	6.84	3.85	13.00		13.25	13.25	2.53	0.00	0.55	226.83	5.47	10.72	5.09
5/22/2000	2000	2000	5	8.90		0.00	0.57	4.91	6.91	4.15	14.00		13.73	13.73	2.60	0.00	0.56	233.51	6.30	11.13	4.91
5/23/2000	2000	2000	5	8.70		0.00	0.59	4.71	6.53	3.85	14.00		13.81	13.81	2.60	0.00	0.56	233.51	6.10	11.21	4.71
5/24/2000	2000	2000	5	8.80		0.00	0.59	4.96	6.74	3.38	14.00		14.49	14.49	2.60	0.00	0.56	233.51	6.20	11.89	4.96
5/25/2000	2000	2000	5	9.00		0.00	0.58	3.26	4.59	3.21	15.00		13.99	13.99	2.60	0.00	0.56	233.51	6.40	11.39	3.26
5/26/2000	2000	2000	5	9.00		0.00	0.58	5.10	5.92	3.64	15.00		15.30	15.30	2.60	0.00	0.56	233.51	6.40	12.70	5.10
5/27/2000	2000	2000	5	9.00		0.00	0.58	5.10	5.92	3.64	15.00		15.30	15.30	2.60	0.00	0.56	233.51	6.40	12.70	5.10
5/28/2000	2000	2000	5	8.00		0.00	0.58	5.10	5.92	3.64	15.00		15.30	15.30	2.53	0.00	0.55	226.83	5.47	12.78	5.10
5/29/2000	2000	2000	5	7.50		0.00	0.58	5.85	8.17	5.22	14.00		13.60	13.60	2.47	0.00	0.53	221.42	5.03	11.14	5.85
5/30/2000	2000	2000	5	7.50		0.00	0.54	4.35	6.45	4.33	14.00		13.04	13.04	2.47	0.00	0.53	221.42	5.03	10.58	4.35
5/31/2000	2000	2000	5	7.50		0.00	1.70	4.92	6.70	4.42	15.00		14.41	14.41	2.47	0.00	0.53	221.42	5.03	11.94	4.92
6/1/2000	2000	2000	6	7.50		0.00	0.58	5.24	6.98	4.45	13.00		12.82	12.82	2.47	0.00	0.53	221.42	5.03	10.36	5.24
6/2/2000	2000	2000	6	7.50		0.00	0.55	5.03	6.67	4.32	13.00		12.75	12.75	2.47	0.00	0.53	221.42	5.03	10.28	5.03
6/3/2000	2000	2000	6	6.90		0.00	0.55	5.03	6.67	4.32	12.00		11.82	11.82	2.39	0.00	0.52	214.44	4.51	9.43	5.03
6/4/2000	2000	2000	6	7.10		0.00	0.55	5.03	6.67	4.32	13.00		12.75	12.75	2.41	0.00	0.52	216.83	4.69	10.33	5.03
6/5/2000	2000	2000	6	7.00		0.00	0.52	4.81	6.32	4.21	13.00		12.64	12.64	2.40	0.00	0.52	215.64	4.60	10.24	4.81
6/6/2000	2000	2000	6	6.80		0.00	0.55	4.88	6.22	3.97	13.00		12.93	12.93	2.37	0.00	0.51	213.21	4.43	10.56	4.88
6/7/2000	2000	2000	6	6.70		0.00	0.53	5.07	6.49	4.21	12.00		11.96	11.96	2.36	0.00	0.51	211.97	4.34	9.60	5.07
6/8/2000	2000	2000	6	6.70		0.00	0.55	3.87	4.77	3.45	12.00		11.55	11.55	2.36	0.00	0.51	211.97	4.34	9.19	3.87
6/9/2000	2000	2000	6	6.70		0.00	0.51	5.30	6.95	4.62	11.00		10.87	10.87	2.36	0.00	0.51	211.97	4.34	8.51	5.30
6/10/2000	2000	2000	6	6.70		0.00	0.51	5.30	6.95	4.62	11.00		10.87	10.87	2.36	0.00	0.51	211.97	4.34	8.51	5.30
6/11/2000	2000	2000	6	6.60		0.00	0.51	5.30	6.95	4.62	11.00		10.87	10.87	2.35	0.00	0.51	210.71	4.25	8.52	5.30
6/12/2000	2000	2000	6	6.40		0.00	0.51	4.64	6.38	4.69	11.00		10.18	10.18	2.32	0.00	0.50	208.13	4.08	7.87	4.64
6/13/2000	2000	2000	6	6.40		0.00	0.50	4.61	6.29	4.61	11.00		10.22	10.22	2.32	0.00	0.50	208.13	4.08	7.91	4.61
6/14/2000	2000	2000	6	6.20		0.00	0.42	5.12	7.12	5.97	9.50		8.04	8.04	2.29	0.00	0.49	205.47	3.91	5.75	5.12
6/15/2000	2000	2000	6	6.20		0.00	0.49	5.21	6.60	4.48	9.50		9.52	9.52	2.29	0.00	0.49	205.47	3.91	7.23	5.21
6/16/2000	2000	2000	6	5.90		0.00	0.49	5.03	7.29	5.96	9.90		8.34	8.34	2.24	0.00	0.48	201.32	3.66	6.10	5.03
6/17/2000	2000	2000	6	5.90		0.00	0.49	5.03	7.29	5.96	9.80		8.25	8.25	2.24	0.00	0.48	201.32	3.66	6.01	5.03
6/18/2000	2000	2000	6	5.60		0.00	0.49	5.03	7.29	5.96	11.00		9.37	9.37	2.19	0.00	0.47	196.95	3.41	7.17	5.03
6/19/2000	2000	2000	6	5.40		0.00	0.44	4.24	7.96	7.87	12.00		7.79	7.79	2.16	0.00	0.47	193.90	3.24	5.63	4.24
6/20/2000	2000	2000	6	5.60		0.00	0.57	5.43	10.02	10.11	13.00		7.74	7.74	2.19	0.00	0.47	196.95	3.41	5.55	5.43
6/21/2000	2000	2000	6	5.60		0.00	0.46	4.64	8.41	7.95	14.00		9.94	9.94	2.19	0.00	0.47	196.95	3.41	7.75	4.64
6/22/2000	2000	2000	6	5.70		0.00	0.50	5.12	6.49	4.28	12.00		11.94	11.94	2.21	0.00	0.48	198.43	3.49	9.73	5.12
6/23/2000	2000	2000	6	5.90		0.00	0.49	4.93	6.15	3.94	9.90		10.13	10.13	2.24	0.00	0.48	201.32	3.66	7.89	4.93
6/24/2000	2000	2000	6	5.80		0.00	0.49	4.93	6.15	3.94	10.00		10.22	10.22	2.23	0.00	0.48	199.89	3.57	8.00	4.93
6/25/2000	2000	2000	6	5.40		0.00	0.49	4.93	6.15	3.94	10.00		10.22	10.22	2.16	0.00	0.47	193.90	3.24	8.06	4.93
6/26/2000	2000	2000	6	5.10		0.00	0.47	4.84	5.91	3.52	9.70		10.25	10.25	2.11	0.00	0.46	189.11	2.99	8.14	4.84

Existing Condition | **With Project Diversion**

San Joaquin Marsh Operations

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
6/27/2000	2000	2000	6	4.80		0.00	0.30	3.48	0.66	0.26	10.00		12.29	12.29	2.05	0.00	0.44	184.03	2.75	10.24	3.48
6/28/2000	2000	2000	6	4.60		0.00	0.47	5.12	9.27	9.00	10.00		5.69	5.69	2.01	0.00	0.43	180.46	2.59	3.68	3.68
6/29/2000	2000	2000	6	4.50		0.00	0.44	4.93	6.79	4.15	12.00		11.88	11.88	1.99	0.00	0.43	178.62	2.51	9.89	4.93
6/30/2000	2000	2000	6	4.60		0.00	0.40	4.92	6.80	4.25	11.00		10.86	10.86	2.01	0.00	0.43	180.46	2.59	8.85	4.92
7/1/2000	2000	2000	7	4.40		0.00	0.42	4.92	6.80	4.25	10.00		9.93	9.93	1.97	0.00	0.43	176.74	2.43	7.96	4.92
7/2/2000	2000	2000	7	4.40		0.00	0.42	4.92	6.80	4.25	10.00		9.93	9.93	1.97	0.00	0.43	176.74	2.43	7.96	4.92
7/3/2000	2000	2000	7	4.30		0.00	0.42	4.92	6.80	4.25	9.80		9.74	9.74	1.95	0.00	0.42	174.81	2.35	7.79	4.92
7/4/2000	2000	2000	7	4.20		(0.02)	0.42	4.92	6.80	4.25	9.50		9.46	9.46	1.92	(0.01)	0.41	172.10	2.28	7.54	4.92
7/5/2000	2000	2000	7	4.30		0.00	0.42	4.43	7.92	7.85	9.20		5.37	5.37	1.95	0.00	0.42	174.81	2.35	3.43	3.43
7/6/2000	2000	2000	7	4.50		0.00	0.43	4.08	7.19	6.83	9.20		6.00	6.00	1.99	0.00	0.43	178.62	2.51	4.01	4.01
7/7/2000	2000	2000	7	4.50		0.00	0.41	5.25	5.36	2.65	8.90		10.69	10.69	1.99	0.00	0.43	178.62	2.51	8.70	5.25
7/8/2000	2000	2000	7	4.20		(0.02)	0.41	5.25	5.36	2.65	8.90		10.69	10.69	1.92	(0.01)	0.41	172.10	2.28	8.78	5.25
7/9/2000	2000	2000	7	4.20		(0.02)	0.41	5.25	5.36	2.65	8.70		10.51	10.51	1.92	(0.01)	0.41	172.10	2.28	8.59	5.25
7/10/2000	2000	2000	7	4.30		0.00	0.38	4.86	5.20	3.09	8.70		9.73	9.73	1.95	0.00	0.42	174.81	2.35	7.79	4.86
7/11/2000	2000	2000	7	4.60		0.00	0.37	4.73	5.40	2.53	8.70		10.14	10.14	2.01	0.00	0.43	180.46	2.59	8.13	4.73
7/12/2000	2000	2000	7	4.40		0.00	0.38	4.45	5.32	4.98	9.40		8.24	8.24	1.97	0.00	0.43	176.74	2.43	6.28	4.45
7/13/2000	2000	2000	7	4.70		0.00	0.40	4.80	9.17	8.45	12.00		7.77	7.77	2.03	0.00	0.44	182.26	2.67	5.74	4.80
7/14/2000	2000	2000	7	4.40		0.00	0.38	4.79	6.62	4.63	11.00		10.38	10.38	1.97	0.00	0.43	176.74	2.43	8.41	4.79
7/15/2000	2000	2000	7	4.70		0.00	0.38	4.79	6.62	4.63	10.00		9.45	9.45	2.03	0.00	0.44	182.26	2.67	7.42	4.79
7/16/2000	2000	2000	7	4.40		0.00	0.38	4.79	6.62	4.63	9.90		9.35	9.35	1.97	0.00	0.43	176.74	2.43	7.39	4.79
7/17/2000	2000	2000	7	4.90		0.00	0.34	5.40	7.67	5.13	9.90		9.46	9.46	2.07	0.00	0.45	185.76	2.83	7.39	5.40
7/18/2000	2000	2000	7	4.00		(0.09)	0.34	4.78	6.72	4.71	12.00		11.23	11.23	1.88	(0.04)	0.40	165.12	2.16	9.39	4.78
7/19/2000	2000	2000	7	2.90		(0.55)	0.32	4.67	6.62	4.17	12.00		11.62	11.62	1.58	(0.25)	0.29	119.24	1.57	10.29	4.67
7/20/2000	2000	2000	7	2.90		(0.55)	0.36	4.14	5.62	4.09	11.00		10.27	10.27	1.58	(0.25)	0.29	119.24	1.57	8.95	4.14
7/21/2000	2000	2000	7	2.90		(0.55)	0.36	4.91	6.33	4.29	10.00		9.88	9.88	1.58	(0.25)	0.29	119.24	1.57	8.55	4.91
7/22/2000	2000	2000	7	2.90		(0.55)	0.36	4.91	6.33	4.29	9.40		9.32	9.32	1.58	(0.25)	0.29	119.24	1.57	7.99	4.91
7/23/2000	2000	2000	7	3.00		(0.50)	0.36	4.91	6.33	4.29	9.80		9.69	9.69	1.61	(0.23)	0.30	123.97	1.62	8.31	4.91
7/24/2000	2000	2000	7	3.30		(0.36)	0.35	4.45	5.79	4.04	9.50		9.21	9.21	1.70	(0.17)	0.33	137.48	1.77	7.68	4.45
7/25/2000	2000	2000	7	5.00		0.00	0.68	5.62	7.23	4.61	9.40		9.68	9.68	2.09	0.00	0.45	187.45	2.91	7.60	5.62
7/26/2000	2000	2000	7	5.50		0.00	0.37	4.99	6.59	3.67	9.40		9.97	9.97	2.18	0.00	0.47	195.44	3.32	7.80	4.99
7/27/2000	2000	2000	7	5.50		0.00	0.36	4.34	5.94	3.59	9.50		9.53	9.53	2.18	0.00	0.47	195.44	3.32	7.36	4.34
7/28/2000	2000	2000	7	4.90		0.00	0.36	4.64	6.45	4.00	9.70		9.62	9.62	2.07	0.00	0.45	185.76	2.83	7.55	4.64
7/29/2000	2000	2000	7	5.00		0.00	0.36	4.64	6.45	4.00	9.70		9.62	9.62	2.09	0.00	0.45	187.45	2.91	7.53	4.64
7/30/2000	2000	2000	7	5.20		0.00	0.36	4.64	6.45	4.00	10.00		9.90	9.90	2.12	0.00	0.46	190.74	3.08	7.77	4.64
7/31/2000	2000	2000	7	4.80		0.00	0.35	4.14	1.80	1.11	10.00		12.12	12.12	2.05	0.00	0.44	184.03	2.75	10.07	4.14
8/1/2000	2000	2000	8	4.50		0.00	0.31	3.77	3.83	0.78	11.00		13.01	13.01	1.99	0.00	0.43	178.62	2.51	11.02	3.77
8/2/2000	2000	2000	8	4.90		0.00	0.36	3.53	2.72	0.00	10.00		12.58	12.58	2.07	0.00	0.45	185.76	2.83	10.51	3.53
8/3/2000	2000	2000	8	4.60		0.00	0.37	4.03	4.12	0.00	7.90		11.09	11.09	2.01	0.00	0.43	180.46	2.59	9.08	4.03
8/4/2000	2000	2000	8	4.40		0.00	0.35	0.00	3.49	0.00	13.00		12.09	12.09	1.97	0.00	0.43	176.74	2.43	10.12	0.00
8/5/2000	2000	2000	8	4.60		0.00	0.35	0.00	3.49	0.00	12.00		11.16	11.16	2.01	0.00	0.43	180.46	2.59	9.15	0.00
8/6/2000	2000	2000	8	4.50		0.00	0.35	0.00	3.49	0.00	20.00		18.60	18.60	1.99	0.00	0.43	178.62	2.51	16.61	0.00
8/7/2000	2000	2000	8	4.50		0.00	0.33	0.00	4.14	0.00	13.00		12.09	12.09	1.99	0.00	0.43	178.62	2.51	10.10	0.00
8/8/2000	2000	2000	8	4.60		0.00	0.34	0.00	4.80	0.00	13.00		12.09	12.09	2.01	0.00	0.43	180.46	2.59	10.08	0.00
8/9/2000	2000	2000	8	4.50		0.00	0.34	0.00	4.42	0.00	13.00		12.09	12.09	1.99	0.00	0.43	178.62	2.51	10.10	0.00
8/10/2000	2000	2000	8	4.40		0.00	0.31	0.00	2.96	0.00	13.00		12.09	12.09	1.97	0.00	0.43	176.74	2.43	10.12	0.00
8/11/2000	2000	2000	8	4.20		(0.02)	0.31	0.00	3.54	0.00	13.00		12.09	12.09	1.92	(0.01)	0.41	172.10	2.28	10.17	0.00
8/12/2000	2000	2000	8	4.10		(0.05)	0.31	0.00	3.54	0.00	14.00		13.02	13.02	1.90	(0.02)	0.41	168.66	2.22	11.14	0.00
8/13/2000	2000	2000	8	4.20		(0.02)	0.31	0.00	3.54	0.00	14.00		13.02	13.02	1.92	(0.01)	0.41	172.10	2.28	11.10	0.00
8/14/2000	2000	2000	8	3.90		(0.12)	0.24	0.00	2.80	0.00	14.00		13.02	13.02	1.86	(0.06)	0.39	161.49	2.10	11.22	0.00
8/15/2000	2000	2000	8	3.10		(0.45)	0.23	0.00	4.23	0.00	14.00		13.02	13.02	1.64	(0.21)	0.31	128.59	1.67	11.59	0.00
8/16/2000	2000	2000	8	3.00		(0.50)	0.40	0.00	3.08	0.00	14.00		13.02	13.02	1.61	(0.23)	0.30	123.97	1.62	11.64	0.00
8/17/2000	2000	2000	8	3.00		(0.50)	0.32	0.00	2.88	0.00	14.00		13.02	13.02	1.61	(0.23)	0.30	123.97	1.62	11.64	0.00
8/18/2000	2000	2000	8	3.00		(0.50)	0.30	0.00	3.62	0.00	9.60		8.93	8.93	1.61	(0.23)	0.30	123.97	1.62	7.55	0.00
8/19/2000	2000	2000	8	2.90		(0.55)	0.30	0.00	3.62	0.00	11.00		10.23	10.23	1.58	(0.25)	0.29	119.24	1.57	8.90	0.00
8/20/2000	2000	2000	8	2.90		(0.55)	0.30	0.00	3.62	0.00	13.00		12.09	12.09	1.58	(0.25)	0.29	119.24	1.57	10.76	0.00
8/21/2000	2000	2000	8	2.90		(0.55)	0.28	4.60	4.41	2.03	12.00		13.55	13.55	1.58	(0.25)	0.29	119.24	1.57	12.22	4.60
8/22/2000	2000	2000	8	2.90		(0.55)	0.28	5.36	2.52	1.19	8.90		12.16	12.16	1.58	(0.25)	0.29	119.24	1.57	10.83	5.36
8/23/2000	2000	2000	8	2.80		(0.60)	0.28	4.51	2.20	1.57	7.10		9.34	9.34	1.55	(0.27)	0.28	114.39	1.53	8.07	4.51
8/24/2000	2000	2000	8	2.70		(0.65)	0.30	4.56	1.21	1.17	6.20		8.92	8.92	1.51	(0.29)	0.26	109.42	1.48	7.71	4.56
8/25/2000	2000	2000	8	2.70		(0.65)	0.28	5.14	4.26	1.97	8.80		11.14	11.14	1.51	(0.29)	0.26	109.42	1.48	9.92	5.14
8/26/2000	2000	2000	8	2.70		(0.65)	0.28	5.14	4.26	1.97	8.40		10.76	10.76	1.51	(0.29)	0.26	109.42	1.48	9.55	5.14
8/27/2000	2000	2000	8	2.70		(0.65)	0.28	5.14	4.26	1.97	9.00		11.32	11.32	1.51	(0.29)	0.26	109.42	1.48	10.10	5.14
8/28/2000	2000	2000	8	2.60		(0.71)	0.27	4.53	4.61	2.07	8.80		10.47	10.47	1.48	(0.32)	0.25	104.34	1.44	9.31	4.53
8/29/2000	2000	2000	8	2.70		(0.65)	0.27	4.64	4.65	1.83	9.30		11.27	11.27	1.51	(0.29)	0.26	109.42	1.48	10.05	4.64
8/30/2000	2000	2000	8	2.70		(0.65)	0.29	4.84	4.84	2.14	9.00		10.89	10.89	1.51	(0.29)	0.26	109.42	1.48	9.67	4.84
8/31/2000	2000	2000	8	2.70		(0.65)	0.29	0.92	4.18	0.00	10.00		10.16	10.16	1.51	(0.29)	0.26	109.42	1.48	8.94	0.92
9/1/2000	2000	2000	9	2.60		(0.71)	0.27	0.00	4.53	0.00	17.00		15.81	15.81	1.48	(0.32)	0.25	104.34	1.44	14.65	0.00
9/2/2000	2000	2000	9	2.60		(0.71)	0.27	0.00	4.53	0.00	13.00		12.09	12.09	1.48	(0.32)	0.25	104.34	1.44	10.93	0.00
9/3/2000	2000	2000	9	2.70		(0.65)	0.27	0.00	4.53	0.00	13.00		12.09	12.09	1.51	(0.29)	0.26	109.42	1.48	10.87	0.00
9/4/2000	2000	2000	9	2.70		(0.65)	0.27	0.00	4.53	0.00	14.00		13.02	13.02	1.51	(0.29)	0.26	109.42	1.48	11.80	0.00
9/5/2000	2000	2000	9	2.70		(0.65)	0.28	0.00	6.21	0.00	14.00		13.02	13.02	1.51	(0.29)	0.26	109.42	1.48	11.80	0.00

									Existing Condition									With Project Diversion			
													0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
									San Joaquin Marsh Operations				**Adjusted	**Adjusted		Est. Loss,	39.7 ppb	16.5 ppm		**Adjusted	using SDC at Can
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	San Diego Cr (SDC) at Campus (cfs)	San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	San Diego Cr (SDC) at Campus (cfs)	SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversic	Project - PCW Bc	Project - Diversic	Project - Diversic	Project - PCW Bc	Project - SDC Ca	Project - SJM In
9/6/2000	2000	2000	9	2.90		(0.55)	0.28	0.00	5.14	0.00	13.00		12.09	12.09	1.58	(0.25)	0.29	119.24	1.57	10.76	0.00
9/7/2000	2000	2000	9	4.00		(0.09)	0.27	0.00	4.63	0.00	11.00		10.23	10.23	1.88	(0.04)	0.40	165.12	2.16	8.39	0.00
9/8/2000	2000	2000	9	4.40		0.00	0.27	0.00	3.63	0.00	12.00		11.16	11.16	1.97	0.00	0.43	176.74	2.43	9.19	0.00
9/9/2000	2000	2000	9	4.80		0.00	0.27	0.00	3.63	0.00	11.00		10.23	10.23	2.05	0.00	0.44	184.03	2.75	8.18	0.00
9/10/2000	2000	2000	9	4.90		0.00	0.27	0.00	3.63	0.00	11.00		10.23	10.23	2.07	0.00	0.45	185.76	2.83	8.16	0.00
9/11/2000	2000	2000	9	4.80		0.00	0.25	0.00	2.65	0.00	11.00		10.23	10.23	2.05	0.00	0.44	184.03	2.75	8.18	0.00
9/12/2000	2000	2000	9	4.40		0.00	0.26	0.00	3.85	0.00	11.00		10.23	10.23	1.97	0.00	0.43	176.74	2.43	8.26	0.00
9/13/2000	2000	2000	9	4.80		0.00	0.25	0.00	4.22	0.00	11.00		10.23	10.23	2.05	0.00	0.44	184.03	2.75	8.18	0.00
9/14/2000	2000	2000	9	5.00		0.00	0.28	0.00	4.45	0.00	11.00		10.23	10.23	2.09	0.00	0.45	187.45	2.91	8.14	0.00
9/15/2000	2000	2000	9	4.50		0.00	0.26	0.00	4.24	0.00	11.00		10.23	10.23	1.99	0.00	0.43	178.62	2.51	8.24	0.00
9/16/2000	2000	2000	9	4.70		0.00	0.26	0.00	4.24	0.00	11.00		10.23	10.23	2.03	0.00	0.44	182.26	2.67	8.20	0.00
9/17/2000	2000	2000	9	5.40		0.00	0.26	0.00	4.24	0.00	11.00		10.23	10.23	2.16	0.00	0.47	193.90	3.24	8.07	0.00
9/18/2000	2000	2000	9	5.70		0.00	0.25	0.00	2.89	0.00	11.00		10.23	10.23	2.21	0.00	0.48	198.43	3.49	8.02	0.00
9/19/2000	2000	2000	9	6.50		0.00	0.26	0.00	3.04	0.00	11.00		10.23	10.23	2.33	0.00	0.50	209.43	4.17	7.90	0.00
9/20/2000	2000	2000	9	7.50		0.00	0.25	0.00	3.83	0.00	11.00		10.23	10.23	2.47	0.00	0.53	221.42	5.03	7.76	0.00
9/21/2000	2000	2000	9	6.80		0.00	0.26	0.00	2.77	0.00	9.90		9.21	9.21	2.37	0.00	0.51	213.21	4.43	6.83	0.00
9/22/2000	2000	2000	9	6.90		0.00	0.25	0.00	3.26	0.00	13.00	E	12.09	12.09	2.39	0.00	0.52	214.44	4.51	9.70	0.00
9/23/2000	2000	2000	9	11.00		0.00	0.25	0.00	3.26	0.00	61.00	E	56.73		0.00	0.00	0.00	0.00	11.00	56.73	0.00
9/24/2000	2000	2000	9	3.80		(0.16)	0.25	0.61	3.26	0.00	11.00		10.80	10.80	1.83	(0.07)	0.38	157.75	2.04	9.04	0.61
9/25/2000	2000	2000	9	3.90		(0.12)	0.24	5.09	3.62	0.00	11.00		14.97	14.97	1.86	(0.06)	0.39	161.49	2.10	13.17	5.09
9/26/2000	2000	2000	9	3.90		(0.12)	0.24	5.58	4.33	0.53	11.00		14.93	14.93	1.86	(0.06)	0.39	161.49	2.10	13.13	5.58
9/27/2000	2000	2000	9	3.80		(0.16)	0.24	4.10	3.41	1.78	10.00		11.45	11.45	1.83	(0.07)	0.38	157.75	2.04	9.70	4.10
9/28/2000	2000	2000	9	5.10		0.00	0.23	4.88	3.64	1.62	10.00		12.34	12.34	2.11	0.00	0.46	189.11	2.99	10.23	4.88
9/29/2000	2000	2000	9	4.80		0.00	0.24	4.88	3.62	1.73	10.00		12.22	12.22	2.05	0.00	0.44	184.03	2.75	10.17	4.88
9/30/2000	2000	2000	9	4.80		0.00	0.24	4.88	3.62	1.73	9.80		12.04	12.04	2.05	0.00	0.44	184.03	2.75	9.99	4.88
10/1/2000	2000	2001	10	4.60		0.00	0.28	4.88	3.62	1.73	9.40		11.66	11.66	2.01	0.00	0.43	180.46	2.59	9.66	4.88
10/2/2000	2000	2001	10	4.70		0.00	0.20	0.00	3.91	0.00	9.20		8.56	8.56	2.03	0.00	0.44	182.26	2.67	6.53	0.00
10/3/2000	2000	2001	10	5.00		0.00	0.24	0.00	3.32	0.00	8.90		8.28	8.28	2.09	0.00	0.45	187.45	2.91	6.19	0.00
10/4/2000	2000	2001	10	5.20		0.00	0.20	0.00	3.48	0.00	9.90		9.21	9.21	2.12	0.00	0.46	190.74	3.08	7.08	0.00
10/5/2000	2000	2001	10	5.00		0.00	0.23	0.00	6.01	0.00	10.00		9.30	9.30	2.09	0.00	0.45	187.45	2.91	7.21	0.00
10/6/2000	2000	2001	10	4.70		0.00	0.21	0.00	5.35	0.00	9.20		8.56	8.56	2.03	0.00	0.44	182.26	2.67	6.53	0.00
10/7/2000	2000	2001	10	5.40		0.00	0.21	0.00	5.35	0.00	10.00		9.30	9.30	2.16	0.00	0.47	193.90	3.24	7.14	0.00
10/8/2000	2000	2001	10	5.70		0.00	0.21	0.00	5.35	0.00	9.90		9.21	9.21	2.21	0.00	0.48	198.43	3.49	7.00	0.00
10/9/2000	2000	2001	10	5.20		0.00	0.21	0.00	5.35	0.00	9.60		8.93	8.93	2.12	0.00	0.46	190.74	3.08	6.80	0.00
10/10/2000	2000	2001	10	6.70		0.00	0.17	0.00	4.61	0.00	13.00		12.09	12.09	2.36	0.00	0.51	211.97	4.34	9.73	0.00
10/11/2000	2000	2001	10	7.20		0.00	0.38	0.00	4.10	0.00	15.00		13.95	13.95	2.43	0.00	0.52	218.00	4.77	11.52	0.00
10/12/2000	2000	2001	10	5.20		0.00	0.21	0.00	4.10	0.00	16.00		14.88	14.88	2.12	0.00	0.46	190.74	3.08	12.76	0.00
10/13/2000	2000	2001	10	4.80		0.00	0.22	0.00	4.34	0.00	14.00		13.02	13.02	2.05	0.00	0.44	184.03	2.75	10.97	0.00
10/14/2000	2000	2001	10	4.80		0.00	0.22	0.00	4.34	0.00	12.00		11.16	11.16	2.05	0.00	0.44	184.03	2.75	9.11	0.00
10/15/2000	2000	2001	10	5.10		0.00	0.22	0.00	4.34	0.00	12.00		11.16	11.16	2.11	0.00	0.46	189.11	2.99	9.05	0.00
10/16/2000	2000	2001	10	4.30		0.00	0.21	0.00	3.88	0.00	12.00		11.16	11.16	1.95	0.00	0.42	174.81	2.35	9.21	0.00
10/17/2000	2000	2001	10	5.20		0.00	0.27	0.00	4.38	0.00	12.00		11.16	11.16	2.12	0.00	0.46	190.74	3.08	9.04	0.00
10/18/2000	2000	2001	10	5.10		0.00	0.26	0.00	2.72	0.00	12.00		11.16	11.16	2.11	0.00	0.46	189.11	2.99	9.05	0.00
10/19/2000	2000	2001	10	5.70		0.00	0.23	0.00	3.46	0.00	12.00		11.16	11.16	2.21	0.00	0.48	198.43	3.49	8.95	0.00
10/20/2000	2000	2001	10	6.60		0.00	0.30	0.00	3.92	0.00	12.00		11.16	11.16	2.35	0.00	0.51	210.71	4.25	8.81	0.00
10/21/2000	2000	2001	10	6.60		0.00	0.29	0.00	3.92	0.00	12.00		11.16	11.16	2.35	0.00	0.51	210.71	4.25	8.81	0.00
10/22/2000	2000	2001	10	6.40		0.00	0.30	0.00	3.92	0.00	12.00		11.16	11.16	2.32	0.00	0.50	208.13	4.08	8.84	0.00
10/23/2000	2000	2001	10	6.50		0.00	0.27	0.00	3.10	0.00	12.00		11.16	11.16	2.33	0.00	0.50	209.43	4.17	8.83	0.00
10/24/2000	2000	2001	10	7.80		0.00	0.22	0.00	3.22	0.00	12.00		11.16	11.16	2.50	0.00	0.54	224.71	5.30	8.66	0.00
10/25/2000	2000	2001	10	8.40		0.00	0.27	0.00	2.87	0.00	12.00		11.16	11.16	2.57	0.00	0.56	230.92	5.83	8.59	0.00
10/26/2000	2000	2001	10	10.00		0.00	0.30	0.00	3.45	0.00	18.00		16.74	16.74	2.60	0.00	0.56	233.51	7.40	14.14	0.00
10/27/2000	2000	2001	10	114.00		0.00	0.23	0.00	3.69	0.00	521.00		484.53		0.00	0.00	0.00	0.00	114.00	484.53	0.00
10/28/2000	2000	2001	10	7.00		0.00	0.23	0.00	3.69	0.00	20.00		18.60	18.60	2.40	0.00	0.52	215.64	4.60	16.20	0.00
10/29/2000	2000	2001	10	9.70		0.00	0.23	0.00	3.69	0.00	90.00		83.70		0.00	0.00	0.00	0.00	9.70	83.70	0.00
10/30/2000	2000	2001	10	13.00		0.00	0.29	0.51	3.83	0.00	182.00		169.74		0.00	0.00	0.00	0.00	13.00	169.74	0.51
10/31/2000	2000	2001	10	5.80		0.00	0.28	5.04	4.30	0.00	13.00		16.78	16.78	2.23	0.00	0.48	199.89	3.57	14.55	5.04
11/1/2000	2000	2001	11	5.50		0.00	0.29	4.69	4.04	0.00	7.20		11.05	11.05	2.18	0.00	0.47	195.44	3.32	8.88	4.69
11/2/2000	2000	2001	11	5.80		0.00	0.27	4.92	4.15	0.00	6.20		10.34	10.34	2.23	0.00	0.48	199.89	3.57	8.12	4.92
11/3/2000	2000	2001	11	5.60		0.00	0.30	4.72	4.31	0.00	6.20		10.16	10.16	2.19	0.00	0.47	196.95	3.41	7.97	4.72
11/4/2000	2000	2001	11	5.60		0.00	0.30	4.72	4.31	0.00	5.60		9.60	9.60	2.19	0.00	0.47	196.95	3.41	7.41	4.72
11/5/2000	2000	2001	11	5.40		0.00	0.30	4.72	4.31	0.00	6.80		10.72	10.72	2.16	0.00	0.47	193.90	3.24	8.56	4.72
11/6/2000	2000	2001	11	5.10		0.00	0.30	0.00	4.77	0.00	15.00		13.95	13.95	2.11	0.00	0.46	189.11	2.99	11.84	0.00
11/7/2000	2000	2001	11	5.70		0.00	0.29	0.00	4.13	0.00	12.00		11.16	11.16	2.21	0.00	0.48	198.43	3.49	8.95	0.00
11/8/2000	2000	2001	11	6.20		0.00	0.24	0.00	4.07	0.00	12.00		11.16	11.16	2.29	0.00	0.49	205.47	3.91	8.87	0.00
11/9/2000	2000	2001	11	5.60		0.00	0.21	0.00	3.64	0.00	12.00		11.16	11.16	2.19	0.00	0.47	196.95	3.41	8.97	0.00
11/10/2000	2000	2001	11	5.60		0.00	0.23	0.00	3.94	0.00	13.00		12.09	12.09	2.19	0.00	0.47	196.95	3.41	9.90	0.00
11/11/2000	2000	2001	11	5.20		0.00	0.23	0.00	3.94	0.00	18.00		16.74	16.74	2.12	0.00	0.46	190.74	3.08	14.62	0.00
11/12/2000	2000	2001	11	4.90		0.00	0.23	0.00	3.94	0.00	15.00		13.95	13.95	2.07	0.00	0.45	185.76	2.83	11.88	0.00
11/13/2000	2000	2001	11	4.70		0.00	0.22	0.00	4.55	0.00	14.00		13.02	13.02	2.03	0.00	0.44	182.26	2.67	10.99	0.00
11/14/2000	2000	2001	11	5.00		0.00	0.22	0.00	4.10	0.00	14.00		13.02	13.02	2.09	0.00	0.45	187.45	2.91	10.93	0.00
11/15/2000	2000	2001	11	5.50		0.00	0.26	0.00	1.95	0.00	13.00		12.09	12.09	2.18	0.00	0.47	195.44	3.32	9.91	0.00

Existing Condition | **San Joaquin Marsh Operations** | **With Project Diversion**

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
11/16/2000	2000	2001	11	5.70		0.00	0.20	0.00	3.54	0.00	13.00		12.09	12.09	2.21	0.00	0.48	198.43	3.49	9.88	0.00
11/17/2000	2000	2001	11	4.40		0.00	0.23	0.00	3.60	0.00	13.00		12.09	12.09	1.97	0.00	0.43	176.74	2.43	10.12	0.00
11/18/2000	2000	2001	11	4.20		(0.02)	0.23	0.00	3.60	0.00	13.00		12.09	12.09	1.92	(0.01)	0.41	172.10	2.28	10.17	0.00
11/19/2000	2000	2001	11	4.50		0.00	0.23	0.00	3.60	0.00	13.00		12.09	12.09	1.99	0.00	0.43	178.62	2.51	10.10	0.00
11/20/2000	2000	2001	11	4.50		0.00	0.22	0.00	3.72	0.00	14.00		13.02	13.02	1.99	0.00	0.43	178.62	2.51	11.03	0.00
11/21/2000	2000	2001	11	4.30		0.00	0.21	0.00	3.78	0.00	14.00		13.02	13.02	1.95	0.00	0.42	174.81	2.35	11.07	0.00
11/22/2000	2000	2001	11	4.20		(0.02)	0.21	0.00	3.32	0.00	14.00		13.02	13.02	1.92	(0.01)	0.41	172.10	2.28	11.10	0.00
11/23/2000	2000	2001	11	4.10		(0.05)	0.21	0.00	3.32	0.00	14.00		13.02	13.02	1.90	(0.02)	0.41	168.66	2.22	11.14	0.00
11/24/2000	2000	2001	11	4.50		0.00	0.21	0.00	3.32	0.00	14.00		13.02	13.02	1.99	0.00	0.43	178.62	2.51	11.03	0.00
11/25/2000	2000	2001	11	4.80		0.00	0.21	0.00	3.32	0.00	15.00		13.95	13.95	2.05	0.00	0.44	184.03	2.75	11.90	0.00
11/26/2000	2000	2001	11	4.20		(0.02)	0.21	0.00	3.32	0.00	15.00		13.95	13.95	1.92	(0.01)	0.41	172.10	2.28	12.03	0.00
11/27/2000	2000	2001	11	4.50		0.00	0.20	0.00	3.35	0.00	15.00		13.95	13.95	1.99	0.00	0.43	178.62	2.51	11.96	0.00
11/28/2000	2000	2001	11	4.90		0.00	0.21	0.00	3.08	0.00	16.00		14.88	14.88	2.07	0.00	0.45	185.76	2.83	12.81	0.00
11/29/2000	2000	2001	11	5.30		0.00	0.28	0.00	3.87	0.00	16.00		14.88	14.88	2.14	0.00	0.46	192.33	3.16	12.74	0.00
11/30/2000	2000	2001	11	5.20		0.00	0.29	0.00	2.82	0.00	17.00		15.81	15.81	2.12	0.00	0.46	190.74	3.08	13.69	0.00
12/1/2000	2000	2001	12	4.70		0.00	0.29	0.00	3.12	0.00	16.00		14.88	14.88	2.03	0.00	0.44	182.26	2.67	12.85	0.00
12/2/2000	2000	2001	12	5.00		0.00	0.29	0.00	3.12	0.00	16.00		14.88	14.88	2.09	0.00	0.45	187.45	2.91	12.79	0.00
12/3/2000	2000	2001	12	4.80		0.00	0.29	0.00	3.12	0.00	16.00		14.88	14.88	2.05	0.00	0.44	184.03	2.75	12.83	0.00
12/4/2000	2000	2001	12	4.90		0.00	0.30	0.00	2.73	0.00	15.00		13.95	13.95	2.07	0.00	0.45	185.76	2.83	11.88	0.00
12/5/2000	2000	2001	12	4.30		0.00	0.27	0.00	2.01	0.00	15.00		13.95	13.95	1.95	0.00	0.42	174.81	2.35	12.00	0.00
12/6/2000	2000	2001	12	4.60		0.00	0.28	0.00	2.21	0.00	15.00		13.95	13.95	2.01	0.00	0.43	180.46	2.59	11.94	0.00
12/7/2000	2000	2001	12	4.70		0.00	0.28	0.00	1.66	0.00	14.00		13.02	13.02	2.03	0.00	0.44	182.26	2.67	10.99	0.00
12/8/2000	2000	2001	12	5.30		0.00	0.27	0.00	2.90	0.00	15.00		13.95	13.95	2.14	0.00	0.46	192.33	3.16	11.81	0.00
12/9/2000	2000	2001	12	5.30		0.00	0.27	0.00	2.90	0.00	14.00		13.02	13.02	2.14	0.00	0.46	192.33	3.16	10.88	0.00
12/10/2000	2000	2001	12	5.20		0.00	0.27	0.00	2.90	0.00	14.00		13.02	13.02	2.12	0.00	0.46	190.74	3.08	10.90	0.00
12/11/2000	2000	2001	12	5.30		0.00	0.24	0.00	2.76	0.00	14.00		13.02	13.02	2.14	0.00	0.46	192.33	3.16	10.88	0.00
12/12/2000	2000	2001	12	4.50		0.00	0.24	0.00	2.73	0.00	14.00		13.02	13.02	1.99	0.00	0.43	178.62	2.51	11.03	0.00
12/13/2000	2000	2001	12	4.40		0.00	0.25	0.00	2.93	0.00	14.00		13.02	13.02	1.97	0.00	0.43	176.74	2.43	11.05	0.00
12/14/2000	2000	2001	12	4.30		0.00	0.26	4.86	3.37	0.00	11.00		14.75	14.75	1.95	0.00	0.42	174.81	2.35	12.81	4.86
12/15/2000	2000	2001	12	4.40		0.00	0.27	5.17	1.87	0.00	8.50		12.72	12.72	1.97	0.00	0.43	176.74	2.43	10.75	5.17
12/16/2000	2000	2001	12	4.20		(0.02)	0.27	5.17	1.87	0.00	8.80		13.00	13.00	1.92	(0.01)	0.41	172.10	2.28	11.08	5.17
12/17/2000	2000	2001	12	3.80		(0.16)	0.27	5.17	1.87	0.00	8.30		12.53	12.53	1.83	(0.07)	0.38	157.75	2.04	10.77	5.17
12/18/2000	2000	2001	12	3.30		(0.36)	0.24	5.01	1.37	0.00	7.90		12.01	12.01	1.70	(0.17)	0.33	137.48	1.77	10.48	5.01
12/19/2000	2000	2001	12	3.60		(0.24)	0.24	4.74	2.19	0.08	7.50		11.30	11.30	1.78	(0.11)	0.36	149.97	1.93	9.63	4.74
12/20/2000	2000	2001	12	4.30		0.00	0.24	5.10	4.24	1.28	7.10		10.16	10.16	1.95	0.00	0.42	174.81	2.35	8.21	5.10
12/21/2000	2000	2001	12	4.40		0.00	0.25	5.07	4.19	1.32	6.90		9.90	9.90	1.97	0.00	0.43	176.74	2.43	7.94	5.07
12/22/2000	2000	2001	12	4.40		0.00	0.24	5.02	5.09	2.28	6.90		8.97	8.97	1.97	0.00	0.43	176.74	2.43	7.00	5.02
12/23/2000	2000	2001	12	4.60		0.00	0.24	5.02	5.09	2.28	6.60		8.69	8.69	2.01	0.00	0.43	180.46	2.59	6.68	5.02
12/24/2000	2000	2001	12	4.20		(0.02)	0.24	5.02	5.09	2.28	8.20		10.18	10.18	1.92	(0.01)	0.41	172.10	2.28	8.26	5.02
12/25/2000	2000	2001	12	3.40		(0.32)	0.24	5.02	5.09	2.28	8.60		10.55	10.55	1.73	(0.15)	0.34	141.76	1.82	8.97	5.02
12/26/2000	2000	2001	12	3.00		(0.50)	0.24	5.02	5.09	2.28	7.30		9.34	9.34	1.61	(0.23)	0.30	123.97	1.62	7.96	5.02
12/27/2000	2000	2001	12	3.60		(0.24)	0.24	5.02	5.09	2.28	7.40		9.43	9.43	1.78	(0.11)	0.36	149.97	1.93	7.76	5.02
12/28/2000	2000	2001	12	3.90		(0.12)	0.28	5.65	5.47	2.18	8.60		11.22	11.22	1.86	(0.06)	0.39	161.49	2.10	9.42	5.65
12/29/2000	2000	2001	12	3.90		(0.12)	0.28	4.91	4.79	1.98	8.60		10.72	10.72	1.86	(0.06)	0.39	161.49	2.10	8.92	4.91
12/30/2000	2000	2001	12	4.60		0.00	0.28	4.91	4.79	1.98	9.30		11.37	11.37	2.01	0.00	0.43	180.46	2.59	9.36	4.91
12/31/2000	2000	2001	12	4.40		0.00	0.28	4.91	4.79	1.98	9.20		11.27	11.27	1.97	0.00	0.43	176.74	2.43	9.31	4.91
1/1/2001	2001	2001	1	3.90		(0.12)	0.28	4.91	4.79	1.98	9.60		11.65	11.65	1.86	(0.06)	0.39	161.49	2.10	9.85	4.91
1/2/2001	2001	2001	1	4.00		(0.09)	0.25	5.05	5.97	3.10	10.00		11.11	11.11	1.88	(0.04)	0.40	165.12	2.16	9.27	5.05
1/3/2001	2001	2001	1	3.40		(0.32)	0.25	5.05	6.02	3.03	11.00		12.11	12.11	1.73	(0.15)	0.34	141.76	1.82	10.54	5.05
1/4/2001	2001	2001	1	3.50		(0.28)	0.30	5.06	6.77	3.88	11.00		11.33	11.33	1.75	(0.13)	0.35	145.92	1.88	9.70	5.06
1/5/2001	2001	2001	1	3.70		(0.20)	0.32	5.12	6.64	4.00	10.00		10.34	10.34	1.81	(0.09)	0.37	153.91	1.99	8.62	5.12
1/6/2001	2001	2001	1	3.30		(0.36)	0.32	5.12	6.64	4.00	11.00		11.27	11.27	1.70	(0.17)	0.33	137.48	1.77	9.74	5.12
1/7/2001	2001	2001	1	2.90		(0.55)	0.32	5.12	6.64	4.00	12.00		12.20	12.20	1.58	(0.25)	0.29	119.24	1.57	10.87	5.12
1/8/2001	2001	2001	1	6.00		0.00	0.34	2.04	7.26	4.96	182.00		166.54		0.00	0.00	0.00	0.00	6.00	166.54	2.04
1/9/2001	2001	2001	1	6.10		0.00	0.21	5.68	1.25	0.00	35.00		37.83		0.00	0.00	0.00	0.00	6.10	37.83	5.68
1/10/2001	2001	2001	1	43.00		0.00	0.30	3.19	6.02	3.36	382.00		355.10		0.00	0.00	0.00	0.00	43.00	355.10	3.19
1/11/2001	2001	2001	1	824.00		0.00	0.25	3.19	6.02	3.36	1830.00		1701.74		0.00	0.00	0.00	0.00	824.00	1701.74	3.19
1/12/2001	2001	2001	1	48.00		0.00	0.36	0.00	7.25	4.55	411.00		378.00		0.00	0.00	0.00	0.00	48.00	378.00	0.00
1/13/2001	2001	2001	1	6.70		0.00	0.36	0.00	7.25	4.55	29.00		22.74		0.00	0.00	0.00	0.00	6.70	22.74	0.00
1/14/2001	2001	2001	1	5.00		0.00	0.36	0.00	7.25	4.55	19.00		13.44	13.44	2.09	0.00	0.45	187.45	2.91	11.35	0.00
1/15/2001	2001	2001	1	4.50		0.00	0.32	0.01	5.82	3.44	16.00		11.69	11.69	1.99	0.00	0.43	178.62	2.51	9.70	0.01
1/16/2001	2001	2001	1	3.80		(0.16)	0.29	2.74	2.35	1.45	13.00		13.29	13.29	1.83	(0.07)	0.38	157.75	2.04	11.54	2.74
1/17/2001	2001	2001	1	3.30		(0.36)	0.34	1.47	2.35	1.45	10.00		9.32	9.32	1.70	(0.17)	0.33	137.48	1.77	7.79	1.47
1/18/2001	2001	2001	1	3.70		(0.20)	1.10	1.59	2.35	1.45	11.00		10.36	10.36	1.81	(0.09)	0.37	153.91	1.99	8.65	1.59
1/19/2001	2001	2001	1	3.90		(0.12)	0.34	5.10	2.35	1.45	11.00		13.63	13.63	1.86	(0.06)	0.39	161.49	2.10	11.83	5.10
1/20/2001	2001	2001	1	3.90		(0.12)	0.34	5.10	2.35	1.45	8.40		11.21	11.21	1.86	(0.06)	0.39	161.49	2.10	9.41	5.10
1/21/2001	2001	2001	1	4.30		0.00	0.34	5.10	2.35	1.45	8.70		11.49	11.49	1.95	0.00	0.42	174.81	2.35	9.54	5.10
1/22/2001	2001	2001	1	4.30		0.00	0.34	3.75	4.78	2.55	10.00		10.42	10.42	1.95	0.00	0.42	174.81	2.35	8.47	3.75
1/23/2001	2001	2001	1	4.30		0.00	0.32	4.04	4.78	2.55	9.50		10.21	10.21	1.95	0.00	0.42	174.81	2.35	8.27	4.04
1/24/2001	2001	2001	1	27.00		0.00	0.31	4.35	5.43	2.78	92.00		87.02		0.00	0.00	0.00	0.00	27.00	87.02	4.35
1/25/2001	2001	2001	1	4.40		0.00	0.31	4.55	5.58	2.85	15.00		15.53	15.53	1.97	0.00	0.43	176.74	2.43	13.56	4.55

Existing Condition | **With Project Diversion**

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	San Joaquin Marsh Operations: SJ Marsh Inflow (from SDC) (cfs)	San Joaquin Marsh Operations: SJ Marsh Outflow (#002A) (cfs)	San Joaquin Marsh Operations: SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
1/26/2001	2001	2001	1	150.00		0.00	0.39	4.34	5.38	2.75	374.00		349.30		0.00	0.00	0.00	0.00	150.00	349.30	4.34
1/27/2001	2001	2001	1	11.00		0.00	0.39	4.34	5.38	2.75	78.00		74.02		0.00	0.00	0.00	0.00	11.00	74.02	4.34
1/28/2001	2001	2001	1	5.70		0.00	0.39	4.34	5.38	2.75	12.00		12.64	12.64	2.21	0.00	0.48	198.43	3.49	10.43	4.34
1/29/2001	2001	2001	1	6.20		0.00	0.40	4.91	5.61	2.80	9.10		10.42	10.42	2.29	0.00	0.49	205.47	3.91	8.13	4.91
1/30/2001	2001	2001	1	7.00		0.00	0.38	5.13	4.66	1.74	8.10		10.69	10.69	2.40	0.00	0.52	215.64	4.60	8.29	5.13
1/31/2001	2001	2001	1	7.10		0.00	0.38	4.96	4.80	1.92	8.10		10.36	10.36	2.41	0.00	0.52	216.83	4.69	7.95	4.96
2/1/2001	2001	2001	2	6.80		0.00	0.36	4.80	4.59	2.08	7.70		9.69	9.69	2.37	0.00	0.51	213.21	4.43	7.31	4.80
2/2/2001	2001	2001	2	6.80		0.00	0.40	5.31	5.30	2.25	7.50		9.82	9.82	2.37	0.00	0.51	213.21	4.43	7.44	5.31
2/3/2001	2001	2001	2	6.60		0.00	0.40	5.31	5.30	2.25	7.40		9.72	9.72	2.35	0.00	0.51	210.71	4.25	7.38	5.31
2/4/2001	2001	2001	2	6.50		0.00	0.40	5.31	5.30	2.25	7.80		10.10	10.10	2.33	0.00	0.50	209.43	4.17	7.76	5.31
2/5/2001	2001	2001	2	6.80		0.00	0.39	4.83	4.68	2.03	8.10		10.14	10.14	2.37	0.00	0.51	213.21	4.43	7.77	4.83
2/6/2001	2001	2001	2	6.90		0.00	0.38	5.07	5.04	2.12	8.80		10.92	10.92	2.39	0.00	0.52	214.44	4.51	8.53	5.07
2/7/2001	2001	2001	2	6.20		0.00	0.37	5.68	5.56	2.27	8.00		10.61	10.61	2.29	0.00	0.49	205.47	3.91	8.32	5.68
2/8/2001	2001	2001	2	6.00		0.00	0.41	4.57	4.53	1.83	7.90		9.90	9.90	2.26	0.00	0.49	202.73	3.74	7.64	4.57
2/9/2001	2001	2001	2	5.10		0.00	0.41	4.67	5.56	2.45	8.40		9.88	9.88	2.11	0.00	0.46	189.11	2.99	7.77	4.67
2/10/2001	2001	2001	2	12.00		0.00	0.41	4.67	5.56	2.45	32.00		31.82		0.00	0.00	0.00	0.00	12.00	31.82	4.67
2/11/2001	2001	2001	2	6.20		0.00	0.41	4.67	5.56	2.45	15.00		16.01	16.01	2.29	0.00	0.49	205.47	3.91	13.73	4.67
2/12/2001	2001	2001	2	1010.00		0.00	0.36	0.00	4.57	4.08	1670.00		1549.30		0.00	0.00	0.00	0.00	1010.00	1549.30	0.00
2/13/2001	2001	2001	2	506.00		0.00	0.39	0.00	5.40	5.10	1020.00		943.86		0.00	0.00	0.00	0.00	506.00	943.86	0.00
2/14/2001	2001	2001	2	14.00		0.00	0.40	0.00	5.40	5.10	56.00		47.34		0.00	0.00	0.00	0.00	14.00	47.34	0.00
2/15/2001	2001	2001	2	8.60		0.00	0.35	0.00	4.69	4.72	19.00		13.28	13.28	2.59	0.00	0.56	232.89	6.01	10.69	0.00
2/16/2001	2001	2001	2	7.20		0.00	0.35	0.00	7.43	7.38	17.00		8.95	8.95	2.43	0.00	0.52	218.00	4.77	6.52	0.00
2/17/2001	2001	2001	2	6.50		0.00	0.35	0.00	7.43	7.38	16.00		8.02	8.02	2.33	0.00	0.50	209.43	4.17	5.68	0.00
2/18/2001	2001	2001	2	6.60		0.00	0.35	0.00	7.43	7.38	16.00		8.02	8.02	2.35	0.00	0.51	210.71	4.25	5.67	0.00
2/19/2001	2001	2001	2	9.60		0.00	0.35	0.00	7.43	7.38	21.00		12.67	12.67	2.60	0.00	0.56	233.51	7.00	10.07	0.00
2/20/2001	2001	2001	2	12.00		0.00	0.31	0.00	0.17	0.00	55.00		51.15		0.00	0.00	0.00	0.00	12.00	51.15	0.00
2/21/2001	2001	2001	2	7.40		0.00	0.39	0.00	1.10	0.00	19.00		17.67	17.67	2.45	0.00	0.53	220.30	4.95	15.22	0.00
2/22/2001	2001	2001	2	6.60		0.00	0.46	0.00	0.84	0.00	19.00		17.67	17.67	2.35	0.00	0.51	210.71	4.25	15.32	0.00
2/23/2001	2001	2001	2	33.00		0.00	0.45	5.50	1.03	0.00	114.00		111.13		0.00	0.00	0.00	0.00	33.00	111.13	5.50
2/24/2001	2001	2001	2	16.00		0.00	0.45	5.50	1.03	0.00	41.00		43.24		0.00	0.00	0.00	0.00	16.00	43.24	5.50
2/25/2001	2001	2001	2	494.00		0.00	0.45	5.50	1.03	0.00	1020.00		953.71		0.00	0.00	0.00	0.00	494.00	953.71	5.50
2/26/2001	2001	2001	2	169.00		0.00	0.76	5.92	4.63	1.45	742.00		694.21		0.00	0.00	0.00	0.00	169.00	694.21	5.92
2/27/2001	2001	2001	2	57.00		0.00	0.64	0.25	5.52	2.37	139.00		127.31		0.00	0.00	0.00	0.00	57.00	127.31	0.25
2/28/2001	2001	2001	2	31.00		0.00	0.47	0.00	5.35	2.89	66.00		58.69		0.00	0.00	0.00	0.00	31.00	58.69	0.00
3/1/2001	2001	2001	3	8.70		0.00	0.49	4.35	5.24	4.97	41.00		37.56		0.00	0.00	0.00	0.00	8.70	37.56	4.35
3/2/2001	2001	2001	3	6.20		0.00	0.50	6.73	6.79	6.58	25.00		23.39		0.00	0.00	0.00	0.00	6.20	23.39	6.73
3/3/2001	2001	2001	3	5.80		0.00	0.50	6.73	6.79	6.58	24.00		22.46		0.00	0.00	0.00	0.00	5.80	22.46	6.73
3/4/2001	2001	2001	3	5.60		0.00	0.50	6.73	6.79	6.58	23.00		21.53		0.00	0.00	0.00	0.00	5.60	21.53	6.73
3/5/2001	2001	2001	3	5.40		0.00	0.48	4.80	5.48	3.33	23.00		22.75		0.00	0.00	0.00	0.00	5.40	22.75	4.80
3/6/2001	2001	2001	3	36.00		0.00	0.50	0.00	5.49	3.39	117.00		105.65		0.00	0.00	0.00	0.00	36.00	105.65	0.00
3/7/2001	2001	2001	3	8.90		0.00	0.51	1.37	10.03	7.60	39.00		30.47		0.00	0.00	0.00	0.00	8.90	30.47	1.37
3/8/2001	2001	2001	3	8.00		0.00	0.50	4.90	8.56	5.93	28.00		25.09		0.00	0.00	0.00	0.00	8.00	25.09	4.90
3/9/2001	2001	2001	3	13.00		0.00	0.51	6.09	4.26	1.80	21.00		23.52		0.00	0.00	0.00	0.00	13.00	23.52	6.09
3/10/2001	2001	2001	3	23.00		0.00	0.51	6.09	4.26	1.80	92.00	E	89.55		0.00	0.00	0.00	0.00	23.00	89.55	6.09
3/11/2001	2001	2001	3	8.40		0.00	0.51	6.09	4.26	1.80	19.00	E	21.66		0.00	0.00	0.00	0.00	8.40	21.66	6.09
3/12/2001	2001	2001	3	7.90		0.00	0.49	6.29	0.19	0.04	17.00	E	21.62		0.00	0.00	0.00	0.00	7.90	21.62	6.29
3/13/2001	2001	2001	3	7.30		0.00	0.49	7.02	6.08	3.10	17.00	E	19.45		0.00	0.00	0.00	0.00	7.30	19.45	7.02
3/14/2001	2001	2001	3	7.60		0.00	0.48	5.66	5.78	3.19	16.00	E	17.18	17.18	2.48	0.00	0.54	222.53	5.12	14.70	5.66
3/15/2001	2001	2001	3	7.60		0.00	0.49	4.23	4.33	2.68	14.00	E	14.47	14.47	2.48	0.00	0.54	222.53	5.12	11.99	4.23
3/16/2001	2001	2001	3	7.40		0.00	0.49	5.52	6.70	4.21	13.00	E	13.31	13.31	2.45	0.00	0.53	220.30	4.95	10.85	5.52
3/17/2001	2001	2001	3	7.60		0.00	0.49	5.52	6.70	4.21	12.00		12.38	12.38	2.48	0.00	0.54	222.53	5.12	9.90	5.52
3/18/2001	2001	2001	3	8.60		0.00	0.49	5.52	6.70	4.21	12.00		12.38	12.38	2.59	0.00	0.56	232.89	6.01	9.78	5.52
3/19/2001	2001	2001	3	7.80		0.00	0.47	5.52	6.70	4.21	12.00		12.38	12.38	2.50	0.00	0.54	224.71	5.30	9.88	5.52
3/20/2001	2001	2001	3	8.30		0.00	0.47	5.52	6.70	4.21	12.00		12.38	12.38	2.56	0.00	0.55	229.92	5.74	9.82	5.52
3/21/2001	2001	2001	3	8.00		0.00	0.46	5.93	10.47	7.26	12.00		9.92	9.92	2.53	0.00	0.55	226.83	5.47	7.39	5.93
3/22/2001	2001	2001	3	8.30		0.00	0.50	0.26	8.64	5.54	12.00		6.25	6.25	2.56	0.00	0.55	229.92	5.74	3.69	0.26
3/23/2001	2001	2001	3	8.60		0.00	0.46	0.00	5.11	2.51	11.00		7.89	7.89	2.59	0.00	0.56	232.89	6.01	5.30	0.00
3/24/2001	2001	2001	3	8.30		0.00	0.46	0.00	5.11	2.51	10.00		6.96	6.96	2.56	0.00	0.55	229.92	5.74	4.40	0.00
3/25/2001	2001	2001	3	8.70		0.00	0.46	0.00	5.11	2.51	11.00		7.89	7.89	2.60	0.00	0.56	233.51	6.10	5.29	0.00
3/26/2001	2001	2001	3	8.60		0.00	0.49	9.14	4.65	2.22	10.00		15.74	15.74	2.59	0.00	0.56	232.89	6.01	13.15	9.14
3/27/2001	2001	2001	3	8.50		0.00	0.44	9.10	5.03	2.54	7.60		13.16	13.16	2.58	0.00	0.56	231.91	5.92	10.58	9.10
3/28/2001	2001	2001	3	8.40		0.00	0.44	9.88	8.74	6.10	5.60		9.88	9.88	2.57	0.00	0.56	230.92	5.83	7.30	7.30
3/29/2001	2001	2001	3	8.30		0.00	0.48	8.08	9.11	6.50	8.90		9.75	9.75	2.56	0.00	0.55	229.92	5.74	7.19	7.19
3/30/2001	2001	2001	3	8.20		0.00	0.43	7.30	9.95	7.31	8.30		7.72	7.72	2.55	0.00	0.55	228.90	5.65	5.17	5.17
3/31/2001	2001	2001	3	8.20		0.00	0.43	7.30	9.95	7.31	8.30		7.72	7.72	2.55	0.00	0.55	228.90	5.65	5.17	5.17
4/1/2001	2001	2001	4	8.50		0.00	0.35	7.30	9.95	7.31	12.00		11.16	11.16	2.58	0.00	0.56	231.91	5.92	8.58	7.30
4/2/2001	2001	2001	4	8.10		0.00	0.33	10.40	6.55	4.18	12.00		16.95	16.95	2.54	0.00	0.55	227.87	5.56	14.41	10.40
4/3/2001	2001	2001	4	6.90		0.00	0.33	8.70	8.61	6.05	9.90		11.67	11.67	2.39	0.00	0.52	214.44	4.51	9.28	8.70
4/4/2001	2001	2001	4	7.20		0.00	0.41	7.59	7.57	4.83	9.50		11.40	11.40	2.43	0.00	0.52	218.00	4.77	8.98	7.59
4/5/2001	2001	2001	4	17.00		0.00	0.42	3.90	8.68	6.35	37.00		32.13		0.00	0.00	0.00	0.00	17.00	32.13	3.90
4/6/2001	2001	2001	4	6.90		0.00	0.36	5.18	11.56	8.22	16.00		12.05	12.05	2.39	0.00	0.52	214.44	4.51	9.66	5.18

Existing Condition | **With Project Diversion**

San Joaquin Marsh Operations

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW Ba	Project - Diversi	Project - Diversi	Project - PCW Ba	Project - SDC Ca	Project - SJM In
4/7/2001	2001	2001	4	35.00	E	0.00	0.36	5.18	11.56	8.22	261.00		239.90		0.00	0.00	0.00	0.00	35.00	239.90	5.18
4/8/2001	2001	2001	4	6.00		0.00	0.36	5.18	11.56	8.22	24.00		19.49		0.00	0.00	0.00	0.00	6.00	19.49	5.18
4/9/2001	2001	2001	4	6.30		0.00	0.39	7.45	12.22	9.21	21.00		17.89	17.89	2.30	0.00	0.50	206.81	4.00	15.59	7.45
4/10/2001	2001	2001	4	6.80		0.00	0.39	6.83	11.81	9.14	17.00		13.66	13.66	2.37	0.00	0.51	213.21	4.43	11.29	6.83
4/11/2001	2001	2001	4	6.60		0.00	0.32	8.13	9.82	8.07	10.00		9.35	9.35	2.35	0.00	0.51	210.71	4.25	7.00	7.00
4/12/2001	2001	2001	4	5.90		0.00	0.43	5.54	12.07	8.42	9.30		5.97	5.97	2.24	0.00	0.48	201.32	3.66	3.73	3.73
4/13/2001	2001	2001	4	5.70		0.00	0.43	5.54	12.07	8.42	9.40		6.06	6.06	2.21	0.00	0.48	198.43	3.49	3.85	3.85
4/14/2001	2001	2001	4	6.40		0.00	0.43	5.54	12.07	8.42	9.10		5.78	5.78	2.32	0.00	0.50	208.13	4.08	3.47	3.47
4/15/2001	2001	2001	4	6.00		0.00	0.43	5.54	12.07	8.42	9.60		6.25	6.25	2.26	0.00	0.49	202.73	3.74	3.99	3.99
4/16/2001	2001	2001	4	5.10		0.00	0.45	7.64	9.49	6.91	10.00		9.98	9.98	2.11	0.00	0.46	189.11	2.99	7.87	7.64
4/17/2001	2001	2001	4	5.00		0.00	0.44	7.20	11.37	9.76	9.10		7.20	7.20	2.09	0.00	0.45	187.45	2.91	5.11	5.11
4/18/2001	2001	2001	4	5.00		0.00	0.46	7.72	12.87	10.31	11.00		7.82	7.82	2.09	0.00	0.45	187.45	2.91	5.73	5.73
4/19/2001	2001	2001	4	4.50		0.00	0.46	7.38	10.05	8.03	11.00		9.63	9.63	1.99	0.00	0.43	178.62	2.51	7.64	7.38
4/20/2001	2001	2001	4	4.40		0.00	0.46	5.35	12.59	9.60	9.50		5.35	5.35	1.97	0.00	0.43	176.74	2.43	3.38	3.38
4/21/2001	2001	2001	4	25.00		0.00	0.46	5.35	12.59	9.60	71.00		62.08		0.00	0.00	0.00	0.00	25.00	62.08	5.35
4/22/2001	2001	2001	4	5.50		0.00	0.46	5.35	12.59	9.60	6.60		5.35	5.35	2.18	0.00	0.47	195.44	3.32	3.17	3.17
4/23/2001	2001	2001	4	4.90		0.00	0.46	7.99	10.42	7.79	16.00		15.06	15.06	2.07	0.00	0.45	185.76	2.83	12.99	7.99
4/24/2001	2001	2001	4	5.20		0.00	0.45	8.48	11.35	8.81	11.00		9.92	9.92	2.12	0.00	0.46	190.74	3.08	7.80	7.80
4/25/2001	2001	2001	4	5.80		0.00	0.43	10.58	6.68	4.74	9.30		14.08	14.08	2.23	0.00	0.48	199.89	3.57	11.86	10.58
4/26/2001	2001	2001	4	6.50		0.00	0.47	6.44	10.06	8.00	5.90		6.44	6.44	2.33	0.00	0.50	209.43	4.17	4.11	4.11
4/27/2001	2001	2001	4	6.50		0.00	0.43	6.44	12.26	9.24	14.00		10.42	10.42	2.33	0.00	0.50	209.43	4.17	8.08	6.44
4/28/2001	2001	2001	4	6.50		0.00	0.43	6.44	12.26	9.24	14.00		10.42	10.42	2.33	0.00	0.50	209.43	4.17	8.08	6.44
4/29/2001	2001	2001	4	6.10		0.00	0.43	6.44	12.26	9.24	14.00		10.42	10.42	2.27	0.00	0.49	204.11	3.83	8.14	6.44
4/30/2001	2001	2001	4	5.90		0.00	0.46	8.20	3.38	2.79	9.60		13.95	13.95	2.24	0.00	0.48	201.32	3.66	11.71	8.20
5/1/2001	2001	2001	5	5.90		0.00	0.47	8.43	10.58	7.85	9.00		8.91	8.91	2.24	0.00	0.48	201.32	3.66	6.67	6.67
5/2/2001	2001	2001	5	5.60		0.00	0.48	10.21	11.72	8.58	10.00		10.82	10.82	2.19	0.00	0.47	196.95	3.41	8.62	8.62
5/3/2001	2001	2001	5	6.40		0.00	0.45	9.96	10.16	7.57	7.20		9.96	9.96	2.32	0.00	0.50	208.13	4.08	7.64	7.64
5/4/2001	2001	2001	5	8.10		0.00	0.45	5.52	10.58	7.85	8.10		5.52	5.52	2.54	0.00	0.55	227.87	5.56	2.98	2.98
5/5/2001	2001	2001	5	8.70		0.00	0.45	5.52	10.58	7.85	11.00		8.06	8.06	2.60	0.00	0.56	233.51	6.10	5.46	5.46
5/6/2001	2001	2001	5	9.90		0.00	0.45	5.52	10.58	7.85	14.00		10.85	10.85	2.60	0.00	0.56	233.51	7.30	8.25	5.52
5/7/2001	2001	2001	5	9.40		0.00	0.44	7.07	10.58	7.85	15.00		13.23	13.23	2.60	0.00	0.56	233.51	6.80	10.63	7.07
5/8/2001	2001	2001	5	6.70		0.00	0.45	0.80	2.26	1.85	13.00		11.12	11.12	2.36	0.00	0.51	211.97	4.34	8.76	0.80
5/9/2001	2001	2001	5	6.90		0.00	0.43	4.99	10.08	7.47	12.00		8.85	8.85	2.39	0.00	0.52	214.44	4.51	6.46	4.99
5/10/2001	2001	2001	5	7.20		0.00	0.45	4.65	9.60	7.18	11.00		7.88	7.88	2.43	0.00	0.52	218.00	4.77	5.45	4.65
5/11/2001	2001	2001	5	7.00		0.00	0.46	6.34	10.90	8.00	12.00		9.62	9.62	2.40	0.00	0.52	215.64	4.60	7.22	6.34
5/12/2001	2001	2001	5	7.10		0.00	0.46	6.34	10.90	8.00	12.00		9.62	9.62	2.41	0.00	0.52	216.83	4.69	7.20	6.34
5/13/2001	2001	2001	5	6.60		0.00	0.46	6.34	10.90	8.00	13.00		10.55	10.55	2.35	0.00	0.51	210.71	4.25	8.20	6.34
5/14/2001	2001	2001	5	6.70		0.00	0.39	9.48	10.90	8.00	8.30		9.48	9.48	2.36	0.00	0.51	211.97	4.34	7.12	7.12
5/15/2001	2001	2001	5	6.70		0.00	0.44	10.83	3.62	2.73	5.70		12.83	12.83	2.36	0.00	0.51	211.97	4.34	10.47	10.47
5/16/2001	2001	2001	5	6.40		0.00	0.42	8.91	11.78	8.74	5.50		8.91	8.91	2.32	0.00	0.50	208.13	4.08	6.59	6.59
5/17/2001	2001	2001	5	6.10		0.00	0.39	9.15	9.72	7.08	8.40		9.74	9.74	2.27	0.00	0.49	204.11	3.83	7.47	7.47
5/18/2001	2001	2001	5	6.90		0.00	0.34	6.16	9.68	7.31	8.60		6.93	6.93	2.39	0.00	0.52	214.44	4.51	4.54	4.54
5/19/2001	2001	2001	5	7.40		0.00	0.34	6.16	9.68	7.31	8.90		7.20	7.20	2.45	0.00	0.53	220.30	4.95	4.75	4.75
5/20/2001	2001	2001	5	6.90		0.00	0.34	6.16	9.68	7.31	9.70		7.95	7.95	2.39	0.00	0.52	214.44	4.51	5.56	5.56
5/21/2001	2001	2001	5	6.70		0.00	0.38	5.45	10.97	8.29	11.00		7.59	7.59	2.36	0.00	0.51	211.97	4.34	5.23	5.23
5/22/2001	2001	2001	5	6.60		0.00	0.37	0.87	4.09	3.10	10.00		7.23	7.23	2.35	0.00	0.51	210.71	4.25	4.88	0.87
5/23/2001	2001	2001	5	6.50		0.00	0.36	3.84	4.09	3.10	14.00		13.71	13.71	2.33	0.00	0.50	209.43	4.17	11.38	3.84
5/24/2001	2001	2001	5	6.80		0.00	0.32	4.55	4.09	3.10	9.30		10.00	10.00	2.37	0.00	0.51	213.21	4.43	7.63	4.55
5/25/2001	2001	2001	5	7.40		0.00	0.43	6.29	4.09	3.10	11.00		13.20	13.20	2.45	0.00	0.53	220.30	4.95	10.74	6.29
5/26/2001	2001	2001	5	7.60		0.00	0.43	6.29	4.09	3.10	11.00		13.20	13.20	2.48	0.00	0.54	222.53	5.12	10.72	6.29
5/27/2001	2001	2001	5	12.00		0.00	0.43	6.29	4.09	3.10	14.00		15.99	15.99	2.60	0.00	0.56	233.51	9.40	13.39	6.29
5/28/2001	2001	2001	5	8.70		0.00	0.43	6.29	4.09	3.10	22.00		23.43		0.00	0.00	0.00	0.00	8.70	23.43	6.29
5/29/2001	2001	2001	5	7.60		0.00	0.46	5.83	8.80	6.56	12.00		10.48	10.48	2.48	0.00	0.54	222.53	5.12	8.00	5.83
5/30/2001	2001	2001	5	6.60		0.00	0.40	5.99	9.71	7.31	12.00		9.93	9.93	2.35	0.00	0.51	210.71	4.25	7.58	5.99
5/31/2001	2001	2001	5	7.00		0.00	0.44	4.54	8.92	6.46	11.00		8.45	8.45	2.40	0.00	0.52	215.64	4.60	6.05	4.54
6/1/2001	2001	2001	6	7.00		0.00	0.43	1.26	8.39	5.71	12.00		7.02	7.02	2.40	0.00	0.52	215.64	4.60	4.62	1.26
6/2/2001	2001	2001	6	6.50		0.00	0.43	1.26	8.39	5.71	15.00		9.81	9.81	2.33	0.00	0.50	209.43	4.17	7.48	1.26
6/3/2001	2001	2001	6	6.80		0.00	0.43	1.26	8.39	5.71	17.00		11.67	11.67	2.37	0.00	0.51	213.21	4.43	9.30	1.26
6/4/2001	2001	2001	6	6.30		0.00	0.38	7.99	5.31	3.45	13.00		16.31	16.31	2.30	0.00	0.50	206.81	4.00	14.01	7.99
6/5/2001	2001	2001	6	6.30		0.00	0.43	8.63	4.50	2.61	7.00		12.11	12.11	2.30	0.00	0.50	206.81	4.00	9.80	8.63
6/6/2001	2001	2001	6	6.10		0.00	0.39	8.54	4.25	2.35	6.60		11.89	11.89	2.27	0.00	0.49	204.11	3.83	9.62	8.54
6/7/2001	2001	2001	6	6.40		0.00	0.39	7.48	5.28	3.46	6.10		9.41	9.41	2.32	0.00	0.50	208.13	4.08	7.09	7.09
6/8/2001	2001	2001	6	7.20		0.00	0.42	10.57	7.70	5.06	7.80		12.38	12.38	2.43	0.00	0.52	218.00	4.77	9.95	9.95
6/9/2001	2001	2001	6	7.20		0.00	0.42	10.57	7.70	5.06	6.70		11.35	11.35	2.43	0.00	0.52	218.00	4.77	8.93	8.93
6/10/2001	2001	2001	6	7.00		0.00	0.42	10.57	7.70	5.06	5.40		10.57	10.57	2.40	0.00	0.52	215.64	4.60	8.17	8.17
6/11/2001	2001	2001	6	7.30		0.00	0.40	7.95	8.54	6.24	5.60		7.95	7.95	2.44	0.00	0.53	219.16	4.86	5.51	5.51
6/12/2001	2001	2001	6	7.40		0.00	0.40	7.98	8.55	6.02	8.90		10.10	10.10	2.45	0.00	0.53	220.30	4.95	7.65	7.65
6/13/2001	2001	2001	6	6.70		0.00	0.43	6.20	8.43	5.98	9.70		9.23	9.23	2.36	0.00	0.51	211.97	4.34	6.87	6.20
6/14/2001	2001	2001	6	6.20		0.00	0.43	5.32	7.90	5.59	10.00		9.05	9.05	2.29	0.00	0.49	205.47	3.91	6.77	5.32
6/15/2001	2001	2001	6	5.70		0.00	0.37	8.01	10.83	7.67	10.00		9.62	9.62	2.21	0.00	0.48	198.43	3.49	7.41	7.41
6/16/2001	2001	2001	6	6.30		0.00	0.37	8.01	10.83	7.67	11.00		10.55	10.55	2.30	0.00	0.50	206.81	4.00	8.25	8.01

Existing Condition — **San Joaquin Marsh Operations**

With Project Diversion

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
6/17/2001	2001	2001	6	7.10		0.00	0.37	8.01	10.83	7.67	9.50		9.16	9.16	2.41	0.00	0.52	216.83	4.69	6.74	6.74
6/18/2001	2001	2001	6	7.20		0.00	0.40	5.21	9.58	6.75	9.40		7.31	7.31	2.43	0.00	0.52	218.00	4.77	4.88	4.88
6/19/2001	2001	2001	6	7.50		0.00	0.39	0.02	8.83	6.17	13.00		6.37	6.37	2.47	0.00	0.53	221.42	5.03	3.91	0.02
6/20/2001	2001	2001	6	7.70		0.00	0.48	0.00	6.79	4.98	17.00		11.18	11.18	2.49	0.00	0.54	223.63	5.21	8.69	0.00
6/21/2001	2001	2001	6	8.10		0.00	0.35	0.00	8.68	6.40	18.00		10.79	10.79	2.54	0.00	0.55	227.87	5.56	8.25	0.00
6/22/2001	2001	2001	6	8.00		0.00	0.36	7.59	10.89	8.14	17.00		15.30	15.30	2.53	0.00	0.55	226.83	5.47	12.77	7.59
6/23/2001	2001	2001	6	8.30		0.00	0.36	7.59	10.89	8.14	14.00		12.51	12.51	2.56	0.00	0.55	229.92	5.74	9.95	7.59
6/24/2001	2001	2001	6	7.90		0.00	0.36	7.59	10.89	8.14	13.00		11.58	11.58	2.51	0.00	0.54	225.78	5.39	9.06	7.59
6/25/2001	2001	2001	6	8.60		0.00	0.38	6.63	8.30	6.13	11.00		10.70	10.70	2.59	0.00	0.56	232.89	6.01	8.11	6.63
6/26/2001	2001	2001	6	8.10		0.00	0.40	6.07	7.77	5.79	11.00		10.49	10.49	2.54	0.00	0.55	227.87	5.56	7.95	6.07
6/27/2001	2001	2001	6	7.40		0.00	0.41	5.85	8.07	5.64	11.00		10.43	10.43	2.45	0.00	0.53	220.30	4.95	7.98	5.85
6/28/2001	2001	2001	6	7.70		0.00	0.41	6.72	7.01	5.27	10.00		10.65	10.65	2.49	0.00	0.54	223.63	5.21	8.16	6.72
6/29/2001	2001	2001	6	7.60		0.00	0.41	4.81	7.50	5.34	11.00		9.74	9.74	2.48	0.00	0.54	222.53	5.12	7.26	4.81
6/30/2001	2001	2001	6	7.20		0.00	0.41	4.81	7.50	5.34	10.00		8.81	8.81	2.43	0.00	0.52	218.00	4.77	6.38	4.81
7/1/2001	2001	2001	7	8.30		0.00	0.29	4.81	7.50	5.34	8.10		7.04	7.04	2.56	0.00	0.55	229.92	5.74	4.48	4.48
7/2/2001	2001	2001	7	8.30		0.00	0.29	5.31	8.08	5.81	8.70		7.63	7.63	2.56	0.00	0.55	229.92	5.74	5.07	5.07
7/3/2001	2001	2001	7	7.50		0.00	0.29	6.25	8.57	6.27	7.70		7.14	7.14	2.47	0.00	0.53	221.42	5.03	4.67	4.67
7/4/2001	2001	2001	7	7.80		0.00	0.29	6.25	8.57	6.27	11.00		10.20	10.20	2.50	0.00	0.54	224.71	5.30	7.70	6.25
7/5/2001	2001	2001	7	7.70		0.00	0.29	5.32	8.24	5.97	9.70		8.42	8.42	2.49	0.00	0.54	223.63	5.21	5.93	5.32
7/6/2001	2001	2001	7	7.50		0.00	0.29	7.98	9.78	7.26	15.00		14.62	14.62	2.47	0.00	0.53	221.42	5.03	12.15	7.98
7/7/2001	2001	2001	7	8.00		0.00	0.29	7.98	9.78	7.26	12.00		11.83	11.83	2.53	0.00	0.55	226.83	5.47	9.30	7.98
7/8/2001	2001	2001	7	8.80		0.00	0.29	7.98	9.78	7.26	10.00		9.97	9.97	2.60	0.00	0.56	233.51	6.20	7.37	7.37
7/9/2001	2001	2001	7	9.60		0.00	0.29	7.22	2.26	1.59	9.60		14.16	14.16	2.60	0.00	0.56	233.51	7.00	11.56	7.22
7/10/2001	2001	2001	7	9.40		0.00	0.29	6.34	8.43	6.30	6.70		6.34	6.34	2.60	0.00	0.56	233.51	6.80	3.74	3.74
7/11/2001	2001	2001	7	9.30		0.00	0.29	6.33	8.40	6.21	12.00		11.27	11.27	2.60	0.00	0.56	233.51	6.70	8.67	6.33
7/12/2001	2001	2001	7	8.70		0.00	0.29	0.46	8.16	5.96	13.00		6.98	6.98	2.60	0.00	0.56	233.51	6.10	4.38	0.46
7/13/2001	2001	2001	7	8.40		0.00	0.29	9.35	10.05	7.42	16.00		16.68	16.68	2.57	0.00	0.56	230.92	5.83	14.11	9.35
7/14/2001	2001	2001	7	8.20		0.00	0.29	9.35	10.05	7.42	9.80		10.91	10.91	2.55	0.00	0.55	228.90	5.65	8.36	8.36
7/15/2001	2001	2001	7	7.80		0.00	0.29	9.35	10.05	7.42	8.30		9.52	9.52	2.50	0.00	0.54	224.71	5.30	7.02	7.02
7/16/2001	2001	2001	7	7.70		0.00	0.29	6.33	7.92	6.09	9.40		8.96	8.96	2.49	0.00	0.54	223.63	5.21	6.47	6.33
7/17/2001	2001	2001	7	7.50		0.00	0.29	6.28	8.78	6.59	11.00		9.95	9.95	2.47	0.00	0.53	221.42	5.03	7.48	6.28
7/18/2001	2001	2001	7	7.60		0.00	0.29	6.13	8.39	6.22	11.00		10.15	10.15	2.48	0.00	0.54	222.53	5.12	7.67	6.13
7/19/2001	2001	2001	7	7.70		0.00	0.29	6.12	8.59	6.13	11.00		10.22	10.22	2.49	0.00	0.54	223.63	5.21	7.73	6.12
7/20/2001	2001	2001	7	7.10		0.00	0.29	8.02	10.88	7.73	11.00		10.50	10.50	2.41	0.00	0.52	216.83	4.69	8.08	8.02
7/21/2001	2001	2001	7	6.80		0.00	0.29	8.02	10.88	7.73	11.00		10.50	10.50	2.37	0.00	0.51	213.21	4.43	8.12	8.02
7/22/2001	2001	2001	7	6.70		0.00	0.29	8.02	10.88	7.73	11.00		10.50	10.50	2.36	0.00	0.51	211.97	4.34	8.14	8.02
7/23/2001	2001	2001	7	6.50		0.00	0.29	6.30	8.10	5.76	12.00		11.66	11.66	2.33	0.00	0.50	209.43	4.17	9.33	6.30
7/24/2001	2001	2001	7	6.50		0.00	0.29	6.27	8.64	6.20	11.00		10.29	10.29	2.33	0.00	0.50	209.43	4.17	7.96	6.27
7/25/2001	2001	2001	7	6.70		0.00	0.29	6.34	8.76	5.91	12.00		11.56	11.56	2.36	0.00	0.51	211.97	4.34	9.20	6.34
7/26/2001	2001	2001	7	6.90		0.00	0.29	6.35	8.42	6.53	12.00		10.99	10.99	2.39	0.00	0.52	214.44	4.51	8.60	6.35
7/27/2001	2001	2001	7	6.90		0.00	0.29	8.04	11.03	8.11	12.00		11.09	11.09	2.39	0.00	0.52	214.44	4.51	8.70	8.04
7/28/2001	2001	2001	7	7.20		0.00	0.29	8.04	11.03	8.11	12.00		11.09	11.09	2.43	0.00	0.52	218.00	4.77	8.66	8.04
7/29/2001	2001	2001	7	7.00		0.00	0.29	8.04	11.03	8.11	11.00		10.16	10.16	2.40	0.00	0.52	215.64	4.60	7.76	7.76
7/30/2001	2001	2001	7	7.40		0.00	0.29	6.37	8.38	6.01	11.00		10.57	10.57	2.45	0.00	0.53	220.30	4.95	8.11	6.37
7/31/2001	2001	2001	7	7.30		0.00	0.29	6.38	8.23	6.15	11.00		10.45	10.45	2.44	0.00	0.53	219.16	4.86	8.01	6.38
8/1/2001	2001	2001	8	7.70		0.00	0.29	6.30	7.54	5.65	9.70		9.62	9.62	2.49	0.00	0.54	223.63	5.21	7.13	6.30
8/2/2001	2001	2001	8	7.70		0.00	0.29	6.26	7.97	5.85	11.00		10.60	10.60	2.49	0.00	0.54	223.63	5.21	8.11	6.26
8/3/2001	2001	2001	8	7.70		0.00	0.29	7.95	10.79	7.96	9.80		9.10	9.10	2.49	0.00	0.54	223.63	5.21	6.61	6.61
8/4/2001	2001	2001	8	7.50		0.00	0.29	7.95	10.79	7.96	10.00		9.29	9.29	2.47	0.00	0.53	221.42	5.03	6.82	6.82
8/5/2001	2001	2001	8	7.30		0.00	0.29	7.95	10.79	7.96	11.00		10.22	10.22	2.44	0.00	0.53	219.16	4.86	7.78	7.78
8/6/2001	2001	2001	8	7.60		0.00	0.29	6.36	8.82	6.63	11.00		9.98	9.98	2.48	0.00	0.54	222.53	5.12	7.50	6.36
8/7/2001	2001	2001	8	7.70		0.00	0.29	6.33	8.68	6.95	12.00		10.58	10.58	2.49	0.00	0.54	223.63	5.21	8.09	6.33
8/8/2001	2001	2001	8	7.80		0.00	0.29	6.31	8.21	6.25	13.00		12.15	12.15	2.50	0.00	0.54	224.71	5.30	9.65	6.31
8/9/2001	2001	2001	8	7.70		0.00	0.29	6.53	2.27	2.24	13.00		16.08	16.08	2.49	0.00	0.54	223.63	5.21	13.59	6.53
8/10/2001	2001	2001	8	7.20		0.00	0.29	8.38	11.02	8.38	9.20		8.55	8.55	2.43	0.00	0.52	218.00	4.77	6.13	6.13
8/11/2001	2001	2001	8	6.90		0.00	0.29	8.38	11.02	8.38	13.00		12.09	12.09	2.39	0.00	0.52	214.44	4.51	9.70	8.38
8/12/2001	2001	2001	8	6.80		0.00	0.29	8.38	11.02	8.38	14.00		13.02	13.02	2.37	0.00	0.51	213.21	4.43	10.64	8.38
8/13/2001	2001	2001	8	6.90		0.00	0.29	7.09	7.97	5.76	12.00		12.39	12.39	2.39	0.00	0.52	214.44	4.51	10.01	7.09
8/14/2001	2001	2001	8	6.70		0.00	0.29	7.07	8.44	6.57	11.00		10.70	10.70	2.36	0.00	0.51	211.97	4.34	8.34	7.07
8/15/2001	2001	2001	8	6.90		0.00	0.29	6.41	8.48	6.28	11.00		10.35	10.35	2.39	0.00	0.52	214.44	4.51	7.96	6.41
8/16/2001	2001	2001	8	6.90		0.00	0.29	6.43	8.68	5.92	11.00		10.70	10.70	2.39	0.00	0.52	214.44	4.51	8.32	6.43
8/17/2001	2001	2001	8	6.90		0.00	0.29	8.13	10.92	7.78	11.00		10.55	10.55	2.39	0.00	0.52	214.44	4.51	8.17	8.13
8/18/2001	2001	2001	8	6.90		0.00	0.29	8.13	10.92	7.78	9.90		9.53	9.53	2.39	0.00	0.52	214.44	4.51	7.14	7.14
8/19/2001	2001	2001	8	7.00		0.00	0.29	8.13	10.92	7.78	10.00		9.62	9.62	2.40	0.00	0.52	215.64	4.60	7.22	7.22
8/20/2001	2001	2001	8	6.90		0.00	0.29	6.44	8.43	6.35	11.00		10.32	10.32	2.39	0.00	0.52	214.44	4.51	7.93	6.44
8/21/2001	2001	2001	8	6.90		0.00	0.29	6.43	8.53	5.39	11.00		11.20	11.20	2.39	0.00	0.52	214.44	4.51	8.81	6.43
8/22/2001	2001	2001	8	7.20		0.00	0.29	6.38	8.59	6.44	11.00		10.18	10.18	2.43	0.00	0.52	218.00	4.77	7.75	6.38
8/23/2001	2001	2001	8	7.40		0.00	0.29	6.38	8.46	6.40	10.00		9.29	9.29	2.45	0.00	0.53	220.30	4.95	6.84	6.38
8/24/2001	2001	2001	8	7.60		0.00	0.29	8.16	10.96	7.76	11.00		10.60	10.60	2.48	0.00	0.54	222.53	5.12	8.12	8.12
8/25/2001	2001	2001	8	8.00		0.00	0.29	8.16	10.96	7.76	11.00		10.60	10.60	2.53	0.00	0.55	226.83	5.47	8.08	8.08
8/26/2001	2001	2001	8	8.20		0.00	0.29	8.16	10.96	7.76	10.00		9.67	9.67	2.55	0.00	0.55	228.90	5.65	7.12	7.12

Existing Condition — San Joaquin Marsh Operations | **With Project Diversion**

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
8/27/2001	2001	2001	8	8.30		0.00	0.29	6.38	8.84	6.74	11.00		9.89	9.89	2.56	0.00	0.55	229.92	5.74	7.33	6.38
8/28/2001	2001	2001	8	8.00		0.00	0.29	6.38	8.52	6.32	13.00		12.15	12.15	2.53	0.00	0.55	226.83	5.47	9.63	6.38
8/29/2001	2001	2001	8	8.00		0.00	0.29	6.40	8.36	6.18	12.00		11.36	11.36	2.53	0.00	0.55	226.83	5.47	8.83	6.40
8/30/2001	2001	2001	8	7.80		0.00	0.29	6.43	7.90	5.89	11.00		10.74	10.74	2.50	0.00	0.54	224.71	5.30	8.23	6.43
8/31/2001	2001	2001	8	7.80		0.00	0.29	7.21	10.44	7.80	12.00		10.61	10.61	2.50	0.00	0.54	224.71	5.30	8.11	7.21
9/1/2001	2001	2001	9	7.50		0.00	0.29	7.21	10.44	7.80	12.00		10.61	10.61	2.47	0.00	0.53	221.42	5.03	8.15	7.21
9/2/2001	2001	2001	9	7.30		0.00	0.29	7.21	10.44	7.80	11.00		9.68	9.68	2.44	0.00	0.53	219.16	4.86	7.24	7.21
9/3/2001	2001	2001	9	7.50		0.00	0.29	7.21	10.44	7.80	11.00		9.68	9.68	2.47	0.00	0.53	221.42	5.03	7.22	7.21
9/4/2001	2001	2001	9	8.00		0.00	0.23	6.29	8.89	5.76	11.00		10.72	10.72	2.53	0.00	0.55	226.83	5.47	8.19	6.29
9/5/2001	2001	2001	9	8.00		0.00	0.29	6.38	8.70	6.01	11.00		10.57	10.57	2.53	0.00	0.55	226.83	5.47	8.05	6.38
9/6/2001	2001	2001	9	7.80		0.00	0.24	6.37	7.97	5.43	11.00		11.10	11.10	2.50	0.00	0.54	224.71	5.30	8.60	6.37
9/7/2001	2001	2001	9	7.50		0.00	0.20	8.37	8.55	6.03	11.00		12.41	12.41	2.47	0.00	0.53	221.42	5.03	9.94	8.37
9/8/2001	2001	2001	9	7.30		0.00	0.20	8.37	8.55	6.03	9.40		10.92	10.92	2.44	0.00	0.53	219.16	4.86	8.48	8.37
9/9/2001	2001	2001	9	7.20		0.00	0.20	8.37	8.55	6.03	12.00		13.34	13.34	2.43	0.00	0.52	218.00	4.77	10.91	8.37
9/10/2001	2001	2001	9	7.20		0.00	0.19	6.37	8.51	6.06	13.00		12.38	12.38	2.43	0.00	0.52	218.00	4.77	9.95	6.37
9/11/2001	2001	2001	9	8.60		0.00	0.20	6.41	8.68	6.22	15.00		14.13	14.13	2.59	0.00	0.56	232.89	6.01	11.53	6.41
9/12/2001	2001	2001	9	8.20		0.00	0.21	6.41	8.16	5.10	14.00		14.24	14.24	2.55	0.00	0.55	228.90	5.65	11.69	6.41
9/13/2001	2001	2001	9	8.00		0.00	0.26	6.40	8.29	6.32	14.00		13.09	13.09	2.53	0.00	0.55	226.83	5.47	10.57	6.40
9/14/2001	2001	2001	9	8.00		0.00	0.26	9.62	7.31	5.05	16.00		19.14		0.00	0.00	0.00	0.00	8.00	19.14	9.62
9/15/2001	2001	2001	9	8.30		0.00	0.26	9.62	7.31	5.05	14.00		17.28	17.28	2.56	0.00	0.55	229.92	5.74	14.72	9.62
9/16/2001	2001	2001	9	7.70		0.00	0.26	9.62	7.31	5.05	12.00		15.42	15.42	2.49	0.00	0.54	223.63	5.21	12.93	9.62
9/17/2001	2001	2001	9	7.20		0.00	0.30	6.13	5.67	3.88	13.00		14.18	14.18	2.43	0.00	0.52	218.00	4.77	11.75	6.13
9/18/2001	2001	2001	9	7.20		0.00	0.31	0.62	5.67	3.88	11.00		7.19	7.19	2.43	0.00	0.52	218.00	4.77	4.77	0.62
9/19/2001	2001	2001	9	7.20		0.00	0.32	6.92	7.91	5.47	16.00		16.22	16.22	2.43	0.00	0.52	218.00	4.77	13.79	6.92
9/20/2001	2001	2001	9	6.90		0.00	0.32	7.45	8.70	6.02	10.00		10.64	10.64	2.39	0.00	0.52	214.44	4.51	8.25	7.45
9/21/2001	2001	2001	9	6.70		0.00	0.32	8.84	8.89	6.25	9.90		11.61	11.61	2.36	0.00	0.51	211.97	4.34	9.25	8.84
9/22/2001	2001	2001	9	6.70		0.00	0.32	8.84	8.89	6.25	12.00		13.56	13.56	2.36	0.00	0.51	211.97	4.34	11.20	8.84
9/23/2001	2001	2001	9	6.70		0.00	0.32	8.84	8.89	6.25	11.00		12.63	12.63	2.36	0.00	0.51	211.97	4.34	10.27	8.84
9/24/2001	2001	2001	9	6.40		0.00	0.26	6.51	8.47	6.17	13.00		12.40	12.40	2.32	0.00	0.50	208.13	4.08	10.09	6.51
9/25/2001	2001	2001	9	6.20		0.00	0.25	6.37	8.99	6.56	11.00		10.06	10.06	2.29	0.00	0.49	205.47	3.91	7.77	6.37
9/26/2001	2001	2001	9	6.40		0.00	0.28	6.34	7.59	5.35	9.00		9.29	9.29	2.32	0.00	0.50	208.13	4.08	6.97	6.34
9/27/2001	2001	2001	9	6.40		0.00	0.26	6.53	8.03	5.82	6.30		6.53	6.53	2.32	0.00	0.50	208.13	4.08	4.21	4.21
9/28/2001	2001	2001	9	6.20		0.00	0.26	8.33	10.82	7.62	9.20		9.22	9.22	2.29	0.00	0.49	205.47	3.91	6.93	6.93
9/29/2001	2001	2001	9	6.20		0.00	0.26	8.33	10.82	7.62	11.00		10.89	10.89	2.29	0.00	0.49	205.47	3.91	8.60	8.33
9/30/2001	2001	2001	9	6.90		0.00	0.26	8.33	10.82	7.62	12.00		11.82	11.82	2.39	0.00	0.52	214.44	4.51	9.43	8.33
10/1/2001	2001	2002	10	7.70		0.00	0.23	6.40	8.52	6.17	12.00		11.37	11.37	2.49	0.00	0.54	223.63	5.21	8.88	6.40
10/2/2001	2001	2002	10	8.00		0.00	0.24	0.00	8.89	6.01	12.00		5.57	5.57	2.53	0.00	0.55	226.83	5.47	3.04	0.00
10/3/2001	2001	2002	10	7.80		0.00	0.25	0.13	9.55	6.34	13.00		6.32	6.32	2.50	0.00	0.54	224.71	5.30	3.82	0.13
10/4/2001	2001	2002	10	7.50		0.00	0.28	6.47	7.24	6.23	14.00		13.24	13.24	2.47	0.00	0.53	221.42	5.03	10.77	6.47
10/5/2001	2001	2002	10	7.80		0.00	0.26	8.75	10.97	7.78	9.90		10.11	10.11	2.50	0.00	0.54	224.71	5.30	7.60	7.60
10/6/2001	2001	2002	10	7.80		0.00	0.26	8.75	10.97	7.78	10.00		10.20	10.20	2.50	0.00	0.54	224.71	5.30	7.70	7.70
10/7/2001	2001	2002	10	7.20		0.00	0.26	8.75	10.97	7.78	8.80		9.08	9.08	2.43	0.00	0.52	218.00	4.77	6.66	6.66
10/8/2001	2001	2002	10	7.30		0.00	0.27	8.46	8.02	5.34	6.90		9.31	9.31	2.44	0.00	0.53	219.16	4.86	6.87	6.87
10/9/2001	2001	2002	10	7.80		0.00	0.25	10.25	7.82	6.09	7.00		10.37	10.37	2.50	0.00	0.54	224.71	5.30	7.87	7.87
10/10/2001	2001	2002	10	7.80		0.00	0.26	9.44	9.33	5.84	6.60		9.49	9.49	2.50	0.00	0.54	224.71	5.30	6.99	6.99
10/11/2001	2001	2002	10	7.50		0.00	0.26	9.07	6.48	3.87	6.00		10.42	10.42	2.47	0.00	0.53	221.42	5.03	7.95	7.95
10/12/2001	2001	2002	10	8.00		0.00	0.23	9.25	11.96	8.49	6.80		9.25	9.25	2.53	0.00	0.55	226.83	5.47	6.73	6.73
10/13/2001	2001	2002	10	9.40		0.00	0.23	9.25	11.96	8.49	12.00		11.87	11.87	2.60	0.00	0.56	233.51	6.80	9.27	9.25
10/14/2001	2001	2002	10	9.00		0.00	0.23	9.25	11.96	8.49	14.00		13.73	13.73	2.60	0.00	0.56	233.51	6.40	11.13	9.25
10/15/2001	2001	2002	10	8.00		0.00	0.21	8.32	11.20	7.63	12.00		11.80	11.80	2.53	0.00	0.55	226.83	5.47	9.28	8.32
10/16/2001	2001	2002	10	7.80		0.00	0.22	8.91	12.48	8.43	10.00		9.75	9.75	2.50	0.00	0.54	224.71	5.30	7.25	7.25
10/17/2001	2001	2002	10	7.60		0.00	0.23	8.69	13.14	8.21	9.80		9.56	9.56	2.48	0.00	0.54	222.53	5.12	7.08	7.08
10/18/2001	2001	2002	10	7.20		0.00	0.21	8.53	10.18	8.25	9.40		9.00	9.00	2.43	0.00	0.52	218.00	4.77	6.57	6.57
10/19/2001	2001	2002	10	7.20		0.00	0.18	8.70	11.88	8.36	8.90		8.70	8.70	2.43	0.00	0.52	218.00	4.77	6.28	6.28
10/20/2001	2001	2002	10	6.50		0.00	0.18	8.70	11.88	8.36	9.60		9.24	9.24	2.33	0.00	0.50	209.43	4.17	6.91	6.91
10/21/2001	2001	2002	10	6.40		0.00	0.18	8.70	11.88	8.36	10.00		9.61	9.61	2.32	0.00	0.50	208.13	4.08	7.30	7.30
10/22/2001	2001	2002	10	6.90		0.00	0.21	8.67	12.12	8.49	9.30		8.82	8.82	2.39	0.00	0.52	214.44	4.51	6.43	6.43
10/23/2001	2001	2002	10	6.90		0.00	0.22	0.50	11.40	8.15	11.00		3.12	3.12	2.39	0.00	0.52	214.44	4.51	0.73	0.50
10/24/2001	2001	2002	10	6.70		0.00	0.22	0.50	13.25	8.70	17.00		8.19	8.19	2.36	0.00	0.51	211.97	4.34	5.83	0.50
10/25/2001	2001	2002	10	6.70		0.00	0.23	8.57	10.25	9.46	18.00		15.92	15.92	2.36	0.00	0.51	211.97	4.34	13.56	8.57
10/26/2001	2001	2002	10	6.70		0.00	0.23	8.49	7.45	5.94	11.00		12.60	12.60	2.36	0.00	0.51	211.97	4.34	10.24	8.49
10/27/2001	2001	2002	10	6.70		0.00	0.23	8.49	7.45	5.94	7.40		9.26	9.26	2.36	0.00	0.51	211.97	4.34	6.90	6.90
10/28/2001	2001	2002	10	6.70		0.00	0.23	8.49	7.45	5.94	5.60		8.49	8.49	2.36	0.00	0.51	211.97	4.34	6.13	6.13
10/29/2001	2001	2002	10	6.20		0.00	0.21	6.90	2.48	2.04	8.30		12.24	12.24	2.29	0.00	0.49	205.47	3.91	9.95	6.90
10/30/2001	2001	2002	10	6.00		0.00	0.25	7.95	7.99	6.54	5.40		7.95	7.95	2.26	0.00	0.49	202.73	3.74	5.69	5.69
10/31/2001	2001	2002	10	5.90		0.00	0.22	8.45	5.11	4.15	7.00		10.51	10.51	2.24	0.00	0.48	201.32	3.66	8.27	8.27
11/1/2001	2001	2002	11	6.40		0.00	0.23	8.82	6.84	5.17	7.50		10.37	10.37	2.32	0.00	0.50	208.13	4.08	8.05	8.05
11/2/2001	2001	2002	11	6.60		0.00	0.23	8.49	8.27	5.61	6.90		9.09	9.09	2.35	0.00	0.51	210.71	4.25	6.75	6.75
11/3/2001	2001	2002	11	6.40		0.00	0.23	8.49	8.27	5.61	5.80		8.49	8.49	2.32	0.00	0.50	208.13	4.08	6.17	6.17
11/4/2001	2001	2002	11	8.20		0.00	0.23	8.49	8.27	5.61	13.00		14.77	14.77	2.55	0.00	0.55	228.90	5.65	12.22	8.49
11/5/2001	2001	2002	11	6.40		0.00	0.24	8.22	10.03	7.04	14.00		14.12	14.12	2.32	0.00	0.50	208.13	4.08	11.80	8.22

Existing Condition | **With Project Diversion**

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	San Joaquin Marsh Operations: SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW Ba	Project - Diversi	Project - Diversi	Project - PCW Ba	Project - SDC Ca	Project - SJM In
11/6/2001	2001	2002	11	5.40		0.00	0.23	8.28	8.90	6.80	9.50		10.21	10.21	2.16	0.00	0.47	193.90	3.24	8.05	8.05
11/7/2001	2001	2002	11	5.40		0.00	0.22	8.12	11.50	8.57	8.00		8.12	8.12	2.16	0.00	0.47	193.90	3.24	5.96	5.96
11/8/2001	2001	2002	11	5.50		0.00	0.24	8.21	11.14	8.82	8.40		8.21	8.21	2.18	0.00	0.47	195.44	3.32	6.04	6.04
11/9/2001	2001	2002	11	5.60		0.00	0.24	1.51	3.89	2.80	6.60		4.95	4.95	2.19	0.00	0.47	196.95	3.41	2.75	1.51
11/10/2001	2001	2002	11	5.70		0.00	0.24	1.51	3.89	2.80	7.40		5.69	5.69	2.21	0.00	0.48	198.43	3.49	3.48	1.51
11/11/2001	2001	2002	11	5.60		0.00	0.24	1.51	3.89	2.80	10.00		8.11	8.11	2.19	0.00	0.47	196.95	3.41	5.92	1.51
11/12/2001	2001	2002	11	72.00		0.00	0.23	7.62	12.30	8.62	138.00		127.41		0.00	0.00	0.00	0.00	72.00	127.41	7.62
11/13/2001	2001	2002	11	19.00		0.00	0.23	8.02	11.95	8.05	85.00		79.02		0.00	0.00	0.00	0.00	19.00	79.02	8.02
11/14/2001	2001	2002	11	7.00		0.00	0.22	0.75	10.04	7.25	15.00		7.91	7.91	2.40	0.00	0.52	215.64	4.60	5.51	0.75
11/15/2001	2001	2002	11	6.00		0.00	0.23	6.24	6.77	3.81	13.00		14.36	14.36	2.26	0.00	0.49	202.73	3.74	12.10	6.24
11/16/2001	2001	2002	11	5.30		0.00	0.24	6.69	6.65	3.44	8.30		10.74	10.74	2.14	0.00	0.46	192.33	3.16	8.60	6.69
11/17/2001	2001	2002	11	5.10		0.00	0.24	6.69	6.65	3.44	8.00		10.47	10.47	2.11	0.00	0.46	189.11	2.99	8.36	6.69
11/18/2001	2001	2002	11	6.70		0.00	0.24	6.69	6.65	3.44	8.10		10.56	10.56	2.36	0.00	0.51	211.97	4.34	8.20	6.69
11/19/2001	2001	2002	11	6.40		0.00	0.23	6.05	8.70	4.02	7.90		9.24	9.24	2.32	0.00	0.50	208.13	4.08	6.92	6.05
11/20/2001	2001	2002	11	6.70		0.00	0.22	6.22	5.54	3.32	7.20		9.39	9.39	2.36	0.00	0.51	211.97	4.34	7.03	6.22
11/21/2001	2001	2002	11	6.50		0.00	0.25	5.46	5.98	3.48	4.70		6.21	6.21	2.33	0.00	0.50	209.43	4.17	3.88	3.88
11/22/2001	2001	2002	11	6.90		0.00	0.25	5.46	5.98	3.48	4.30		5.84	5.84	2.39	0.00	0.52	214.44	4.51	3.45	3.45
11/23/2001	2001	2002	11	6.90		0.00	0.25	5.46	5.98	3.48	4.50		6.03	6.03	2.39	0.00	0.52	214.44	4.51	3.64	3.64
11/24/2001	2001	2002	11	70.00		0.00	0.25	5.46	5.98	3.48	312.00		292.00		0.00	0.00	0.00	0.00	70.00	292.00	5.46
11/25/2001	2001	2002	11	8.60		0.00	0.25	5.46	5.98	3.48	58.00		55.78		0.00	0.00	0.00	0.00	8.60	55.78	5.46
11/26/2001	2001	2002	11	5.70		0.00	0.25	6.81	7.05	4.18	11.00		12.68	12.68	2.21	0.00	0.48	198.43	3.49	10.47	6.81
11/27/2001	2001	2002	11	5.70		0.00	0.05	7.03	7.44	4.50	7.50		9.33	9.33	2.21	0.00	0.48	198.43	3.49	7.12	7.03
11/28/2001	2001	2002	11	6.10		0.00	0.31	5.61	4.32	2.11	5.70		8.55	8.55	2.27	0.00	0.49	204.11	3.83	6.28	5.61
11/29/2001	2001	2002	11	24.00		0.00	0.32	5.92	4.72	2.24	63.00		62.01		0.00	0.00	0.00	0.00	24.00	62.01	5.92
11/30/2001	2001	2002	11	7.00		0.00	0.28	6.64	5.69	3.13	19.00		20.94		0.00	0.00	0.00	0.00	7.00	20.94	6.64
12/1/2001	2001	2002	12	6.60		0.00	0.31	6.64	5.69	3.13	5.40		8.29	8.29	2.35	0.00	0.51	210.71	4.25	5.94	5.94
12/2/2001	2001	2002	12	6.50		0.00	0.31	6.64	5.69	3.13	4.70		7.64	7.64	2.33	0.00	0.50	209.43	4.17	5.31	5.31
12/3/2001	2001	2002	12	15.00		0.00	0.85	5.75	8.09	4.20	39.00		37.72		0.00	0.00	0.00	0.00	15.00	37.72	5.75
12/4/2001	2001	2002	12	6.50		0.00	0.26	7.69	7.29	5.35	13.00		14.26	14.26	2.33	0.00	0.50	209.43	4.17	11.93	7.69
12/5/2001	2001	2002	12	5.70		0.00	0.31	6.59	7.11	4.49	7.20		8.65	8.65	2.21	0.00	0.48	198.43	3.49	6.44	6.44
12/6/2001	2001	2002	12	5.60		0.00	0.32	6.06	5.97	4.10	7.00		8.34	8.34	2.19	0.00	0.47	196.95	3.41	6.15	6.06
12/7/2001	2001	2002	12	6.20		0.00	0.33	6.33	7.18	4.25	6.60		8.07	8.07	2.29	0.00	0.49	205.47	3.91	5.78	5.78
12/8/2001	2001	2002	12	6.70		0.00	0.33	6.33	7.18	4.25	7.80		9.19	9.19	2.36	0.00	0.51	211.97	4.34	6.83	6.33
12/9/2001	2001	2002	12	5.90		0.00	0.33	6.33	7.18	4.25	7.40		8.82	8.82	2.24	0.00	0.48	201.32	3.66	6.58	6.33
12/10/2001	2001	2002	12	5.90		0.00	0.31	7.41	9.00	5.64	22.00		22.11		0.00	0.00	0.00	0.00	5.90	22.11	7.41
12/11/2001	2001	2002	12	5.90		0.00	0.32	6.20	7.09	4.14	26.00		26.10		0.00	0.00	0.00	0.00	5.90	26.10	6.20
12/12/2001	2001	2002	12	6.00		0.00	0.32	5.33	5.94	3.21	9.10		10.43	10.43	2.26	0.00	0.49	202.73	3.74	8.18	5.33
12/13/2001	2001	2002	12	6.30		0.00	0.32	6.52	5.81	2.87	7.20		10.10	10.10	2.30	0.00	0.50	206.81	4.00	7.79	6.52
12/14/2001	2001	2002	12	26.00		0.00	0.33	6.33	6.85	3.84	90.00		86.02		0.00	0.00	0.00	0.00	26.00	86.02	6.33
12/15/2001	2001	2002	12	6.90		0.00	0.33	6.33	6.85	3.84	34.00		33.94		0.00	0.00	0.00	0.00	6.90	33.94	6.33
12/16/2001	2001	2002	12	6.40		0.00	0.33	6.33	6.85	3.84	11.00		12.55	12.55	2.32	0.00	0.50	208.13	4.08	10.23	6.33
12/17/2001	2001	2002	12	6.90		0.00	0.32	6.35	11.38	7.01	11.00		9.62	9.62	2.39	0.00	0.52	214.44	4.51	7.23	6.35
12/18/2001	2001	2002	12	7.20		0.00	0.32	5.99	8.04	6.33	13.00		11.78	11.78	2.43	0.00	0.52	218.00	4.77	9.35	5.99
12/19/2001	2001	2002	12	7.50		0.00	0.29	6.47	6.89	3.65	11.00		12.85	12.85	2.47	0.00	0.53	221.42	5.03	10.38	6.47
12/20/2001	2001	2002	12	8.00		0.00	0.30	6.09	6.12	3.36	9.00		10.91	10.91	2.53	0.00	0.55	226.83	5.47	8.38	6.09
12/21/2001	2001	2002	12	56.00		0.00	0.31	6.32	6.81	3.78	202.00		190.22		0.00	0.00	0.00	0.00	56.00	190.22	6.32
12/22/2001	2001	2002	12	9.70		0.00	0.31	6.32	6.81	3.78	35.00		34.91		0.00	0.00	0.00	0.00	9.70	34.91	6.32
12/23/2001	2001	2002	12	7.10		0.00	0.31	6.32	6.81	3.78	16.00		17.24	17.24	2.41	0.00	0.52	216.83	4.69	14.82	6.32
12/24/2001	2001	2002	12	6.90		0.00	0.31	6.32	6.81	3.78	11.00		12.59	12.59	2.39	0.00	0.52	214.44	4.51	10.20	6.32
12/25/2001	2001	2002	12	7.10		0.00	0.31	6.32	6.81	3.78	11.00		12.59	12.59	2.41	0.00	0.52	216.83	4.69	10.17	6.32
12/26/2001	2001	2002	12	7.20		0.00	0.31	7.99	8.56	8.21	12.00		10.96	10.96	2.43	0.00	0.52	218.00	4.77	8.53	7.99
12/27/2001	2001	2002	12	7.10		0.00	0.30	5.16	5.67	5.66	13.00		11.63	11.63	2.41	0.00	0.52	216.83	4.69	9.22	5.16
12/28/2001	2001	2002	12	6.70		0.00	0.32	4.79	7.19	4.11	10.00		9.94	9.94	2.36	0.00	0.51	211.97	4.34	7.58	4.79
12/29/2001	2001	2002	12	27.00		0.00	0.32	4.79	7.19	4.11	62.00		58.30		0.00	0.00	0.00	0.00	27.00	58.30	4.79
12/30/2001	2001	2002	12	25.00		0.00	0.32	4.79	7.19	4.11	97.00		90.85		0.00	0.00	0.00	0.00	25.00	90.85	4.79
12/31/2001	2001	2002	12	9.80		0.00	0.32	4.79	7.19	4.11	61.00		57.37		0.00	0.00	0.00	0.00	9.80	57.37	4.79
1/1/2002	2002	2002	1	6.00		0.00	0.32	4.79	7.19	4.11	14.00		13.66	13.66	2.26	0.00	0.49	202.73	3.74	11.40	4.79
1/2/2002	2002	2002	1	5.80		0.00	0.32	6.19	7.06	3.80	11.00		12.46	12.46	2.23	0.00	0.48	199.89	3.57	10.23	6.19
1/3/2002	2002	2002	1	6.60		0.00	0.34	6.47	7.03	4.03	9.20		10.83	10.83	2.35	0.00	0.51	210.71	4.25	8.48	6.47
1/4/2002	2002	2002	1	5.80		0.00	0.34	6.56	4.35	2.76	9.10		11.99	11.99	2.23	0.00	0.48	199.89	3.57	9.77	6.56
1/5/2002	2002	2002	1	5.30		0.00	0.34	6.56	4.35	2.76	5.50		8.65	8.65	2.14	0.00	0.46	192.33	3.16	6.50	6.50
1/6/2002	2002	2002	1	5.10		0.00	0.34	6.56	4.35	2.76	5.50		8.65	8.65	2.11	0.00	0.46	189.11	2.99	6.54	6.54
1/7/2002	2002	2002	1	4.60		0.00	0.35	6.40	6.70	5.04	4.80		6.40	6.40	2.01	0.00	0.43	180.46	2.59	4.39	4.39
1/8/2002	2002	2002	1	4.20		(0.02)	0.34	7.73	6.79	5.61	5.80		7.73	7.73	1.92	(0.01)	0.41	172.10	2.28	5.81	5.81
1/9/2002	2002	2002	1	4.20		(0.02)	0.32	5.19	7.31	3.28	5.80		7.17	7.17	1.92	(0.01)	0.41	172.10	2.28	5.25	5.19
1/10/2002	2002	2002	1	4.40		0.00	0.34	5.75	6.15	3.76	5.30		6.78	6.78	1.97	0.00	0.43	176.74	2.43	4.81	4.81
1/11/2002	2002	2002	1	4.90		0.00	0.33	6.43	6.59	3.66	4.80		7.04	7.04	2.07	0.00	0.45	185.76	2.83	4.97	4.97
1/12/2002	2002	2002	1	5.10		0.00	0.33	6.43	6.59	3.66	5.00		7.23	7.23	2.11	0.00	0.46	189.11	2.99	5.12	5.12
1/13/2002	2002	2002	1	5.10		0.00	0.33	6.43	6.59	3.66	5.00		7.23	7.23	2.11	0.00	0.46	189.11	2.99	5.12	5.12
1/14/2002	2002	2002	1	5.10		0.00	0.34	5.15	6.29	4.23	5.50		5.96	5.96	2.11	0.00	0.46	189.11	2.99	3.86	3.86
1/15/2002	2002	2002	1	4.90		0.00	0.33	6.44	7.92	5.45	6.40		6.87	6.87	2.07	0.00	0.45	185.76	2.83	4.81	4.81

								Existing Condition									With Project Diversion				
													0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
						Est. Loss,		San Joaquin Marsh Operations					**Adjusted	**Adjusted		Est. Loss,	39.7 ppb	16.5 ppm		**Adjusted	using SDC at Can
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	San Diego Cr (SDC) at Campus (cfs)	San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	San Diego Cr (SDC) at Campus (cfs)	SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW Ba	Project - Diversi	Project - Diversi	Project - PCW Ba	Project - SDC Ca	Project - SJM In
1/16/2002	2002	2002	1	5.50		0.00	0.32	6.48	7.90	5.41	6.90		7.41	7.41	2.18	0.00	0.47	195.44	3.32	5.24	5.24
1/17/2002	2002	2002	1	5.60		0.00	0.33	6.40	6.56	4.20	13.00		14.13	14.13	2.19	0.00	0.47	196.95	3.41	11.94	6.40
1/18/2002	2002	2002	1	5.30		0.00	0.33	6.67	6.45	3.92	6.30		8.42	8.42	2.14	0.00	0.46	192.33	3.16	6.28	6.28
1/19/2002	2002	2002	1	5.20		0.00	0.33	6.67	6.45	3.92	4.90		7.12	7.12	2.12	0.00	0.46	190.74	3.08	5.00	5.00
1/20/2002	2002	2002	1	5.10		0.00	0.33	6.67	6.45	3.92	4.70		6.93	6.93	2.11	0.00	0.46	189.11	2.99	4.83	4.83
1/21/2002	2002	2002	1	5.10		0.00	0.33	5.90	5.78	3.52	4.20		6.12	6.12	2.11	0.00	0.46	189.11	2.99	4.01	4.01
1/22/2002	2002	2002	1	5.50		0.00	0.41	7.40	6.40	3.92	4.50		7.43	7.43	2.18	0.00	0.47	195.44	3.32	5.25	5.25
1/23/2002	2002	2002	1	5.50		0.00	0.33	7.13	6.65	4.07	4.70		7.22	7.22	2.18	0.00	0.47	195.44	3.32	5.04	5.04
1/24/2002	2002	2002	1	5.30		0.00	0.37	6.81	6.45	3.79	4.20		6.81	6.81	2.14	0.00	0.46	192.33	3.16	4.67	4.67
1/25/2002	2002	2002	1	5.40		0.00	0.36	7.24	6.73	3.56	3.90		7.24	7.24	2.16	0.00	0.47	193.90	3.24	5.08	5.08
1/26/2002	2002	2002	1	5.50		0.00	0.36	7.24	6.73	3.56	3.90		7.24	7.24	2.18	0.00	0.47	195.44	3.32	5.06	5.06
1/27/2002	2002	2002	1	15.00		0.00	0.36	7.24	6.73	3.56	36.00		36.90		0.00	0.00	0.00	0.00	15.00	36.90	7.24
1/28/2002	2002	2002	1	126.00		0.00	0.34	8.00	10.56	6.70	314.00		293.23		0.00	0.00	0.00	0.00	126.00	293.23	8.00
1/29/2002	2002	2002	1	8.60		0.00	0.35	6.09	8.44	5.93	21.00		19.68		0.00	0.00	0.00	0.00	8.60	19.68	6.09
1/30/2002	2002	2002	1	7.50		0.00	0.33	7.38	11.57	7.91	13.00		11.60	11.60	2.47	0.00	0.53	221.42	5.03	9.13	7.38
1/31/2002	2002	2002	1	7.90		0.00	0.35	6.46	6.54	4.08	14.00		15.23	15.23	2.51	0.00	0.54	225.78	5.39	12.72	6.46
2/1/2002	2002	2002	2	7.30		0.00	0.38	7.17	9.03	5.77	11.00		11.54	11.54	2.44	0.00	0.53	219.16	4.86	9.10	7.17
2/2/2002	2002	2002	2	6.30		0.00	0.38	7.17	9.03	5.77	9.60		10.23	10.23	2.30	0.00	0.50	206.81	4.00	7.93	7.17
2/3/2002	2002	2002	2	5.50		0.00	0.38	7.17	9.03	5.77	7.50		8.28	8.28	2.18	0.00	0.47	195.44	3.32	6.11	6.11
2/4/2002	2002	2002	2	5.10		0.00	0.32	7.20	8.02	5.32	5.10		7.20	7.20	2.11	0.00	0.46	189.11	2.99	5.09	5.09
2/5/2002	2002	2002	2	4.70		0.00	0.37	8.39	10.03	6.74	6.20		8.39	8.39	2.03	0.00	0.44	182.26	2.67	6.36	6.36
2/6/2002	2002	2002	2	6.80		0.00	0.34	7.23	8.96	6.18	7.80		8.23	8.23	2.37	0.00	0.51	213.21	4.43	5.85	5.85
2/7/2002	2002	2002	2	7.40		0.00	0.36	5.91	7.23	5.03	8.70		8.92	8.92	2.45	0.00	0.53	220.30	4.95	6.46	5.91
2/8/2002	2002	2002	2	7.30		0.00	0.34	7.50	7.76	4.65	8.30		10.37	10.37	2.44	0.00	0.53	219.16	4.86	7.93	7.50
2/9/2002	2002	2002	2	5.70		0.00	0.34	7.50	7.76	4.65	8.10		10.19	10.19	2.21	0.00	0.48	198.43	3.49	7.98	7.50
2/10/2002	2002	2002	2	5.90		0.00	0.34	7.50	7.76	4.65	7.40		9.53	9.53	2.24	0.00	0.48	201.32	3.66	7.29	7.29
2/11/2002	2002	2002	2	6.80		0.00	0.34	6.79	7.12	3.89	9.20		11.26	11.26	2.37	0.00	0.51	213.21	4.43	8.88	6.79
2/12/2002	2002	2002	2	7.40		0.00	0.33	8.38	8.74	4.85	11.00		13.51	13.51	2.45	0.00	0.53	220.30	4.95	11.05	8.38
2/13/2002	2002	2002	2	7.20		0.00	0.35	6.81	7.54	4.57	11.00		12.32	12.32	2.43	0.00	0.52	218.00	4.77	9.89	6.81
2/14/2002	2002	2002	2	6.90		0.00	0.38	6.68	8.24	5.31	12.00		12.44	12.44	2.39	0.00	0.52	214.44	4.51	10.05	6.68
2/15/2002	2002	2002	2	7.50		0.00	0.38	6.91	8.80	5.68	14.00		14.16	14.16	2.47	0.00	0.53	221.42	5.03	11.69	6.91
2/16/2002	2002	2002	2	8.10		0.00	0.38	6.91	8.80	5.68	13.00		13.23	13.23	2.54	0.00	0.55	227.87	5.56	10.69	6.91
2/17/2002	2002	2002	2	33.00		0.00	0.38	6.91	8.80	5.68	89.00		83.91		0.00	0.00	0.00	0.00	33.00	83.91	6.91
2/18/2002	2002	2002	2	7.60		0.00	0.38	6.91	8.80	5.68	34.00		32.76		0.00	0.00	0.00	0.00	7.60	32.76	6.91
2/19/2002	2002	2002	2	6.60		0.00	0.37	6.92	7.98	4.42	12.00		13.48	13.48	2.35	0.00	0.51	210.71	4.25	11.14	6.92
2/20/2002	2002	2002	2	7.20		0.00	0.38	7.58	8.70	6.06	13.00		13.51	13.51	2.43	0.00	0.52	218.00	4.77	11.08	7.58
2/21/2002	2002	2002	2	7.50		0.00	0.38	6.87	9.36	6.59	11.00		10.49	10.49	2.47	0.00	0.53	221.42	5.03	8.02	6.87
2/22/2002	2002	2002	2	7.50		0.00	0.40	6.79	7.66	5.15	12.00		12.68	12.68	2.47	0.00	0.53	221.42	5.03	10.22	6.79
2/23/2002	2002	2002	2	7.10		0.00	0.40	6.79	7.66	5.15	13.00		13.61	13.61	2.41	0.00	0.52	216.83	4.69	11.20	6.79
2/24/2002	2002	2002	2	7.50		0.00	0.40	6.79	7.66	5.15	14.00		14.54	14.54	2.47	0.00	0.53	221.42	5.03	12.08	6.79
2/25/2002	2002	2002	2	7.80		0.00	0.35	4.28	7.66	5.15	13.00		11.29	11.29	2.50	0.00	0.54	224.71	5.30	8.78	4.28
2/26/2002	2002	2002	2	7.80		0.00	0.39	5.14	7.66	5.15	13.00		12.08	12.08	2.50	0.00	0.54	224.71	5.30	9.58	5.14
2/27/2002	2002	2002	2	7.50		0.00	0.39	6.70	10.11	6.21	13.00		12.55	12.55	2.47	0.00	0.53	221.42	5.03	10.08	6.70
2/28/2002	2002	2002	2	7.80		0.00	0.41	6.24	8.02	4.78	13.00		13.44	13.44	2.50	0.00	0.54	224.71	5.30	10.94	6.24
3/1/2002	2002	2002	3	7.20		0.00	0.39	7.25	7.01	3.97	12.00		14.20	14.20	2.43	0.00	0.52	218.00	4.77	11.78	7.25
3/2/2002	2002	2002	3	6.90		0.00	0.39	7.25	7.01	3.97	11.00		13.27	13.27	2.39	0.00	0.52	214.44	4.51	10.89	7.25
3/3/2002	2002	2002	3	6.90		0.00	0.39	7.25	7.01	3.97	9.60		11.97	11.97	2.39	0.00	0.52	214.44	4.51	9.58	7.25
3/4/2002	2002	2002	3	7.20		0.00	0.39	7.20	7.40	5.57	11.00		11.74	11.74	2.43	0.00	0.52	218.00	4.77	9.31	7.20
3/5/2002	2002	2002	3	6.70		0.00	0.38	7.21	7.28	4.54	11.00		12.71	12.71	2.36	0.00	0.51	211.97	4.34	10.35	7.21
3/6/2002	2002	2002	3	8.20		0.00	0.41	5.46	6.19	3.75	10.00		10.89	10.89	2.55	0.00	0.55	228.90	5.65	8.34	5.46
3/7/2002	2002	2002	3	23.00		0.00	0.41	5.69	6.10	2.91	97.00		92.79		0.00	0.00	0.00	0.00	23.00	92.79	5.69
3/8/2002	2002	2002	3	9.70		0.00	0.41	6.27	6.03	1.67	22.00		24.74		0.00	0.00	0.00	0.00	9.70	24.74	6.27
3/9/2002	2002	2002	3	7.40		0.00	0.41	6.27	6.03	1.67	8.50		12.18	12.18	2.45	0.00	0.53	220.30	4.95	9.73	6.27
3/10/2002	2002	2002	3	7.10		0.00	0.41	6.27	6.03	1.67	7.80		11.53	11.53	2.41	0.00	0.52	216.83	4.69	9.12	6.27
3/11/2002	2002	2002	3	6.90		0.00	0.35	6.39	7.20	2.79	7.40		10.23	10.23	2.39	0.00	0.52	214.44	4.51	7.84	6.39
3/12/2002	2002	2002	3	6.80		0.00	0.38	6.61	6.77	2.68	7.50		10.63	10.63	2.37	0.00	0.51	213.21	4.43	8.26	6.61
3/13/2002	2002	2002	3	7.50		0.00	0.34	8.67	8.66	3.59	7.40		11.60	11.60	2.47	0.00	0.53	221.42	5.03	9.14	8.67
3/14/2002	2002	2002	3	7.40		0.00	0.37	6.03	5.87	2.56	7.00		9.74	9.74	2.45	0.00	0.53	220.30	4.95	7.28	6.03
3/15/2002	2002	2002	3	7.20		0.00	0.38	7.10	7.23	3.32	6.60		9.65	9.65	2.43	0.00	0.52	218.00	4.77	7.23	7.10
3/16/2002	2002	2002	3	7.20		0.00	0.38	7.10	7.23	3.32	6.70		9.75	9.75	2.43	0.00	0.52	218.00	4.77	7.32	7.10
3/17/2002	2002	2002	3	16.00		0.00	0.38	7.10	7.23	3.32	12.00		14.67	14.67	2.60	0.00	0.56	233.51	13.40	12.07	7.10
3/18/2002	2002	2002	3	12.00		0.00	0.33	7.76	8.58	4.14	69.00		67.53		0.00	0.00	0.00	0.00	12.00	67.53	7.76
3/19/2002	2002	2002	3	7.40		0.00	0.41	5.58	7.76	4.39	9.90		10.32	10.32	2.45	0.00	0.53	220.30	4.95	7.86	5.58
3/20/2002	2002	2002	3	7.10		0.00	0.33	1.36	9.21	5.67	8.10		3.53	3.53	2.41	0.00	0.52	216.83	4.69	1.12	1.12
3/21/2002	2002	2002	3	6.90		0.00	0.38	6.16	12.22	7.94	11.00		8.58	8.58	2.39	0.00	0.52	214.44	4.51	6.19	6.16
3/22/2002	2002	2002	3	6.90		0.00	0.44	6.15	11.82	7.70	8.70		6.66	6.66	2.39	0.00	0.52	214.44	4.51	4.27	4.27
3/23/2002	2002	2002	3	11.00		0.00	0.44	6.15	11.82	7.70	26.00		22.75		0.00	0.00	0.00	0.00	11.00	22.75	6.15
3/24/2002	2002	2002	3	6.80		0.00	0.44	6.15	11.82	7.70	12.00		9.73	9.73	2.37	0.00	0.51	213.21	4.43	7.35	6.15
3/25/2002	2002	2002	3	6.20		0.00	0.43	6.20	11.81	7.45	9.50		7.67	7.67	2.29	0.00	0.49	205.47	3.91	5.39	5.39
3/26/2002	2002	2002	3	6.20		0.00	0.43	5.96	11.93	8.05	8.70		6.15	6.15	2.29	0.00	0.49	205.47	3.91	3.86	3.86
3/27/2002	2002	2002	3	6.20		0.00	0.44	5.96	9.02	5.78	8.10		7.69	7.69	2.29	0.00	0.49	205.47	3.91	5.41	5.41

Existing Condition — **San Joaquin Marsh Operations** — 0.93 — 20.00 cfs

With Project Diversion — PROJ. Div — 39.7 ppb — 16.5 ppm — 39.7 ppb — 16.5 ppm

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Cam SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW Ba	Project - Diversi	Project - Diversi	Project - PCW Ba	Project - SDC Ca	Project - SJM In
3/28/2002	2002	2002	3	6.10		0.00	0.43	6.32	10.11	6.60	8.40		7.56	7.56	2.27	0.00	0.49	204.11	3.83	5.29	5.29
3/29/2002	2002	2002	3	5.90		0.00	0.43	6.32	10.11	6.60	8.60		7.74	7.74	2.24	0.00	0.48	201.32	3.66	5.50	5.50
3/30/2002	2002	2002	3	5.70		0.00	0.43	6.32	10.11	6.60	8.70		7.84	7.84	2.21	0.00	0.48	198.43	3.49	5.63	5.63
3/31/2002	2002	2002	3	5.60		0.00	0.43	6.32	10.11	6.60	8.90		8.02	8.02	2.19	0.00	0.47	196.95	3.41	5.83	5.83
4/1/2002	2002	2002	4	5.70		0.00	0.45	5.95	9.57	6.07	9.30		8.53	8.53	2.21	0.00	0.48	198.43	3.49	6.32	5.95
4/2/2002	2002	2002	4	6.00		0.00	0.41	6.85	10.99	6.57	8.90		8.54	8.54	2.26	0.00	0.49	202.73	3.74	6.28	6.28
4/3/2002	2002	2002	4	6.00		0.00	0.45	5.86	9.20	5.33	8.80		8.67	8.67	2.26	0.00	0.49	202.73	3.74	6.41	5.86
4/4/2002	2002	2002	4	6.20		0.00	0.43	6.37	6.18	2.72	6.50		9.44	9.44	2.29	0.00	0.49	205.47	3.91	7.15	6.37
4/5/2002	2002	2002	4	6.30		0.00	0.43	6.57	7.07	3.42	6.10		8.60	8.60	2.30	0.00	0.50	206.81	4.00	6.30	6.30
4/6/2002	2002	2002	4	14.00		0.00	0.43	6.57	7.07	3.42	22.00		23.39		0.00	0.00	0.00	0.00	14.00	23.39	6.57
4/7/2002	2002	2002	4	6.30		0.00	0.43	6.57	7.07	3.42	11.00		13.16	13.16	2.30	0.00	0.50	206.81	4.00	10.86	6.57
4/8/2002	2002	2002	4	6.10		0.00	0.45	5.46	11.03	5.78	8.90		7.98	7.98	2.27	0.00	0.49	204.11	3.83	5.71	5.46
4/9/2002	2002	2002	4	5.90		0.00	0.40	5.46	8.71	5.78	9.50		8.54	8.54	2.24	0.00	0.48	201.32	3.66	6.30	5.46
4/10/2002	2002	2002	4	5.70		0.00	0.45	5.74	11.66	7.55	9.40		7.06	7.06	2.21	0.00	0.48	198.43	3.49	4.85	4.85
4/11/2002	2002	2002	4	5.80		0.00	0.46	5.37	11.51	7.40	10.00		7.42	7.42	2.23	0.00	0.48	199.89	3.57	5.19	5.19
4/12/2002	2002	2002	4	5.90		0.00	0.48	5.65	11.74	7.63	11.00		8.39	8.39	2.24	0.00	0.48	201.32	3.66	6.15	5.65
4/13/2002	2002	2002	4	5.50		0.00	0.48	5.65	11.74	7.63	12.00		9.32	9.32	2.18	0.00	0.47	195.44	3.32	7.14	5.65
4/14/2002	2002	2002	4	9.60		0.00	0.48	5.65	11.74	7.63	11.00		8.39	8.39	2.60	0.00	0.56	233.51	7.00	5.79	5.65
4/15/2002	2002	2002	4	21.00		0.00	0.42	6.53	13.70	8.87	19.00		15.50	15.50	2.60	0.00	0.56	233.51	18.40	12.90	6.53
4/16/2002	2002	2002	4	16.00		0.00	0.47	4.62	9.92	6.18	23.00		19.93		0.00	0.00	0.00	0.00	16.00	19.93	4.62
4/17/2002	2002	2002	4	7.10		0.00	0.44	5.10	10.37	6.95	14.00		11.29	11.29	2.41	0.00	0.52	216.83	4.69	8.88	5.10
4/18/2002	2002	2002	4	6.90	E	0.00	0.49	5.90	12.47	8.08	13.00		10.07	10.07	2.39	0.00	0.52	214.44	4.51	7.68	5.90
4/19/2002	2002	2002	4	6.70	E	0.00	0.47	5.71	11.70	7.57	12.00		9.42	9.42	2.36	0.00	0.51	211.97	4.34	7.06	5.71
4/20/2002	2002	2002	4	6.00	E	0.00	0.47	5.71	11.70	7.57	11.00		8.49	8.49	2.26	0.00	0.49	202.73	3.74	6.24	5.71
4/21/2002	2002	2002	4	5.90	E	0.00	0.47	5.71	11.70	7.57	11.00		8.49	8.49	2.24	0.00	0.48	201.32	3.66	6.25	5.71
4/22/2002	2002	2002	4	5.90	E	0.00	0.33	5.24	11.06	6.98	11.00		8.62	8.62	2.24	0.00	0.48	201.32	3.66	6.37	5.24
4/23/2002	2002	2002	4	5.20	E	0.00	0.43	6.16	8.28	4.63	10.00		10.72	10.72	2.12	0.00	0.46	190.74	3.08	8.60	6.16
4/24/2002	2002	2002	4	13.00	E	0.00	0.38	5.54	11.86	7.77	23.00		19.31		0.00	0.00	0.00	0.00	13.00	19.31	5.54
4/25/2002	2002	2002	4	7.80		0.00	0.39	5.76	12.28	7.99	27.00		23.04		0.00	0.00	0.00	0.00	7.80	23.04	5.76
4/26/2002	2002	2002	4	11.00		0.00	0.38	5.47	11.70	7.69	31.00		26.77		0.00	0.00	0.00	0.00	11.00	26.77	5.47
4/27/2002	2002	2002	4	5.60		0.00	0.38	5.47	11.70	7.69	18.00		14.68	14.68	2.19	0.00	0.47	196.95	3.41	12.49	5.47
4/28/2002	2002	2002	4	4.10		(0.05)	0.38	5.47	11.70	7.69	11.00		8.17	8.17	1.90	(0.02)	0.41	168.66	2.22	6.29	5.47
4/29/2002	2002	2002	4	4.50		0.00	0.36	5.66	12.31	7.87	11.00		8.18	8.18	1.99	0.00	0.43	178.62	2.51	6.19	5.66
4/30/2002	2002	2002	4	4.10		(0.05)	0.44	5.29	9.98	6.51	9.20		7.42	7.42	1.90	(0.02)	0.41	168.66	2.22	5.54	5.29
5/1/2002	2002	2002	5	4.30		0.00	0.42	5.47	8.72	4.83	8.60		8.60	8.60	1.95	0.00	0.42	174.81	2.35	6.65	5.47
5/2/2002	2002	2002	5	4.40		0.00	0.41	6.05	10.45	6.21	9.80		8.97	8.97	1.97	0.00	0.43	176.74	2.43	7.00	6.05
5/3/2002	2002	2002	5	4.30		0.00	0.40	5.90	10.03	6.08	7.30		6.63	6.63	1.95	0.00	0.42	174.81	2.35	4.68	4.68
5/4/2002	2002	2002	5	4.70		0.00	0.40	5.90	10.03	6.08	7.50		6.81	6.81	2.03	0.00	0.44	182.26	2.67	4.78	4.78
5/5/2002	2002	2002	5	5.20		0.00	0.40	5.90	10.03	6.08	7.30		6.63	6.63	2.12	0.00	0.46	190.74	3.08	4.50	4.50
5/6/2002	2002	2002	5	5.60		0.00	0.41	5.55	9.73	5.85	7.90		7.06	7.06	2.19	0.00	0.47	196.95	3.41	4.87	4.87
5/7/2002	2002	2002	5	5.80		0.00	0.41	5.98	9.65	5.83	7.30		6.93	6.93	2.23	0.00	0.48	199.89	3.57	4.70	4.70
5/8/2002	2002	2002	5	5.90		0.00	0.41	7.65	7.06	2.40	6.00		10.47	10.47	2.24	0.00	0.48	201.32	3.66	8.23	7.65
5/9/2002	2002	2002	5	6.10		0.00	0.44	4.49	6.76	3.78	5.50		5.78	5.78	2.27	0.00	0.49	204.11	3.83	3.51	3.51
5/10/2002	2002	2002	5	6.20		0.00	0.42	5.59	8.72	4.94	6.70		6.84	6.84	2.29	0.00	0.49	205.47	3.91	4.55	4.55
5/11/2002	2002	2002	5	6.30		0.00	0.42	5.59	8.72	4.94	6.60		6.75	6.75	2.30	0.00	0.50	206.81	4.00	4.44	4.44
5/12/2002	2002	2002	5	6.40		0.00	0.42	5.59	8.72	4.94	6.50		6.65	6.65	2.32	0.00	0.50	208.13	4.08	4.33	4.33
5/13/2002	2002	2002	5	6.80		0.00	0.40	6.72	9.11	5.07	6.50		7.58	7.58	2.37	0.00	0.51	213.21	4.43	5.20	5.20
5/14/2002	2002	2002	5	6.80		0.00	0.41	6.24	8.65	5.00	5.70		6.46	6.46	2.37	0.00	0.51	213.21	4.43	4.08	4.08
5/15/2002	2002	2002	5	6.70		0.00	0.48	7.67	8.90	4.82	7.00		9.16	9.16	2.36	0.00	0.51	211.97	4.34	6.80	6.80
5/16/2002	2002	2002	5	6.50		0.00	0.44	6.89	8.01	4.31	6.00		7.98	7.98	2.33	0.00	0.50	209.43	4.17	5.65	5.65
5/17/2002	2002	2002	5	6.40		0.00	0.43	6.12	10.63	6.92	5.50		6.12	6.12	2.32	0.00	0.50	208.13	4.08	3.81	3.81
5/18/2002	2002	2002	5	6.10		0.00	0.43	6.12	10.63	6.92	6.50		6.12	6.12	2.27	0.00	0.49	204.11	3.83	3.85	3.85
5/19/2002	2002	2002	5	8.80		0.00	0.43	6.12	10.63	6.92	9.80		8.37	8.37	2.60	0.00	0.56	233.51	6.20	5.77	5.77
5/20/2002	2002	2002	5	6.20		0.00	0.30	6.79	9.68	5.72	8.60		9.00	9.00	2.29	0.00	0.49	205.47	3.91	6.71	6.71
5/21/2002	2002	2002	5	5.80		0.00	0.37	6.41	10.50	6.57	7.20		6.54	6.54	2.23	0.00	0.48	199.89	3.57	4.32	4.32
5/22/2002	2002	2002	5	5.60		0.00	0.41	8.50	14.61	9.54	5.80		8.50	8.50	2.19	0.00	0.47	196.95	3.41	6.31	6.31
5/23/2002	2002	2002	5	5.10		0.00	0.39	5.09	8.90	5.94	6.50		5.25	5.25	2.11	0.00	0.46	189.11	2.99	3.15	3.15
5/24/2002	2002	2002	5	5.40		0.00	0.37	6.55	10.33	8.56	6.80		6.55	6.55	2.16	0.00	0.47	193.90	3.24	4.39	4.39
5/25/2002	2002	2002	5	5.60		0.00	0.37	6.55	10.33	8.56	6.80		6.55	6.55	2.19	0.00	0.47	196.95	3.41	4.35	4.35
5/26/2002	2002	2002	5	5.60		0.00	0.37	6.55	10.33	8.56	6.90		6.55	6.55	2.19	0.00	0.47	196.95	3.41	4.35	4.35
5/27/2002	2002	2002	5	5.70		0.00	0.37	6.55	10.33	8.56	7.00		6.55	6.55	2.21	0.00	0.48	198.43	3.49	4.34	4.34
5/28/2002	2002	2002	5	5.90		0.00	0.35	6.30	9.58	5.81	6.80		6.78	6.78	2.24	0.00	0.48	201.32	3.66	4.53	4.53
5/29/2002	2002	2002	5	5.60		0.00	0.32	6.86	10.75	6.61	6.90		6.86	6.86	2.19	0.00	0.47	196.95	3.41	4.67	4.67
5/30/2002	2002	2002	5	5.60		0.00	0.36	6.77	10.68	6.67	7.10		6.77	6.77	2.19	0.00	0.47	196.95	3.41	4.58	4.58
5/31/2002	2002	2002	5	5.60		0.00	0.36	6.76	10.46	6.57	6.50		6.76	6.76	2.19	0.00	0.47	196.95	3.41	4.56	4.56
6/1/2002	2002	2002	6	4.80		0.00	0.37	6.76	10.46	6.57	6.70		6.76	6.76	2.05	0.00	0.44	184.03	2.75	4.71	4.71
6/2/2002	2002	2002	6	4.80		0.00	0.37	6.76	10.46	6.57	6.70		6.76	6.76	2.05	0.00	0.44	184.03	2.75	4.71	4.71
6/3/2002	2002	2002	6	4.70		0.00	0.36	3.72	7.79	4.88	10.00		8.23	8.23	2.03	0.00	0.44	182.26	2.67	6.20	3.72
6/4/2002	2002	2002	6	7.20		0.00	0.37	4.46	8.72	5.44	8.60		7.09	7.09	2.43	0.00	0.52	218.00	4.77	4.66	4.46
6/5/2002	2002	2002	6	5.10		0.00	0.34	4.56	8.90	5.45	7.70		6.34	6.34	2.11	0.00	0.46	189.11	2.99	4.23	4.23
6/6/2002	2002	2002	6	4.80		0.00	0.39	4.32	8.40	5.20	7.10		5.78	5.78	2.05	0.00	0.44	184.03	2.75	3.73	3.73

								Existing Condition										With Project Diversion		
													0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm		
						Est. Loss,		San Joaquin Marsh Operations					**Adjusted	**Adjusted		Est. Loss,	39.7 ppb	16.5 ppm		**Adjusted	using SDC at Can
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	San Diego Cr (SDC) at Campus (cfs)	San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	San Diego Cr (SDC) at Campus (cfs)	SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
6/7/2002	2002	2002	6	4.80		0.00	0.37	4.45	8.44	5.25	7.90		6.60	6.60	2.05	0.00	0.44	184.03	2.75	4.55	4.45
6/8/2002	2002	2002	6	4.80		0.00	0.37	4.45	8.44	5.25	7.10		5.86	5.86	2.05	0.00	0.44	184.03	2.75	3.81	3.81
6/9/2002	2002	2002	6	4.70		0.00	0.37	4.45	8.44	5.25	7.70		6.42	6.42	2.03	0.00	0.44	182.26	2.67	4.39	4.39
6/10/2002	2002	2002	6	4.50		0.00	0.35	5.15	8.48	4.80	6.40		6.28	6.28	1.99	0.00	0.43	178.62	2.51	4.29	4.29
6/11/2002	2002	2002	6	4.50		0.00	0.37	4.19	6.69	3.94	6.40		6.19	6.19	1.99	0.00	0.43	178.62	2.51	4.20	4.19
6/12/2002	2002	2002	6	5.10		0.00	0.35	4.75	7.67	4.43	6.80		6.63	6.63	2.11	0.00	0.46	189.11	2.99	4.52	4.52
6/13/2002	2002	2002	6	5.10		0.00	0.33	3.87	6.26	3.57	7.30		7.07	7.07	2.11	0.00	0.46	189.11	2.99	4.97	3.87
6/14/2002	2002	2002	6	5.40		0.00	0.32	4.50	7.30	4.03	7.40		7.32	7.32	2.16	0.00	0.47	193.90	3.24	5.16	4.50
6/15/2002	2002	2002	6	5.30		0.00	0.32	4.50	7.30	4.03	6.80		6.76	6.76	2.14	0.00	0.46	192.33	3.16	4.62	4.50
6/16/2002	2002	2002	6	5.10		0.00	0.32	4.50	7.30	4.03	5.80		5.83	5.83	2.11	0.00	0.46	189.11	2.99	3.73	3.73
6/17/2002	2002	2002	6	5.10		0.00	0.31	4.55	7.32	4.27	6.00		5.84	5.84	2.11	0.00	0.46	189.11	2.99	3.74	3.74
6/18/2002	2002	2002	6	5.10		0.00	0.32	4.43	7.10	4.39	8.10		7.58	7.58	2.11	0.00	0.46	189.11	2.99	5.47	4.43
6/19/2002	2002	2002	6	5.40		0.00	0.33	4.86	6.94	4.16	7.30		7.44	7.44	2.16	0.00	0.47	193.90	3.24	5.28	4.86
6/20/2002	2002	2002	6	5.40		0.00	0.34	4.61	6.56	3.52	8.00		8.46	8.46	2.16	0.00	0.47	193.90	3.24	6.30	4.61
6/21/2002	2002	2002	6	5.30		0.00	0.31	5.62	7.96	4.36	6.50		7.22	7.22	2.14	0.00	0.46	192.33	3.16	5.08	5.08
6/22/2002	2002	2002	6	5.10		0.00	0.31	5.62	7.96	4.36	6.70		7.40	7.40	2.11	0.00	0.46	189.11	2.99	5.30	5.30
6/23/2002	2002	2002	6	5.90		0.00	0.31	5.62	7.96	4.36	7.50		8.15	8.15	2.24	0.00	0.48	201.32	3.66	5.91	5.62
6/24/2002	2002	2002	6	5.90		0.00	0.29	4.92	7.02	3.70	7.90		8.48	8.48	2.24	0.00	0.48	201.32	3.66	6.23	4.92
6/25/2002	2002	2002	6	6.20		0.00	0.30	4.64	6.68	3.53	7.80		8.29	8.29	2.29	0.00	0.49	205.47	3.91	6.00	4.64
6/26/2002	2002	2002	6	5.60		0.00	0.31	4.53	6.28	3.37	7.20		7.78	7.78	2.19	0.00	0.47	196.95	3.41	5.58	4.53
6/27/2002	2002	2002	6	6.90		0.00	0.36	4.39	6.18	3.05	9.90		10.46	10.46	2.39	0.00	0.52	214.44	4.51	8.07	4.39
6/28/2002	2002	2002	6	5.40		0.00	0.39	4.63	6.04	2.89	6.60		7.75	7.75	2.16	0.00	0.47	193.90	3.24	5.59	4.63
6/29/2002	2002	2002	6	5.40		0.00	0.39	4.63	6.04	2.89	6.90		8.03	8.03	2.16	0.00	0.47	193.90	3.24	5.87	4.63
6/30/2002	2002	2002	6	5.40		0.00	0.39	4.63	6.04	2.89	5.60		6.82	6.82	2.16	0.00	0.47	193.90	3.24	4.66	4.63
7/1/2002	2002	2002	7	5.50		0.00	0.24	5.29	7.49	3.60	7.30		8.36	8.36	2.18	0.00	0.47	195.44	3.32	6.18	5.29
7/2/2002	2002	2002	7	4.80		0.00	0.24	3.92	5.43	2.59	7.30		8.03	8.03	2.05	0.00	0.44	184.03	2.75	5.98	3.92
7/3/2002	2002	2002	7	4.90		0.00	0.25	4.57	6.48	3.09	7.80		8.63	8.63	2.07	0.00	0.45	185.76	2.83	6.56	4.57
7/4/2002	2002	2002	7	5.10		0.00	0.25	4.57	6.48	3.09	8.10		8.91	8.91	2.11	0.00	0.46	189.11	2.99	6.80	4.57
7/5/2002	2002	2002	7	5.30		0.00	0.24	4.55	6.51	3.11	6.80		7.66	7.66	2.14	0.00	0.46	192.33	3.16	5.52	4.55
7/6/2002	2002	2002	7	5.80		0.00	0.24	4.55	6.51	3.11	6.10		7.01	7.01	2.23	0.00	0.48	199.89	3.57	4.78	4.55
7/7/2002	2002	2002	7	5.90		0.00	0.24	4.55	6.51	3.11	6.20		7.10	7.10	2.24	0.00	0.48	201.32	3.66	4.86	4.55
7/8/2002	2002	2002	7	5.60		0.00	0.23	4.36	6.37	3.07	6.10		6.88	6.88	2.19	0.00	0.47	196.95	3.41	4.68	4.36
7/9/2002	2002	2002	7	5.30		0.00	0.23	4.46	6.60	3.29	6.00		6.67	6.67	2.14	0.00	0.46	192.33	3.16	4.53	4.46
7/10/2002	2002	2002	7	5.40		0.00	0.23	4.59	6.28	3.53	5.80		6.38	6.38	2.16	0.00	0.47	193.90	3.24	4.22	4.22
7/11/2002	2002	2002	7	5.30		0.00	0.23	4.72	7.08	4.09	6.30		6.45	6.45	2.14	0.00	0.46	192.33	3.16	4.30	4.30
7/12/2002	2002	2002	7	5.00		0.00	0.22	4.56	6.89	3.63	6.20		6.63	6.63	2.09	0.00	0.45	187.45	2.91	4.54	4.54
7/13/2002	2002	2002	7	5.20		0.00	0.22	4.56	6.89	3.63	7.10		7.47	7.47	2.12	0.00	0.46	190.74	3.08	5.34	4.56
7/14/2002	2002	2002	7	5.10		0.00	0.22	4.56	6.89	3.63	6.10		6.54	6.54	2.11	0.00	0.46	189.11	2.99	4.43	4.43
7/15/2002	2002	2002	7	6.00		0.00	0.21	4.60	6.51	3.20	6.00		6.88	6.88	2.26	0.00	0.49	202.73	3.74	4.62	4.60
7/16/2002	2002	2002	7	6.80		0.00	0.22	4.66	6.47	3.27	9.70		10.31	10.31	2.37	0.00	0.51	213.21	4.43	7.94	4.66
7/17/2002	2002	2002	7	6.00		0.00	0.21	4.64	6.74	3.34	9.70		10.23	10.23	2.26	0.00	0.49	202.73	3.74	7.98	4.64
7/18/2002	2002	2002	7	5.40		0.00	0.23	4.59	6.48	2.97	6.30		7.36	7.36	2.16	0.00	0.47	193.90	3.24	5.21	4.59
7/19/2002	2002	2002	7	5.30		0.00	0.21	4.51	8.07	3.64	6.00		6.39	6.39	2.14	0.00	0.46	192.33	3.16	4.24	4.24
7/20/2002	2002	2002	7	5.70		0.00	0.21	4.51	8.07	3.64	7.70		7.97	7.97	2.21	0.00	0.48	198.43	3.49	5.76	4.51
7/21/2002	2002	2002	7	6.10		0.00	0.21	4.51	8.07	3.64	9.70		9.83	9.83	2.27	0.00	0.49	204.11	3.83	7.55	4.51
7/22/2002	2002	2002	7	6.10		0.00	0.22	4.40	6.29	2.81	10.00		10.78	10.78	2.27	0.00	0.49	204.11	3.83	8.50	4.40
7/23/2002	2002	2002	7	5.50		0.00	0.20	4.60	6.85	3.13	6.60		7.50	7.50	2.18	0.00	0.47	195.44	3.32	5.32	4.60
7/24/2002	2002	2002	7	5.50		0.00	0.19	4.77	6.91	3.22	7.90		8.79	8.79	2.18	0.00	0.47	195.44	3.32	6.61	4.77
7/25/2002	2002	2002	7	5.50		0.00	0.19	4.80	7.17	3.32	7.40		8.26	8.26	2.18	0.00	0.47	195.44	3.32	6.08	4.80
7/26/2002	2002	2002	7	5.60		0.00	0.20	4.53	7.26	3.63	9.40		9.57	9.57	2.19	0.00	0.47	196.95	3.41	7.38	4.53
7/27/2002	2002	2002	7	5.50		0.00	0.20	4.53	7.26	3.63	8.40		8.64	8.64	2.18	0.00	0.47	195.44	3.32	6.47	4.53
7/28/2002	2002	2002	7	5.70		0.00	0.20	4.53	7.26	3.63	8.10		8.36	8.36	2.21	0.00	0.48	198.43	3.49	6.15	4.53
7/29/2002	2002	2002	7	11.00		0.00	0.19	4.60	7.41	3.74	11.00		11.02	11.02	2.60	0.00	0.56	233.51	8.40	8.42	4.60
7/30/2002	2002	2002	7	5.30		0.00	0.20	4.68	7.47	3.74	7.40		7.75	7.75	2.14	0.00	0.46	192.33	3.16	5.61	4.68
7/31/2002	2002	2002	7	5.00		0.00	0.19	4.45	6.99	2.94	7.10		8.01	8.01	2.09	0.00	0.45	187.45	2.91	5.92	4.45
8/1/2002	2002	2002	8	4.80		0.00	0.20	4.59	6.47	2.37	5.00		6.72	6.72	2.05	0.00	0.44	184.03	2.75	4.67	4.59
8/2/2002	2002	2002	8	5.00		0.00	0.19	4.67	7.09	2.84	5.70		7.01	7.01	2.09	0.00	0.45	187.45	2.91	4.92	4.67
8/3/2002	2002	2002	8	5.10		0.00	0.19	4.67	7.09	2.84	5.80		7.10	7.10	2.11	0.00	0.46	189.11	2.99	4.99	4.67
8/4/2002	2002	2002	8	4.80		0.00	0.19	4.67	7.09	2.84	6.20		7.47	7.47	2.05	0.00	0.44	184.03	2.75	5.42	4.67
8/5/2002	2002	2002	8	5.10		0.00	0.18	4.51	7.16	3.46	7.20		7.67	7.67	2.11	0.00	0.46	189.11	2.99	5.56	4.51
8/6/2002	2002	2002	8	5.40		0.00	0.19	4.46	7.15	3.43	8.30		8.68	8.68	2.16	0.00	0.47	193.90	3.24	6.52	4.46
8/7/2002	2002	2002	8	5.60		0.00	0.19	4.87	8.52	4.39	9.00		8.81	8.81	2.19	0.00	0.47	196.95	3.41	6.62	4.87
8/8/2002	2002	2002	8	5.80		0.00	0.19	4.55	8.14	4.26	9.70		9.30	9.30	2.23	0.00	0.48	199.89	3.57	7.07	4.55
8/9/2002	2002	2002	8	5.90		0.00	0.19	4.48	7.98	4.19	8.60		8.26	8.26	2.24	0.00	0.48	201.32	3.66	6.02	4.48
8/10/2002	2002	2002	8	6.00		0.00	0.19	4.48	7.98	4.19	9.30		8.91	8.91	2.26	0.00	0.49	202.73	3.74	6.66	4.48
8/11/2002	2002	2002	8	6.60		0.00	0.19	4.48	7.98	4.19	9.80		9.38	9.38	2.35	0.00	0.51	210.71	4.25	7.03	4.48
8/12/2002	2002	2002	8	6.60		0.00	0.18	4.72	8.59	4.57	9.40		8.89	8.89	2.35	0.00	0.51	210.71	4.25	6.54	4.72
8/13/2002	2002	2002	8	5.90		0.00	0.18	4.37	7.88	4.23	8.50		8.04	8.04	2.24	0.00	0.48	201.32	3.66	5.80	4.37
8/14/2002	2002	2002	8	5.90		0.00	0.18	3.70	6.22	3.08	7.50		7.55	7.55	2.24	0.00	0.48	201.32	3.66	5.30	3.70
8/15/2002	2002	2002	8	6.10		0.00	0.19	2.00	5.42	2.79	7.80		6.52	6.52	2.27	0.00	0.49	204.11	3.83	4.25	2.00
8/16/2002	2002	2002	8	6.00		0.00	0.18	4.50	5.42	2.79	7.60		8.66	8.66	2.26	0.00	0.49	202.73	3.74	6.41	4.50

									Existing Condition									With Project Diversion			
													0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
						Est. Loss,			San Joaquin Marsh Operations				**Adjusted	**Adjusted		Est. Loss,	39.7 ppb	16.5 ppm		**Adjusted	using SDC at Can
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	San Diego Cr (SDC) at Campus (cfs)	San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	San Diego Cr (SDC) at Campus (cfs)	SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
8/17/2002	2002	2002	8	5.90		0.00	0.18	4.50	5.42	2.79	8.20		9.22	9.22	2.24	0.00	0.48	201.32	3.66	6.98	4.50
8/18/2002	2002	2002	8	5.90		0.00	0.18	4.50	5.42	2.79	8.00		9.04	9.04	2.24	0.00	0.48	201.32	3.66	6.79	4.50
8/19/2002	2002	2002	8	5.90		0.00	0.22	4.43	7.18	3.58	8.50		8.70	8.70	2.24	0.00	0.48	201.32	3.66	6.46	4.43
8/20/2002	2002	2002	8	6.10		0.00	0.12	4.47	6.45	3.25	7.90		8.48	8.48	2.27	0.00	0.49	204.11	3.83	6.21	4.47
8/21/2002	2002	2002	8	5.60		0.00	0.18	4.74	2.33	1.03	7.10		10.05	10.05	2.19	0.00	0.47	196.95	3.41	7.86	4.74
8/22/2002	2002	2002	8	5.60		0.00	0.19	4.35	6.21	3.24	4.80		5.49	5.49	2.19	0.00	0.47	196.95	3.41	3.30	3.30
8/23/2002	2002	2002	8	5.80		0.00	0.18	4.82	7.10	4.03	6.70		6.97	6.97	2.23	0.00	0.48	199.89	3.57	4.74	4.74
8/24/2002	2002	2002	8	5.90		0.00	0.18	4.82	7.10	4.03	6.60		6.87	6.87	2.24	0.00	0.48	201.32	3.66	4.63	4.63
8/25/2002	2002	2002	8	5.80		0.00	0.18	4.82	7.10	4.03	6.90		7.15	7.15	2.23	0.00	0.48	199.89	3.57	4.93	4.82
8/26/2002	2002	2002	8	5.60		0.00	0.16	4.77	7.01	4.01	6.30		6.57	6.57	2.19	0.00	0.47	196.95	3.41	4.37	4.37
8/27/2002	2002	2002	8	5.90		0.00	0.18	4.67	6.82	3.66	5.90		6.42	6.42	2.24	0.00	0.48	201.32	3.66	4.18	4.18
8/28/2002	2002	2002	8	6.40		0.00	0.17	4.28	6.80	3.54	6.20		6.46	6.46	2.32	0.00	0.50	208.13	4.08	4.14	4.14
8/29/2002	2002	2002	8	5.90		0.00	0.17	4.43	6.54	3.68	6.70		6.94	6.94	2.24	0.00	0.48	201.32	3.66	4.70	4.43
8/30/2002	2002	2002	8	6.20		0.00	0.18	4.55	3.20	2.27	7.80		9.37	9.37	2.29	0.00	0.49	205.47	3.91	7.08	4.55
8/31/2002	2002	2002	8	6.20		0.00	0.18	4.55	3.20	2.27	5.20		6.95	6.95	2.29	0.00	0.49	205.47	3.91	4.66	4.55
9/1/2002	2002	2002	9	6.30		0.00	0.16	4.55	3.20	2.27	5.20		6.95	6.95	2.30	0.00	0.50	206.81	4.00	4.65	4.55
9/2/2002	2002	2002	9	6.70		0.00	0.16	4.55	3.20	2.27	6.50		8.16	8.16	2.36	0.00	0.51	211.97	4.34	5.80	4.55
9/3/2002	2002	2002	9	5.80		0.00	0.15	4.66	6.62	4.46	6.30		6.04	6.04	2.23	0.00	0.48	199.89	3.57	3.82	3.82
9/4/2002	2002	2002	9	6.00		0.00	0.16	4.63	3.54	3.07	6.10		7.12	7.12	2.26	0.00	0.49	202.73	3.74	4.86	4.63
9/5/2002	2002	2002	9	6.20		0.00	0.17	4.67	4.87	3.31	5.90		6.75	6.75	2.29	0.00	0.49	205.47	3.91	4.46	4.46
9/6/2002	2002	2002	9	6.50		0.00	0.17	4.61	4.86	3.48	6.40		7.00	7.00	2.33	0.00	0.50	209.43	4.17	4.67	4.61
9/7/2002	2002	2002	9	6.30		0.00	0.17	4.61	4.86	3.48	6.00		6.63	6.63	2.30	0.00	0.50	206.81	4.00	4.33	4.33
9/8/2002	2002	2002	9	6.40		0.00	0.17	4.61	4.86	3.48	6.30		6.91	6.91	2.32	0.00	0.50	208.13	4.08	4.59	4.59
9/9/2002	2002	2002	9	6.30		0.00	0.16	4.62	5.31	3.58	7.00		7.47	7.47	2.30	0.00	0.50	206.81	4.00	5.17	4.62
9/10/2002	2002	2002	9	6.70		0.00	0.16	4.78	7.63	5.93	7.00		5.44	5.44	2.36	0.00	0.51	211.97	4.34	3.08	3.08
9/11/2002	2002	2002	9	6.40		0.00	0.15	4.49	7.15	5.64	7.30		5.72	5.72	2.32	0.00	0.50	208.13	4.08	3.40	3.40
9/12/2002	2002	2002	9	6.00		0.00	0.17	4.35	4.71	3.79	7.00		7.03	7.03	2.26	0.00	0.49	202.73	3.74	4.77	4.35
9/13/2002	2002	2002	9	6.00		0.00	0.16	4.61	4.36	3.66	5.50		6.00	6.00	2.26	0.00	0.49	202.73	3.74	3.74	3.74
9/14/2002	2002	2002	9	6.00		0.00	0.16	4.61	4.36	3.66	5.90		6.37	6.37	2.26	0.00	0.49	202.73	3.74	4.12	4.12
9/15/2002	2002	2002	9	6.10		0.00	0.16	4.61	4.36	3.66	7.90		8.23	8.23	2.27	0.00	0.49	204.11	3.83	5.96	4.61
9/16/2002	2002	2002	9	6.10		0.00	0.16	4.42	0.00	0.02	5.90		9.58	9.58	2.27	0.00	0.49	204.11	3.83	7.30	4.42
9/17/2002	2002	2002	9	6.00		0.00	0.16	4.94	4.25	3.21	4.40		5.70	5.70	2.26	0.00	0.49	202.73	3.74	3.44	3.44
9/18/2002	2002	2002	9	5.70		0.00	0.15	4.42	4.54	2.10	5.90		7.64	7.64	2.21	0.00	0.48	198.43	3.49	5.43	4.42
9/19/2002	2002	2002	9	5.70		0.00	0.15	4.42	4.54	2.10	5.70		7.46	7.46	2.21	0.00	0.48	198.43	3.49	5.25	4.42
9/20/2002	2002	2002	9	5.40		0.00	0.15	6.24	8.37	5.35	5.60		6.24	6.24	2.16	0.00	0.47	193.90	3.24	4.08	4.08
9/21/2002	2002	2002	9	5.40		0.00	0.15	6.24	8.37	5.35	7.20		7.52	7.52	2.16	0.00	0.47	193.90	3.24	5.36	5.36
9/22/2002	2002	2002	9	5.70		0.00	0.15	6.24	8.37	5.35	7.30		7.61	7.61	2.21	0.00	0.48	198.43	3.49	5.40	5.40
9/23/2002	2002	2002	9	5.70		0.00	0.15	5.53	7.47	4.88	7.30		7.39	7.39	2.21	0.00	0.48	198.43	3.49	5.18	5.18
9/24/2002	2002	2002	9	6.20		0.00	0.15	5.51	7.88	5.15	7.40		7.22	7.22	2.29	0.00	0.49	205.47	3.91	4.93	4.93
9/25/2002	2002	2002	9	6.20		0.00	0.14	5.91	6.84	4.31	7.00		8.00	8.00	2.29	0.00	0.49	205.47	3.91	5.71	5.71
9/26/2002	2002	2002	9	6.30		0.00	0.15	7.31	7.06	5.21	6.10		7.62	7.62	2.30	0.00	0.50	206.81	4.00	5.32	5.32
9/27/2002	2002	2002	9	5.80		0.00	0.13	6.76	6.74	5.39	6.90		7.69	7.69	2.23	0.00	0.48	199.89	3.57	5.46	5.46
9/28/2002	2002	2002	9	6.10		0.00	0.13	6.76	6.74	5.39	7.30		8.06	8.06	2.27	0.00	0.49	204.11	3.83	5.78	5.78
9/29/2002	2002	2002	9	5.90		0.00	0.13	6.76	6.74	5.39	9.10		9.73	9.73	2.24	0.00	0.48	201.32	3.66	7.49	6.76
9/30/2002	2002	2002	9	5.80		0.00	0.13	7.43	8.79	5.41	8.10		9.42	9.42	2.23	0.00	0.48	199.89	3.57	7.19	7.19
10/1/2002	2002	2003	10	5.60		0.00	0.09	5.51	6.84	3.76	7.30		8.42	8.42	2.19	0.00	0.47	196.95	3.41	6.23	5.51
10/2/2002	2002	2003	10	5.50		0.00	0.15	6.71	9.31	5.21	7.80		8.65	8.65	2.18	0.00	0.47	195.44	3.32	6.48	6.48
10/3/2002	2002	2003	10	5.70		0.00	0.14	4.70	8.83	4.63	6.70		6.30	6.30	2.21	0.00	0.48	198.43	3.49	4.09	4.09
10/4/2002	2002	2003	10	5.70		0.00	0.13	5.64	8.94	4.71	5.50		5.97	5.97	2.21	0.00	0.48	198.43	3.49	3.77	3.77
10/5/2002	2002	2003	10	6.30		0.00	0.13	5.64	8.94	4.71	5.30		5.79	5.79	2.30	0.00	0.50	206.81	4.00	3.49	3.49
10/6/2002	2002	2003	10	6.10		0.00	0.13	5.64	8.94	4.71	6.00		6.44	6.44	2.27	0.00	0.49	204.11	3.83	4.17	4.17
10/7/2002	2002	2003	10	6.00		0.00	0.12	4.51	8.77	5.35	6.40		5.17	5.17	2.26	0.00	0.49	202.73	3.74	2.92	2.92
10/8/2002	2002	2003	10	5.80		0.00	0.13	5.69	11.78	8.28	7.50		5.69	5.69	2.23	0.00	0.48	199.89	3.57	3.47	3.47
10/9/2002	2002	2003	10	5.50		0.00	0.13	4.69	9.46	6.74	7.10		4.70	4.70	2.18	0.00	0.47	195.44	3.32	2.52	2.52
10/10/2002	2002	2003	10	5.40		0.00	0.14	5.21	9.81	6.57	8.00		6.18	6.18	2.16	0.00	0.47	193.90	3.24	4.02	4.02
10/11/2002	2002	2003	10	5.40		0.00	0.13	5.31	10.07	7.06	7.60		5.44	5.44	2.16	0.00	0.47	193.90	3.24	3.28	3.28
10/12/2002	2002	2003	10	5.90		0.00	0.13	5.31	10.07	7.06	7.50		5.35	5.35	2.24	0.00	0.48	201.32	3.66	3.11	3.11
10/13/2002	2002	2003	10	6.40		0.00	0.13	5.31	10.07	7.06	8.90		6.65	6.65	2.32	0.00	0.50	208.13	4.08	4.33	4.33
10/14/2002	2002	2003	10	5.20		0.00	0.13	4.62	6.95	3.16	7.50		8.34	8.34	2.12	0.00	0.46	190.74	3.08	6.21	4.62
10/15/2002	2002	2003	10	4.90		0.00	0.14	5.30	7.13	3.28	4.50		6.06	6.06	2.07	0.00	0.45	185.76	2.83	4.00	4.00
10/16/2002	2002	2003	10	5.20		0.00	0.13	4.60	9.22	5.10	6.40		5.49	5.49	2.12	0.00	0.46	190.74	3.08	3.36	3.36
10/17/2002	2002	2003	10	5.20		0.00	0.10	5.03	9.89	5.61	8.10		6.99	6.99	2.12	0.00	0.46	190.74	3.08	4.87	4.87
10/18/2002	2002	2003	10	5.00		0.00	0.13	4.60	9.51	5.16	7.60		6.55	6.55	2.09	0.00	0.45	187.45	2.91	4.46	4.46
10/19/2002	2002	2003	10	5.00		0.00	0.13	4.60	9.51	5.16	7.40		6.36	6.36	2.09	0.00	0.45	187.45	2.91	4.28	4.28
10/20/2002	2002	2003	10	4.60		0.00	0.13	4.60	9.51	5.16	6.30		5.34	5.34	2.01	0.00	0.43	180.46	2.59	3.33	3.33
10/21/2002	2002	2003	10	5.00		0.00	0.14	5.58	11.38	6.38	5.40		5.58	5.58	2.09	0.00	0.45	187.45	2.91	3.49	3.49
10/22/2002	2002	2003	10	5.10		0.00	0.15	4.48	9.18	4.93	6.00		5.16	5.16	2.11	0.00	0.46	189.11	2.99	3.06	3.06
10/23/2002	2002	2003	10	5.20		0.00	0.11	4.82	9.96	5.14	6.50		5.74	5.74	2.12	0.00	0.46	190.74	3.08	3.62	3.62
10/24/2002	2002	2003	10	4.80		0.00	0.11	5.81	10.63	5.39	6.20		6.16	6.16	2.05	0.00	0.44	184.03	2.75	4.11	4.11
10/25/2002	2002	2003	10	5.50		0.00	0.10	4.95	5.94	2.79	6.20		7.77	7.77	2.18	0.00	0.47	195.44	3.32	5.60	4.95
10/26/2002	2002	2003	10	7.60		0.00	0.10	4.95	5.94	2.79	8.70		10.10	10.10	2.48	0.00	0.54	222.53	5.12	7.62	4.95

Existing Condition | **With Project Diversion**

San Joaquin Marsh Operations

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW B	Project - Diversi	Project - Diversi	Project - PCW B	Project - SDC Ca	Project - SJM In
10/27/2002	2002	2003	10	4.90		0.00	0.10	4.95	5.94	2.79	6.70		8.24	8.24	2.07	0.00	0.45	185.76	2.83	6.17	4.95
10/28/2002	2002	2003	10	4.70		0.00	0.10	4.82	8.43	4.06	4.80		5.16	5.16	2.03	0.00	0.44	182.26	2.67	3.13	3.13
10/29/2002	2002	2003	10	5.10		0.00	0.11	5.03	9.32	4.70	4.40		5.03	5.03	2.11	0.00	0.46	189.11	2.99	2.92	2.92
10/30/2002	2002	2003	10	4.70		0.00	0.10	4.72	8.77	4.67	4.70		4.72	4.72	2.03	0.00	0.44	182.26	2.67	2.69	2.69
10/31/2002	2002	2003	10	4.90		0.00	0.11	5.32	7.29	2.62	5.70		7.82	7.82	2.07	0.00	0.45	185.76	2.83	5.75	5.32
11/1/2002	2002	2003	11	4.80		0.00	0.11	4.30	8.91	5.02	5.60		4.54	4.54	2.05	0.00	0.44	184.03	2.75	2.49	2.49
11/2/2002	2002	2003	11	5.00		0.00	0.11	4.30	8.91	5.02	6.30		5.19	5.19	2.09	0.00	0.45	187.45	2.91	3.10	3.10
11/3/2002	2002	2003	11	5.60		0.00	0.11	4.30	8.91	5.02	6.70		5.56	5.56	2.19	0.00	0.47	196.95	3.41	3.37	3.37
11/4/2002	2002	2003	11	6.00		0.00	0.11	4.78	10.92	6.52	8.10		5.92	5.92	2.26	0.00	0.49	202.73	3.74	3.66	3.66
11/5/2002	2002	2003	11	6.00		0.00	0.09	3.99	8.54	4.80	7.80		6.50	6.50	2.26	0.00	0.49	202.73	3.74	4.24	3.99
11/6/2002	2002	2003	11	5.70		0.00	0.10	5.67	12.98	7.49	7.50		5.67	5.67	2.21	0.00	0.48	198.43	3.49	3.46	3.46
11/7/2002	2002	2003	11	5.60		0.00	0.11	3.69	8.17	4.36	7.90		6.72	6.72	2.19	0.00	0.47	196.95	3.41	4.53	3.69
11/8/2002	2002	2003	11	200.00		0.00	0.11	3.35	5.22	2.79	404.00		376.24		0.00	0.00	0.00	0.00	200.00	376.24	3.35
11/9/2002	2002	2003	11	277.00		0.00	0.11	3.35	5.22	2.79	676.00		629.20		0.00	0.00	0.00	0.00	277.00	629.20	3.35
11/10/2002	2002	2003	11	14.00		0.00	0.11	3.35	5.22	2.79	85.00		79.57		0.00	0.00	0.00	0.00	14.00	79.57	3.35
11/11/2002	2002	2003	11	5.50		0.00	0.11	5.55	5.22	0.33	8.30		12.57	12.57	2.18	0.00	0.47	195.44	3.32	10.40	5.55
11/12/2002	2002	2003	11	4.20		(0.02)	0.11	4.38	5.66	1.64	4.50		6.73	6.73	1.92	(0.01)	0.41	172.10	2.28	4.81	4.38
11/13/2002	2002	2003	11	5.00		0.00	0.15	4.80	5.66	1.64	4.20		6.84	6.84	2.09	0.00	0.45	187.45	2.91	4.76	4.76
11/14/2002	2002	2003	11	5.10		0.00	0.16	4.07	4.98	1.26	4.40		6.70	6.70	2.11	0.00	0.46	189.11	2.99	4.60	4.07
11/15/2002	2002	2003	11	4.00		(0.09)	0.16	3.15	5.77	1.34	4.00		5.40	5.40	1.88	(0.04)	0.40	165.12	2.16	3.56	3.15
11/16/2002	2002	2003	11	4.60		0.00	0.16	3.15	5.77	1.34	4.40		5.77	5.77	2.01	0.00	0.43	180.46	2.59	3.76	3.15
11/17/2002	2002	2003	11	5.50		0.00	0.16	3.15	5.77	1.34	4.50		5.87	5.87	2.18	0.00	0.47	195.44	3.32	3.69	3.15
11/18/2002	2002	2003	11	5.70		0.00	0.16	3.25	7.14	1.95	5.00		5.85	5.85	2.21	0.00	0.48	198.43	3.49	3.64	3.25
11/19/2002	2002	2003	11	6.00		0.00	0.16	4.41	6.51	2.29	5.00		6.62	6.62	2.26	0.00	0.49	202.73	3.74	4.36	4.36
11/20/2002	2002	2003	11	7.00		0.00	0.16	4.11	6.02	1.01	5.10		7.62	7.62	2.40	0.00	0.52	215.64	4.60	5.22	4.11
11/21/2002	2002	2003	11	7.80		0.00	0.16	4.43	6.11	0.81	6.10		9.04	9.04	2.50	0.00	0.54	224.71	5.30	6.53	4.43
11/22/2002	2002	2003	11	8.40		0.00	0.15	4.47	5.03	1.86	7.30		9.22	9.22	2.57	0.00	0.56	230.92	5.83	6.65	4.47
11/23/2002	2002	2003	11	8.40		0.00	0.15	4.47	5.03	1.86	7.70		9.59	9.59	2.57	0.00	0.56	230.92	5.83	7.02	4.47
11/24/2002	2002	2003	11	8.00		0.00	0.15	4.47	5.03	1.86	7.30		9.22	9.22	2.53	0.00	0.55	226.83	5.47	6.69	4.47
11/25/2002	2002	2003	11	7.60		0.00	0.14	3.81	0.84	0.22	5.80		8.74	8.74	2.48	0.00	0.54	222.53	5.12	6.26	3.81
11/26/2002	2002	2003	11	7.80		0.00	0.11	3.46	4.29	2.22	7.00		7.66	7.66	2.50	0.00	0.54	224.71	5.30	5.16	3.46
11/27/2002	2002	2003	11	9.20		0.00	0.17	4.25	4.61	1.23	8.20		10.43	10.43	2.60	0.00	0.56	233.51	6.60	7.83	4.25
11/28/2002	2002	2003	11	9.00		0.00	0.17	4.25	4.61	1.23	6.10		8.47	8.47	2.60	0.00	0.56	233.51	6.40	5.87	4.25
11/29/2002	2002	2003	11	39.00		0.00	0.17	4.25	4.61	1.23	81.00		78.13		0.00	0.00	0.00	0.00	39.00	78.13	4.25
11/30/2002	2002	2003	11	23.00		0.00	0.17	4.25	4.61	1.23	127.00		120.91		0.00	0.00	0.00	0.00	23.00	120.91	4.25
12/1/2002	2002	2003	12	6.70		0.00	0.17	4.25	4.61	1.23	10.00		12.10	12.10	2.36	0.00	0.51	211.97	4.34	9.74	4.25
12/2/2002	2002	2003	12	6.50		0.00	0.16	4.44	4.54	0.94	7.20		9.95	9.95	2.33	0.00	0.50	209.43	4.17	7.62	4.44
12/3/2002	2002	2003	12	5.50		0.00	0.17	4.52	4.49	0.69	6.40		9.52	9.52	2.18	0.00	0.47	195.44	3.32	7.34	4.52
12/4/2002	2002	2003	12	5.50		0.00	0.16	3.78	4.11	0.95	5.60		7.84	7.84	2.18	0.00	0.47	195.44	3.32	5.66	3.78
12/5/2002	2002	2003	12	5.90		0.00	0.19	6.32	5.92	1.69	5.60		9.51	9.51	2.24	0.00	0.48	201.32	3.66	7.27	6.32
12/6/2002	2002	2003	12	6.10		0.00	0.19	5.42	5.19	1.49	5.00		8.31	8.31	2.27	0.00	0.49	204.11	3.83	6.04	5.42
12/7/2002	2002	2003	12	6.50		0.00	0.19	5.42	5.19	1.49	3.50		6.92	6.92	2.33	0.00	0.50	209.43	4.17	4.58	4.58
12/8/2002	2002	2003	12	6.60		0.00	0.19	5.42	5.19	1.49	4.00		7.38	7.38	2.35	0.00	0.51	210.71	4.25	5.04	5.04
12/9/2002	2002	2003	12	7.10		0.00	0.19	5.47	5.12	1.59	3.70		7.05	7.05	2.41	0.00	0.52	216.83	4.69	4.63	4.63
12/10/2002	2002	2003	12	6.30		0.00	0.18	6.59	6.62	2.30	4.40		8.08	8.08	2.30	0.00	0.50	206.81	4.00	5.78	5.78
12/11/2002	2002	2003	12	6.30		0.00	0.20	5.66	6.05	3.13	4.10		6.16	6.16	2.30	0.00	0.50	206.81	4.00	3.86	3.86
12/12/2002	2002	2003	12	6.10		0.00	0.19	4.53	5.33	2.25	4.10		5.93	5.93	2.27	0.00	0.49	204.11	3.83	3.66	3.66
12/13/2002	2002	2003	12	7.10		0.00	0.19	6.01	6.45	2.33	4.80		7.89	7.89	2.41	0.00	0.52	216.83	4.69	5.47	5.47
12/14/2002	2002	2003	12	6.20		0.00	0.19	6.01	6.45	2.33	4.50		7.61	7.61	2.29	0.00	0.49	205.47	3.91	5.32	5.32
12/15/2002	2002	2003	12	6.00		0.00	0.19	6.01	6.45	2.33	3.80		6.96	6.96	2.26	0.00	0.49	202.73	3.74	4.70	4.70
12/16/2002	2002	2003	12	319.00		0.00	0.19	0.55	7.24	3.73	689.00		637.81		0.00	0.00	0.00	0.00	319.00	637.81	0.55
12/17/2002	2002	2003	12	63.00		0.00	0.18	0.97	6.40	2.80	179.00		164.77		0.00	0.00	0.00	0.00	63.00	164.77	0.97
12/18/2002	2002	2003	12	10.00		0.00	0.19	5.40	4.07	0.24	26.00		28.98		0.00	0.00	0.00	0.00	10.00	28.98	5.40
12/19/2002	2002	2003	12	8.80		0.00	0.22	6.53	5.63	2.39	9.90		13.06	13.06	2.60	0.00	0.56	233.51	6.20	10.46	6.53
12/20/2002	2002	2003	12	279.00		0.00	0.21	6.73	5.59	1.64	737.00		690.14		0.00	0.00	0.00	0.00	279.00	690.14	6.73
12/21/2002	2002	2003	12	11.00		0.00	0.21	6.73	5.59	1.64	27.00		29.84		0.00	0.00	0.00	0.00	11.00	29.84	6.73
12/22/2002	2002	2003	12	8.40		0.00	0.21	6.73	5.59	1.64	17.00		20.54		0.00	0.00	0.00	0.00	8.40	20.54	6.73
12/23/2002	2002	2003	12	6.40		0.00	0.21	6.73	5.59	1.64	7.70		11.89	11.89	2.32	0.00	0.50	208.13	4.08	9.57	6.73
12/24/2002	2002	2003	12	6.40		0.00	0.21	6.73	5.59	1.64	6.00		10.31	10.31	2.32	0.00	0.50	208.13	4.08	7.99	6.73
12/25/2002	2002	2003	12	6.10		0.00	0.21	6.73	5.59	1.64	4.70		9.10	9.10	2.27	0.00	0.49	204.11	3.83	6.83	6.73
12/26/2002	2002	2003	12	6.70		0.00	0.22	6.73	5.59	1.64	4.00		8.45	8.45	2.36	0.00	0.51	211.97	4.34	6.09	6.09
12/27/2002	2002	2003	12	6.30		0.00	0.23	6.73	5.59	1.64	4.00		8.45	8.45	2.30	0.00	0.50	206.81	4.00	6.15	6.15
12/28/2002	2002	2003	12	6.70		0.00	0.23	6.73	5.59	1.64	3.80		8.26	8.26	2.36	0.00	0.51	211.97	4.34	5.90	5.90
12/29/2002	2002	2003	12	14.00		0.00	0.23	6.73	5.59	1.64	24.00		27.05		0.00	0.00	0.00	0.00	14.00	27.05	6.73
12/30/2002	2002	2003	12	5.90		0.00	0.24	7.07	6.00	4.04	5.40		7.84	7.84	2.24	0.00	0.48	201.32	3.66	5.60	5.60
12/31/2002	2002	2003	12	5.30		0.00	0.24	6.30	5.43	3.67	4.60		6.72	6.72	2.14	0.00	0.46	192.33	3.16	4.58	4.58
1/1/2003	2003	2003	1	4.90		0.00	0.24	6.30	5.43	3.67	4.90		7.00	7.00	2.07	0.00	0.45	185.76	2.83	4.93	4.93
1/2/2003	2003	2003	1	4.60		0.00	0.24	7.01	6.25	4.09	4.80		7.18	7.18	2.01	0.00	0.43	180.46	2.59	5.17	5.17
1/3/2003	2003	2003	1	4.90		0.00	0.25	7.12	6.50	4.49	5.50		7.56	7.56	2.07	0.00	0.45	185.76	2.83	5.49	5.49
1/4/2003	2003	2003	1	5.90		0.00	0.25	7.12	6.50	4.49	5.70		7.75	7.75	2.24	0.00	0.48	201.32	3.66	5.50	5.50
1/5/2003	2003	2003	1	4.90		0.00	0.25	7.12	6.50	4.49	4.60		7.12	7.12	2.07	0.00	0.45	185.76	2.83	5.05	5.05

Existing Condition — San Joaquin Marsh Operations | **With Project Diversion**

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW Ba	Project - Diversi	Project - Diversi	Project - PCW Ba	Project - SDC Ca	Project - SJM In
1/6/2003	2003	2003	1	6.00		0.00	0.25	7.12	7.89	4.81	5.00		7.12	7.12	2.26	0.00	0.49	202.73	3.74	4.86	4.86
1/7/2003	2003	2003	1	5.10		0.00	0.26	6.69	8.19	4.67	3.70		6.69	6.69	2.11	0.00	0.46	189.11	2.99	4.58	4.58
1/8/2003	2003	2003	1	25.00		0.00	0.26	6.93	8.83	5.25	72.00		68.53		0.00	0.00	0.00	0.00	25.00	68.53	6.93
1/9/2003	2003	2003	1	10.00		0.00	0.26	5.84	7.51	4.24	17.00		17.30	17.30	2.60	0.00	0.56	233.51	7.40	14.70	5.84
1/10/2003	2003	2003	1	5.40		0.00	0.26	6.48	7.88	4.00	6.60		8.45	8.45	2.16	0.00	0.47	193.90	3.24	6.29	6.29
1/11/2003	2003	2003	1	5.10		0.00	0.26	6.48	7.88	4.00	6.10		7.98	7.98	2.11	0.00	0.46	189.11	2.99	5.88	5.88
1/12/2003	2003	2003	1	4.70		0.00	0.26	6.48	7.88	4.00	5.90		7.80	7.80	2.03	0.00	0.44	182.26	2.67	5.77	5.77
1/13/2003	2003	2003	1	4.50		0.00	0.27	6.89	7.61	3.61	5.40		8.07	8.07	1.99	0.00	0.43	178.62	2.51	6.08	6.08
1/14/2003	2003	2003	1	4.40		0.00	0.26	4.83	7.55	5.76	5.10		4.83	4.83	1.97	0.00	0.43	176.74	2.43	2.86	2.86
1/15/2003	2003	2003	1	3.90		(0.12)	0.27	5.21	6.78	5.00	5.80		5.59	5.59	1.86	(0.06)	0.39	161.49	2.10	3.79	3.79
1/16/2003	2003	2003	1	4.10		(0.05)	0.28	6.87	8.73	6.62	6.20		6.87	6.87	1.90	(0.02)	0.41	168.66	2.22	4.99	4.99
1/17/2003	2003	2003	1	4.80		0.00	0.28	5.82	6.83	5.25	6.40		6.48	6.48	2.05	0.00	0.44	184.03	2.75	4.44	4.44
1/18/2003	2003	2003	1	4.90		0.00	0.28	5.82	6.83	5.25	6.80		6.86	6.86	2.07	0.00	0.45	185.76	2.83	4.79	4.79
1/19/2003	2003	2003	1	5.40		0.00	0.28	5.82	6.83	5.25	7.10		7.14	7.14	2.16	0.00	0.47	193.90	3.24	4.98	4.98
1/20/2003	2003	2003	1	6.30		0.00	0.26	6.40	6.62	3.94	6.80		8.61	8.61	2.30	0.00	0.50	206.81	4.00	6.31	6.31
1/21/2003	2003	2003	1	6.50		0.00	0.27	7.21	7.25	2.64	8.20		11.88	11.88	2.33	0.00	0.50	209.43	4.17	9.55	7.21
1/22/2003	2003	2003	1	6.30		0.00	0.28	5.17	5.03	1.96	6.70		9.21	9.21	2.30	0.00	0.50	206.81	4.00	6.91	5.17
1/23/2003	2003	2003	1	6.20		0.00	0.31	6.80	6.39	2.75	5.70		9.06	9.06	2.29	0.00	0.49	205.47	3.91	6.78	6.78
1/24/2003	2003	2003	1	6.00		0.00	0.29	6.86	6.68	2.88	5.40		8.73	8.73	2.26	0.00	0.49	202.73	3.74	6.47	6.47
1/25/2003	2003	2003	1	5.70		0.00	0.29	6.86	6.68	2.88	5.40		8.73	8.73	2.21	0.00	0.48	198.43	3.49	6.52	6.52
1/26/2003	2003	2003	1	5.30		0.00	0.29	6.86	6.68	2.88	4.80		8.17	8.17	2.14	0.00	0.46	192.33	3.16	6.03	6.03
1/27/2003	2003	2003	1	5.30		0.00	0.24	6.52	5.26	2.31	4.40		8.01	8.01	2.14	0.00	0.46	192.33	3.16	5.87	5.87
1/28/2003	2003	2003	1	5.40		0.00	0.29	6.45	5.30	1.54	5.20		9.41	9.41	2.16	0.00	0.47	193.90	3.24	7.25	6.45
1/29/2003	2003	2003	1	5.70		0.00	0.27	5.53	6.89	3.96	4.90		6.02	6.02	2.21	0.00	0.48	198.43	3.49	3.81	3.81
1/30/2003	2003	2003	1	5.50		0.00	0.29	5.98	8.60	4.89	7.30		7.80	7.80	2.18	0.00	0.47	195.44	3.32	5.63	5.63
1/31/2003	2003	2003	1	5.90		0.00	0.29	6.54	7.99	4.20	8.10		9.71	9.71	2.24	0.00	0.48	201.32	3.66	7.47	6.54
2/1/2003	2003	2003	2	5.90		0.00	0.29	6.54	7.99	4.20	9.30		10.82	10.82	2.24	0.00	0.48	201.32	3.66	8.58	6.54
2/2/2003	2003	2003	2	5.40		0.00	0.29	6.54	7.99	4.20	7.80		9.43	9.43	2.16	0.00	0.47	193.90	3.24	7.27	6.54
2/3/2003	2003	2003	2	4.90		0.00	0.30	6.28	6.04	2.72	5.60		8.52	8.52	2.07	0.00	0.45	185.76	2.83	6.46	6.28
2/4/2003	2003	2003	2	4.90		0.00	0.24	6.22	6.57	3.27	6.40		8.70	8.70	2.07	0.00	0.45	185.76	2.83	6.63	6.22
2/5/2003	2003	2003	2	4.50		0.00	0.32	6.29	6.22	2.55	6.20		9.24	9.24	1.99	0.00	0.43	178.62	2.51	7.26	6.29
2/6/2003	2003	2003	2	4.40		0.00	0.30	5.61	5.55	2.19	5.00		7.83	7.83	1.97	0.00	0.43	176.74	2.43	5.86	5.61
2/7/2003	2003	2003	2	5.20		0.00	0.31	6.62	6.52	2.52	5.00		8.46	8.46	2.12	0.00	0.46	190.74	3.08	6.34	6.34
2/8/2003	2003	2003	2	4.90		0.00	0.31	6.62	6.52	2.52	5.80		9.21	9.21	2.07	0.00	0.45	185.76	2.83	7.14	6.62
2/9/2003	2003	2003	2	5.00		0.00	0.31	6.62	6.52	2.52	6.60		9.95	9.95	2.09	0.00	0.45	187.45	2.91	7.86	6.62
2/10/2003	2003	2003	2	4.80		0.00	0.31	6.58	6.91	2.77	6.60		9.68	9.68	2.05	0.00	0.44	184.03	2.75	7.63	6.58
2/11/2003	2003	2003	2	150.00		0.00	0.33	0.00	4.54	1.23	600.00		556.86		0.00	0.00	0.00	0.00	150.00	556.86	0.00
2/12/2003	2003	2003	2	268.00		0.00	0.31	0.00	5.28	1.77	923.00		856.74		0.00	0.00	0.00	0.00	268.00	856.74	0.00
2/13/2003	2003	2003	2	272.00		0.00	0.33	0.00	4.62	2.07	743.00		689.07		0.00	0.00	0.00	0.00	272.00	689.07	0.00
2/14/2003	2003	2003	2	12.00		0.00	0.31	3.39	5.81	2.37	61.00		57.68		0.00	0.00	0.00	0.00	12.00	57.68	3.39
2/15/2003	2003	2003	2	8.00		0.00	0.31	3.39	5.81	2.37	22.00		21.41		0.00	0.00	0.00	0.00	8.00	21.41	3.39
2/16/2003	2003	2003	2	6.80		0.00	0.31	3.39	5.81	2.37	13.00		13.04	13.04	2.37	0.00	0.51	213.21	4.43	10.66	3.39
2/17/2003	2003	2003	2	6.80		0.00	0.31	3.39	5.81	2.37	6.30		6.81	6.81	2.37	0.00	0.51	213.21	4.43	4.43	3.39
2/18/2003	2003	2003	2	6.60		0.00	0.30	6.37	7.68	4.56	5.80		7.09	7.09	2.35	0.00	0.51	210.71	4.25	4.74	4.74
2/19/2003	2003	2003	2	6.40		0.00	0.25	6.75	7.32	4.21	5.70		7.66	7.66	2.32	0.00	0.50	208.13	4.08	5.34	5.34
2/20/2003	2003	2003	2	5.90		0.00	0.31	5.51	5.89	3.30	7.40		8.93	8.93	2.24	0.00	0.48	201.32	3.66	6.69	5.51
2/21/2003	2003	2003	2	7.50		0.00	0.31	6.96	7.68	4.11	5.00		7.31	7.31	2.47	0.00	0.53	221.42	5.03	4.84	4.84
2/22/2003	2003	2003	2	7.40		0.00	0.32	6.96	7.68	4.11	4.90		7.21	7.21	2.45	0.00	0.53	220.30	4.95	4.76	4.76
2/23/2003	2003	2003	2	7.40		0.00	0.32	6.96	7.68	4.11	4.40		6.96	6.96	2.45	0.00	0.53	220.30	4.95	4.51	4.51
2/24/2003	2003	2003	2	8.30		0.00	0.33	2.30	6.87	4.82	4.80		2.30	2.30	2.56	0.00	0.55	229.92	5.74	0.00	0.00
2/25/2003	2003	2003	2	574.00		0.00	0.28	0.00	6.93	6.97	1360.00		1258.32		0.00	0.00	0.00	0.00	574.00	1258.32	0.00
2/26/2003	2003	2003	2	19.00		0.00	0.32	0.00	8.87	9.16	147.00		128.19		0.00	0.00	0.00	0.00	19.00	128.19	0.00
2/27/2003	2003	2003	2	84.00		0.00	0.26	0.00	7.17	6.85	369.00		336.80		0.00	0.00	0.00	0.00	84.00	336.80	0.00
2/28/2003	2003	2003	2	8.90		0.00	0.27	4.47	5.56	5.57	45.00		40.82		0.00	0.00	0.00	0.00	8.90	40.82	4.47
3/1/2003	2003	2003	3	8.50		0.00	0.34	4.47	5.56	5.57	26.00		23.15		0.00	0.00	0.00	0.00	8.50	23.15	4.47
3/2/2003	2003	2003	3	7.30		0.00	0.34	4.47	5.56	5.57	18.00		15.71	15.71	2.44	0.00	0.53	219.16	4.86	13.27	4.47
3/3/2003	2003	2003	3	7.70		0.00	0.31	5.72	0.51	0.27	12.00		16.23	16.23	2.49	0.00	0.54	223.63	5.21	13.74	5.72
3/4/2003	2003	2003	3	13.00		0.00	0.37	6.44	4.98	2.75	22.00		23.88		0.00	0.00	0.00	0.00	13.00	23.88	6.44
3/5/2003	2003	2003	3	6.90		0.00	0.35	6.99	5.17	3.12	35.00		36.15		0.00	0.00	0.00	0.00	6.90	36.15	6.99
3/6/2003	2003	2003	3	5.80		0.00	0.35	5.33	3.66	2.16	10.00		12.25	12.25	2.23	0.00	0.48	199.89	3.57	10.02	5.33
3/7/2003	2003	2003	3	5.80		0.00	0.36	6.63	5.01	2.72	13.00		15.73	15.73	2.23	0.00	0.48	199.89	3.57	13.51	6.63
3/8/2003	2003	2003	3	5.70		0.00	0.36	6.63	5.01	2.72	9.10		12.11	12.11	2.21	0.00	0.48	198.43	3.49	9.90	6.63
3/9/2003	2003	2003	3	5.80		0.00	0.36	6.63	5.01	2.72	8.20		11.27	11.27	2.23	0.00	0.48	199.89	3.57	9.04	6.63
3/10/2003	2003	2003	3	5.80		0.00	0.35	6.80	9.89	6.89	11.00		10.15	10.15	2.23	0.00	0.48	199.89	3.57	7.92	6.80
3/11/2003	2003	2003	3	5.80		0.00	0.35	6.24	11.71	8.68	13.00		9.82	9.82	2.23	0.00	0.48	199.89	3.57	7.59	6.24
3/12/2003	2003	2003	3	6.40		0.00	0.36	5.48	5.87	3.78	13.00		13.67	13.67	2.32	0.00	0.50	208.13	4.08	11.35	5.48
3/13/2003	2003	2003	3	6.50		0.00	0.36	6.02	6.83	4.69	10.00		10.54	10.54	2.33	0.00	0.50	209.43	4.17	8.20	6.02
3/14/2003	2003	2003	3	6.10		0.00	0.39	2.53	7.42	5.53	8.70		5.29	5.29	2.27	0.00	0.49	204.11	3.83	3.02	2.53
3/15/2003	2003	2003	3	1040.00		0.00	0.39	2.53	7.42	5.53	1820.00		1689.80		0.00	0.00	0.00	0.00	1040.00	1689.80	2.53
3/16/2003	2003	2003	3	567.00		0.00	0.39	2.53	7.42	5.53	1280.00		1187.60		0.00	0.00	0.00	0.00	567.00	1187.60	2.53
3/17/2003	2003	2003	3	9.40		0.00	0.38	1.40	11.58	9.26	58.00		46.63		0.00	0.00	0.00	0.00	9.40	46.63	1.40

Existing Condition | **With Project Diversion**

San Joaquin Marsh Operations

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW Ba	Project - Diversi	Project - Diversi	Project - PCW Ba	Project - SDC Ca	Project - SJM In
3/18/2003	2003	2003	3	6.30		0.00	0.39	5.92	9.77	7.55	27.00		23.60		0.00	0.00	0.00	0.00	6.30	23.60	5.92
3/19/2003	2003	2003	3	5.60		0.00	0.39	5.82	7.56	6.05	21.00		19.32		0.00	0.00	0.00	0.00	5.60	19.32	5.82
3/20/2003	2003	2003	3	5.60		0.00	0.40	6.24	1.07	0.86	15.00		18.96		0.00	0.00	0.00	0.00	5.60	18.96	6.24
3/21/2003	2003	2003	3	5.20		0.00	0.40	6.64	6.29	3.66	13.00		14.86	14.86	2.12	0.00	0.46	190.74	3.08	12.74	6.64
3/22/2003	2003	2003	3	4.50		0.00	0.42	6.64	6.29	3.66	11.00		13.00	13.00	1.99	0.00	0.43	178.62	2.51	11.01	6.64
3/23/2003	2003	2003	3	4.90		0.00	0.42	6.64	6.29	3.66	11.00		13.00	13.00	2.07	0.00	0.45	185.76	2.83	10.93	6.64
3/24/2003	2003	2003	3	5.00		0.00	0.42	5.92	6.39	4.15	10.00		10.95	10.95	2.09	0.00	0.45	187.45	2.91	8.86	5.92
3/25/2003	2003	2003	3	5.10		0.00	0.32	6.93	7.68	4.77	10.00		11.31	11.31	2.11	0.00	0.46	189.11	2.99	9.20	6.93
3/26/2003	2003	2003	3	4.90		0.00	0.34	6.47	7.12	4.38	11.00		12.17	12.17	2.07	0.00	0.45	185.76	2.83	10.10	6.47
3/27/2003	2003	2003	3	5.30		0.00	0.36	5.15	5.88	3.42	11.00		11.84	11.84	2.14	0.00	0.46	192.33	3.16	9.70	5.15
3/28/2003	2003	2003	3	6.10		0.00	0.36	6.97	7.95	4.82	9.10		10.47	10.47	2.27	0.00	0.49	204.11	3.83	8.19	6.97
3/29/2003	2003	2003	3	6.30		0.00	0.36	6.97	7.95	4.82	12.00		13.16	13.16	2.30	0.00	0.50	206.81	4.00	10.86	6.97
3/30/2003	2003	2003	3	6.00		0.00	0.36	6.97	7.95	4.82	13.00		14.09	14.09	2.26	0.00	0.49	202.73	3.74	11.83	6.97
3/31/2003	2003	2003	3	5.80		0.00	0.33	6.22	7.37	4.83	13.00		13.38	13.38	2.23	0.00	0.48	199.89	3.57	11.16	6.22
4/1/2003	2003	2003	4	6.90		0.00	0.37	5.93	7.15	4.48	13.00		13.44	13.44	2.39	0.00	0.52	214.44	4.51	11.05	5.93
4/2/2003	2003	2003	4	6.80		0.00	0.36	5.88	7.40	4.61	13.00		13.27	13.27	2.37	0.00	0.51	213.21	4.43	10.90	5.88
4/3/2003	2003	2003	4	6.70		0.00	0.40	8.64	9.96	6.73	9.90		10.98	10.98	2.36	0.00	0.51	211.97	4.34	8.62	8.62
4/4/2003	2003	2003	4	6.20		0.00	0.37	5.75	10.11	7.27	8.00		6.02	6.02	2.29	0.00	0.49	205.47	3.91	3.74	3.74
4/5/2003	2003	2003	4	6.00		0.00	0.38	5.75	10.11	7.27	9.50		7.42	7.42	2.26	0.00	0.49	202.73	3.74	5.16	5.16
4/6/2003	2003	2003	4	5.90		0.00	0.38	5.75	10.11	7.27	11.00		8.81	8.81	2.24	0.00	0.48	201.32	3.66	6.57	5.75
4/7/2003	2003	2003	4	5.70		0.00	0.37	9.17	10.38	7.54	4.90		9.17	9.17	2.21	0.00	0.48	198.43	3.49	6.96	6.96
4/8/2003	2003	2003	4	5.60		0.00	0.35	7.87	8.89	6.06	3.60		7.87	7.87	2.19	0.00	0.47	196.95	3.41	5.67	5.67
4/9/2003	2003	2003	4	5.50		0.00	0.37	11.63	10.62	7.39	3.60		11.63	11.63	2.18	0.00	0.47	195.44	3.32	9.46	9.46
4/10/2003	2003	2003	4	5.50		0.00	0.39	8.25	8.29	5.66	4.10		8.25	8.25	2.18	0.00	0.47	195.44	3.32	6.07	6.07
4/11/2003	2003	2003	4	5.00		0.00	0.39	7.61	9.31	7.00	4.90		7.61	7.61	2.09	0.00	0.45	187.45	2.91	5.53	5.53
4/12/2003	2003	2003	4	4.60		0.00	0.39	7.61	9.31	7.00	6.00		7.61	7.61	2.01	0.00	0.43	180.46	2.59	5.61	5.61
4/13/2003	2003	2003	4	4.40		0.00	0.39	7.61	9.31	7.00	6.30		7.61	7.61	1.97	0.00	0.43	176.74	2.43	5.65	5.65
4/14/2003	2003	2003	4	577.00		0.00	0.36	7.61	11.34	7.00	1160.00		1079.37		0.00	0.00	0.00	0.00	577.00	1079.37	7.61
4/15/2003	2003	2003	4	58.00		0.00	0.34	3.64	11.89	9.00	342.00		313.08		0.00	0.00	0.00	0.00	58.00	313.08	3.64
4/16/2003	2003	2003	4	5.70		0.00	0.39	6.54	9.41	7.08	25.00		22.75		0.00	0.00	0.00	0.00	5.70	22.75	6.54
4/17/2003	2003	2003	4	5.20		0.00	0.37	9.86	12.33	9.20	14.00		13.63	13.63	2.12	0.00	0.46	190.74	3.08	11.51	9.86
4/18/2003	2003	2003	4	4.90		0.00	0.37	9.86	12.33	9.20	11.00		10.84	10.84	2.07	0.00	0.45	185.76	2.83	8.77	8.77
4/19/2003	2003	2003	4	4.60		0.00	0.37	9.86	12.33	9.20	10.00		9.91	9.91	2.01	0.00	0.43	180.46	2.59	7.90	7.90
4/20/2003	2003	2003	4	4.90		0.00	0.37	9.86	12.33	9.20	9.60		9.86	9.86	2.07	0.00	0.45	185.76	2.83	7.79	7.79
4/21/2003	2003	2003	4	5.20		0.00	0.36	9.28	10.25	7.69	9.70		10.49	10.49	2.12	0.00	0.46	190.74	3.08	8.37	8.37
4/22/2003	2003	2003	4	5.50		0.00	0.32	8.37	9.02	7.01	10.00		10.56	10.56	2.18	0.00	0.47	195.44	3.32	8.38	8.37
4/23/2003	2003	2003	4	5.90		0.00	0.39	7.93	8.69	6.69	9.40		9.90	9.90	2.24	0.00	0.48	201.32	3.66	7.65	7.65
4/24/2003	2003	2003	4	5.80		0.00	0.32	9.54	10.08	7.65	10.00		11.05	11.05	2.23	0.00	0.48	199.89	3.57	8.83	8.83
4/25/2003	2003	2003	4	6.00		0.00	0.35	10.30	4.91	3.73	10.00		15.41	15.41	2.26	0.00	0.49	202.73	3.74	13.15	10.30
4/26/2003	2003	2003	4	6.70		0.00	0.35	10.30	4.91	3.73	8.30		13.83	13.83	2.36	0.00	0.51	211.97	4.34	11.46	10.30
4/27/2003	2003	2003	4	6.00		0.00	0.35	10.30	4.91	3.73	9.40		14.85	14.85	2.26	0.00	0.49	202.73	3.74	12.59	10.30
4/28/2003	2003	2003	4	6.10		0.00	0.32	0.28	0.01	0.00	4.40		4.35	4.35	2.27	0.00	0.49	204.11	3.83	2.08	0.28
4/29/2003	2003	2003	4	6.30		0.00	0.33	1.38	10.07	7.81	16.00		8.90	8.90	2.30	0.00	0.50	206.81	4.00	6.60	1.38
4/30/2003	2003	2003	4	6.40		0.00	0.31	5.22	10.59	8.07	18.00		14.10	14.10	2.32	0.00	0.50	208.13	4.08	11.78	5.22
5/1/2003	2003	2003	5	5.90		0.00	0.36	5.22	9.24	6.90	14.00		11.45	11.45	2.24	0.00	0.48	201.32	3.66	9.21	5.22
5/2/2003	2003	2003	5	6.10		0.00	0.37	4.85	10.27	7.42	13.00		9.70	9.70	2.27	0.00	0.49	204.11	3.83	7.43	4.85
5/3/2003	2003	2003	5	97.00		0.00	0.37	4.85	10.27	7.42	361.00		333.34		0.00	0.00	0.00	0.00	97.00	333.34	4.85
5/4/2003	2003	2003	5	8.60		0.00	0.37	4.85	10.27	7.42	28.00		23.65		0.00	0.00	0.00	0.00	8.60	23.65	4.85
5/5/2003	2003	2003	5	6.80		0.00	0.34	5.48	10.81	8.27	15.00		11.35	11.35	2.37	0.00	0.51	213.21	4.43	8.98	5.48
5/6/2003	2003	2003	5	6.20		0.00	0.35	3.97	8.50	6.57	16.00		12.46	12.46	2.29	0.00	0.49	205.47	3.91	10.17	3.97
5/7/2003	2003	2003	5	6.10		0.00	0.36	5.80	10.15	6.89	15.00		12.94	12.94	2.27	0.00	0.49	204.11	3.83	10.66	5.80
5/8/2003	2003	2003	5	6.90		0.00	0.36	6.84	12.02	8.03	23.00		20.29		0.00	0.00	0.00	0.00	6.90	20.29	6.84
5/9/2003	2003	2003	5	6.10		0.00	0.31	5.69	10.18	6.92	12.00		10.02	10.02	2.27	0.00	0.49	204.11	3.83	7.75	5.69
5/10/2003	2003	2003	5	6.30		0.00	0.31	5.69	10.18	6.92	11.00		9.09	9.09	2.30	0.00	0.50	206.81	4.00	6.78	5.69
5/11/2003	2003	2003	5	6.30		0.00	0.31	5.69	10.18	6.92	12.00		10.02	10.02	2.30	0.00	0.50	206.81	4.00	7.71	5.69
5/12/2003	2003	2003	5	6.10		0.00	0.34	5.49	10.29	7.40	13.00		10.32	10.32	2.27	0.00	0.49	204.11	3.83	8.04	5.49
5/13/2003	2003	2003	5	6.40		0.00	0.33	4.49	8.29	6.04	12.00		9.72	9.72	2.32	0.00	0.50	208.13	4.08	7.40	4.49
5/14/2003	2003	2003	5	7.00		0.00	0.38	5.88	9.85	6.68	12.00		10.42	10.42	2.40	0.00	0.52	215.64	4.60	8.02	5.88
5/15/2003	2003	2003	5	7.20		0.00	0.30	4.80	8.92	6.11	13.00		10.87	10.87	2.43	0.00	0.52	218.00	4.77	8.45	4.80
5/16/2003	2003	2003	5	6.70		0.00	0.34	6.19	10.55	6.98	12.00		10.42	10.42	2.36	0.00	0.51	211.97	4.34	8.06	6.19
5/17/2003	2003	2003	5	6.60		0.00	0.34	6.19	10.55	6.98	12.00		10.42	10.42	2.35	0.00	0.51	210.71	4.25	8.07	6.19
5/18/2003	2003	2003	5	7.00		0.00	0.34	6.19	10.55	6.98	12.00		10.42	10.42	2.40	0.00	0.52	215.64	4.60	8.02	6.19
5/19/2003	2003	2003	5	6.70		0.00	0.33	6.03	8.02	4.92	11.00		11.26	11.26	2.36	0.00	0.51	211.97	4.34	8.90	6.03
5/20/2003	2003	2003	5	6.20		0.00	0.33	5.67	7.73	3.31	10.00		11.49	11.49	2.29	0.00	0.49	205.47	3.91	9.21	5.67
5/21/2003	2003	2003	5	6.70		0.00	0.33	6.92	7.21	4.58	11.00		12.40	12.40	2.36	0.00	0.51	211.97	4.34	10.04	6.92
5/22/2003	2003	2003	5	6.50		0.00	0.34	7.89	8.95	5.79	8.90		10.23	10.23	2.33	0.00	0.50	209.43	4.17	7.90	7.89
5/23/2003	2003	2003	5	6.70		0.00	0.32	7.55	8.65	5.60	8.30		9.53	9.53	2.36	0.00	0.51	211.97	4.34	7.17	7.17
5/24/2003	2003	2003	5	7.20		0.00	0.32	7.55	8.65	5.60	8.20		9.44	9.44	2.43	0.00	0.52	218.00	4.77	7.01	7.01
5/25/2003	2003	2003	5	7.30		0.00	0.32	7.55	8.65	5.60	9.50		10.65	10.65	2.44	0.00	0.53	219.16	4.86	8.21	7.55
5/26/2003	2003	2003	5	7.20		0.00	0.32	7.55	8.65	5.60	9.20		10.37	10.37	2.43	0.00	0.52	218.00	4.77	7.94	7.55
5/27/2003	2003	2003	5	7.30		0.00	0.29	7.16	8.87	6.19	11.00		11.13	11.13	2.44	0.00	0.53	219.16	4.86	8.69	7.16

Existing Condition | **With Project Diversion**

San Joaquin Marsh Operations

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
5/28/2003	2003	2003	5	7.00		0.00	0.32	5.90	7.58	3.06	9.70		11.66	11.66	2.40	0.00	0.52	215.64	4.60	9.26	5.90
5/29/2003	2003	2003	5	6.80		0.00	0.32	7.62	10.01	3.83	9.50		12.36	12.36	2.37	0.00	0.51	213.21	4.43	9.98	7.62
5/30/2003	2003	2003	5	6.70		0.00	0.32	7.58	10.50	3.37	9.40		12.66	12.66	2.36	0.00	0.51	211.97	4.34	10.30	7.58
5/31/2003	2003	2003	5	6.20		0.00	0.32	7.58	10.50	3.37	9.20		12.47	12.47	2.29	0.00	0.49	205.47	3.91	10.19	7.58
6/1/2003	2003	2003	6	6.20		0.00	0.32	7.58	10.50	3.37	8.60		11.92	11.92	2.29	0.00	0.49	205.47	3.91	9.63	7.58
6/2/2003	2003	2003	6	6.50		0.00	0.27	5.10	8.19	2.89	8.90		10.34	10.34	2.33	0.00	0.50	209.43	4.17	8.00	5.10
6/3/2003	2003	2003	6	6.60		0.00	0.35	4.97	8.03	2.77	10.00		11.34	11.34	2.35	0.00	0.51	210.71	4.25	9.00	4.97
6/4/2003	2003	2003	6	5.90		0.00	0.32	3.60	8.79	3.09	11.00		10.70	10.70	2.24	0.00	0.48	201.32	3.66	8.46	3.60
6/5/2003	2003	2003	6	6.00		0.00	0.32	5.60	9.19	3.17	12.00		13.42	13.42	2.26	0.00	0.49	202.73	3.74	11.16	5.60
6/6/2003	2003	2003	6	6.30		0.00	0.31	5.27	10.69	3.40	11.00		11.97	11.97	2.30	0.00	0.50	206.81	4.00	9.67	5.27
6/7/2003	2003	2003	6	6.10		0.00	0.31	5.27	10.69	3.40	13.00		13.83	13.83	2.27	0.00	0.49	204.11	3.83	11.56	5.27
6/8/2003	2003	2003	6	5.70		0.00	0.31	5.27	10.69	3.40	16.00		16.62	16.62	2.21	0.00	0.48	198.43	3.49	14.41	5.27
6/9/2003	2003	2003	6	6.20		0.00	0.31	5.30	8.12	2.71	15.00		16.36	16.36	2.29	0.00	0.49	205.47	3.91	14.07	5.30
6/23/2003	2003	2003	6	6.70		0.00	0.30	5.38	6.74	4.75	6.40		6.54	6.54	2.36	0.00	0.51	211.97	4.34	4.18	4.18
6/24/2003	2003	2003	6	5.70		0.00	0.28	5.31	6.83	4.66	6.00		6.18	6.18	2.21	0.00	0.48	198.43	3.49	3.98	3.98
6/25/2003	2003	2003	6	5.90		0.00	0.28	4.99	6.84	4.65	6.20		6.08	6.08	2.24	0.00	0.48	201.32	3.66	3.84	3.84
6/26/2003	2003	2003	6	5.20		0.00	0.29	5.03	6.38	4.71	5.70		5.59	5.59	2.12	0.00	0.46	190.74	3.08	3.47	3.47
6/27/2003	2003	2003	6	5.30		0.00	0.28	5.51	9.08	6.34	5.70		5.51	5.51	2.14	0.00	0.46	192.33	3.16	3.37	3.37
6/28/2003	2003	2003	6	5.50		0.00	0.28	5.51	9.08	6.34	7.30		6.02	6.02	2.18	0.00	0.47	195.44	3.32	3.84	3.84
6/29/2003	2003	2003	6	5.20		0.00	0.28	5.51	9.08	6.34	7.10		5.83	5.83	2.12	0.00	0.46	190.74	3.08	3.71	3.71
6/30/2003	2003	2003	6	5.30		0.00	0.28	5.41	6.09	3.99	5.20		6.16	6.16	2.14	0.00	0.46	192.33	3.16	4.02	4.02
7/1/2003	2003	2003	7	5.20		0.00	0.27	4.07	4.65	3.01	3.30		4.07	4.07	2.12	0.00	0.46	190.74	3.08	1.95	1.95
7/2/2003	2003	2003	7	5.50		0.00	0.27	7.54	5.91	3.92	3.30		7.54	7.54	2.18	0.00	0.47	195.44	3.32	5.36	5.36
7/3/2003	2003	2003	7	5.20		0.00	0.26	5.39	8.11	5.58	3.50		5.39	5.39	2.12	0.00	0.46	190.74	3.08	3.26	3.26
7/4/2003	2003	2003	7	5.40		0.00	0.26	5.39	8.11	5.58	2.90		5.39	5.39	2.16	0.00	0.47	193.90	3.24	3.23	3.23
7/5/2003	2003	2003	7	5.90		0.00	0.26	5.39	8.11	5.58	4.30		5.39	5.39	2.24	0.00	0.48	201.32	3.66	3.15	3.15
7/6/2003	2003	2003	7	5.60		0.00	0.26	5.39	8.11	5.58	4.30		5.39	5.39	2.19	0.00	0.47	196.95	3.41	3.20	3.20
7/7/2003	2003	2003	7	5.70		0.00	0.27	5.21	6.56	4.59	4.30		5.21	5.21	2.21	0.00	0.48	198.43	3.49	3.00	3.00
7/8/2003	2003	2003	7	6.10		0.00	0.22	5.46	6.92	4.78	4.10		5.46	5.46	2.27	0.00	0.49	204.11	3.83	3.18	3.18
7/9/2003	2003	2003	7	6.40		0.00	0.23	5.06	6.16	4.43	4.10		5.06	5.06	2.32	0.00	0.50	208.13	4.08	2.74	2.74
7/10/2003	2003	2003	7	5.90		0.00	0.23	5.64	7.32	4.95	5.00		5.64	5.64	2.24	0.00	0.48	201.32	3.66	3.40	3.40
7/11/2003	2003	2003	7	5.90		0.00	0.22	4.99	8.09	5.18	4.30		4.99	4.99	2.24	0.00	0.48	201.32	3.66	2.75	2.75
7/12/2003	2003	2003	7	6.10		0.00	0.22	4.99	8.09	5.18	5.10		4.99	4.99	2.27	0.00	0.49	204.11	3.83	2.72	2.72
7/13/2003	2003	2003	7	6.10		0.00	0.22	4.99	8.09	5.18	5.60		5.03	5.03	2.27	0.00	0.49	204.11	3.83	2.76	2.76
7/14/2003	2003	2003	7	6.30		0.00	0.23	5.30	6.74	4.60	5.60		5.86	5.86	2.30	0.00	0.50	206.81	4.00	3.56	3.56
7/15/2003	2003	2003	7	6.20		0.00	0.24	5.29	6.55	6.53	6.10		5.29	5.29	2.29	0.00	0.49	205.47	3.91	3.00	3.00
7/16/2003	2003	2003	7	6.30		0.00	0.25	5.24	5.67	5.84	6.10		5.24	5.24	2.30	0.00	0.50	206.81	4.00	2.93	2.93
7/17/2003	2003	2003	7	6.40		0.00	0.26	4.88	4.17	4.07	5.80		6.14	6.14	2.32	0.00	0.50	208.13	4.08	3.82	3.82
7/18/2003	2003	2003	7	6.70		0.00	0.24	5.51	4.72	4.67	6.10		6.45	6.45	2.36	0.00	0.51	211.97	4.34	4.09	4.09
7/19/2003	2003	2003	7	7.10		0.00	0.24	5.51	4.72	4.67	6.80		7.10	7.10	2.41	0.00	0.52	216.83	4.69	4.68	4.68
7/20/2003	2003	2003	7	7.40		0.00	0.24	5.51	4.72	4.67	5.80		6.17	6.17	2.45	0.00	0.53	220.30	4.95	3.71	3.71
7/21/2003	2003	2003	7	7.70		0.00	0.23	4.44	4.14	4.25	5.30		5.10	5.10	2.49	0.00	0.54	223.63	5.21	2.61	2.61
7/22/2003	2003	2003	7	8.30		0.00	0.22	6.25	6.15	5.39	6.80		7.12	7.12	2.56	0.00	0.55	229.92	5.74	4.56	4.56
7/23/2003	2003	2003	7	8.30		0.00	0.23	5.30	4.99	2.65	6.80		8.79	8.79	2.56	0.00	0.55	229.92	5.74	6.23	5.30
7/24/2003	2003	2003	7	9.40		0.00	0.24	5.13	4.70	2.42	5.80		7.91	7.91	2.60	0.00	0.56	233.51	6.80	5.31	5.13
7/25/2003	2003	2003	7	11.00		0.00	0.23	5.43	4.65	4.10	5.80		6.64	6.64	2.60	0.00	0.56	233.51	8.40	4.04	4.04
7/26/2003	2003	2003	7	9.60		0.00	0.23	5.43	4.65	4.10	6.40		7.19	7.19	2.60	0.00	0.56	233.51	7.00	4.59	4.59
7/27/2003	2003	2003	7	9.80		0.00	0.23	5.43	4.65	4.10	6.10		6.92	6.92	2.60	0.00	0.56	233.51	7.20	4.32	4.32
7/28/2003	2003	2003	7	10.00		0.00	0.21	4.90	3.85	1.74	5.80		8.33	8.33	2.60	0.00	0.56	233.51	7.40	5.73	4.90
7/29/2003	2003	2003	7	12.00		0.00	0.20	5.33	4.91	2.32	5.60		8.01	8.01	2.60	0.00	0.56	233.51	9.40	5.41	5.33
7/30/2003	2003	2003	7	17.00		0.00	0.22	5.63	6.91	4.08	32.00		31.21		0.00	0.00	0.00	0.00	17.00	31.21	5.63
7/31/2003	2003	2003	7	9.20		0.00	0.22	4.68	5.64	3.48	19.00		18.78		0.00	0.00	0.00	0.00	9.20	18.78	4.68
8/1/2003	2003	2003	8	8.50		0.00	0.25	5.41	8.35	5.03	10.00		9.66	9.66	2.58	0.00	0.56	231.91	5.92	7.08	5.41
8/2/2003	2003	2003	8	7.90		0.00	0.25	5.41	8.35	5.03	10.00		9.66	9.66	2.51	0.00	0.54	225.78	5.39	7.14	5.41
8/3/2003	2003	2003	8	7.30		0.00	0.25	5.41	8.35	5.03	10.00		9.66	9.66	2.44	0.00	0.53	219.16	4.86	7.22	5.41
8/4/2003	2003	2003	8	6.50		0.00	0.22	4.63	5.69	3.49	8.60		9.06	9.06	2.33	0.00	0.50	209.43	4.17	6.73	4.63
8/5/2003	2003	2003	8	5.60		0.00	0.23	5.04	6.05	3.65	8.60		9.29	9.29	2.19	0.00	0.47	196.95	3.41	7.10	5.04
8/6/2003	2003	2003	8	5.70		0.00	0.23	4.87	5.90	3.30	8.60		9.46	9.46	2.21	0.00	0.48	198.43	3.49	7.25	4.87
8/7/2003	2003	2003	8	5.20		0.00	0.25	5.32	6.67	3.79	9.30		10.07	10.07	2.12	0.00	0.46	190.74	3.08	7.95	5.32
8/8/2003	2003	2003	8	4.50		0.00	0.23	6.36	7.81	4.42	7.50		8.78	8.78	1.99	0.00	0.43	178.62	2.51	6.79	6.36
8/9/2003	2003	2003	8	4.40		0.00	0.23	6.36	7.81	4.42	7.10		8.41	8.41	1.97	0.00	0.43	176.74	2.43	6.44	6.36
8/10/2003	2003	2003	8	4.50		0.00	0.23	6.36	7.81	4.42	8.60		9.80	9.80	1.99	0.00	0.43	178.62	2.51	7.81	6.36
8/11/2003	2003	2003	8	4.50		0.00	0.21	5.27	5.62	2.83	9.00		10.64	10.64	1.99	0.00	0.43	178.62	2.51	8.65	5.27
8/12/2003	2003	2003	8	4.50		0.00	0.23	5.27	5.76	3.00	8.60		10.12	10.12	1.99	0.00	0.43	178.62	2.51	8.13	5.27
8/13/2003	2003	2003	8	4.40		0.00	0.24	4.20	4.82	2.74	8.60		9.35	9.35	1.97	0.00	0.43	176.74	2.43	7.38	4.20
8/14/2003	2003	2003	8	4.30		0.00	0.23	5.19	6.22	3.50	6.80		7.89	7.89	1.95	0.00	0.42	174.81	2.35	5.95	5.19
8/15/2003	2003	2003	8	3.90		(0.12)	0.23	5.54	8.55	5.09	7.10		7.02	7.02	1.86	(0.06)	0.39	161.49	2.10	5.23	5.23
8/16/2003	2003	2003	8	3.70		(0.20)	0.23	5.54	8.55	5.09	9.00		8.79	8.79	1.81	(0.09)	0.37	153.91	1.99	7.08	5.54
8/17/2003	2003	2003	8	4.60		0.00	0.23	5.54	8.55	5.09	9.70		9.44	9.44	2.01	0.00	0.43	180.46	2.59	7.43	5.54
8/18/2003	2003	2003	8	5.20		0.00	0.23	1.65	1.49	1.10	9.00		8.89	8.89	2.12	0.00	0.46	190.74	3.08	6.76	1.65
8/19/2003	2003	2003	8	5.60		0.00	0.18	5.61	8.38	5.42	9.70		9.19	9.19	2.19	0.00	0.47	196.95	3.41	7.00	5.61

										Existing Condition				0.93	20.00 cfs			With Project Diversion			
									San Joaquin Marsh Operations								PROJ. Div	39.7 ppb / 39.7 ppb	16.5 ppm / 16.5 ppm		
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
8/20/2003	2003	2003	8	5.70		0.00	0.24	4.56	6.66	4.49	9.70		9.09	9.09	2.21	0.00	0.48	198.43	3.49	6.88	4.56
8/21/2003	2003	2003	8	5.70		0.00	0.23	4.79	7.10	4.92	9.70		8.90	8.90	2.21	0.00	0.48	198.43	3.49	6.69	4.79
8/22/2003	2003	2003	8	5.60		0.00	0.24	6.71	8.53	5.28	8.60		9.33	9.33	2.19	0.00	0.47	196.95	3.41	7.14	6.71
8/23/2003	2003	2003	8	4.70		0.00	0.24	6.71	8.53	5.28	9.00		9.70	9.70	2.03	0.00	0.44	182.26	2.67	7.67	6.71
8/24/2003	2003	2003	8	4.60		0.00	0.24	6.71	8.53	5.28	8.60		9.33	9.33	2.01	0.00	0.43	180.46	2.59	7.32	6.71
8/25/2003	2003	2003	8	4.60		0.00	0.22	5.17	6.73	4.10	8.60		8.99	8.99	2.01	0.00	0.43	180.46	2.59	6.98	5.17
8/26/2003	2003	2003	8	5.10		0.00	0.20	5.18	6.72	4.15	8.60		8.95	8.95	2.11	0.00	0.46	189.11	2.99	6.85	5.18
8/27/2003	2003	2003	8	4.80		0.00	0.20	5.14	6.73	4.05	9.00		9.38	9.38	2.05	0.00	0.44	184.03	2.75	7.33	5.14
8/28/2003	2003	2003	8	4.70		0.00	0.23	4.54	5.81	3.64	8.60		8.83	8.83	2.03	0.00	0.44	182.26	2.67	6.80	4.54
8/29/2003	2003	2003	8	5.20		0.00	0.23	5.29	8.27	5.09	7.10		6.79	6.79	2.12	0.00	0.46	190.74	3.08	4.67	4.67
8/30/2003	2003	2003	8	5.40		0.00	0.23	5.29	8.27	5.09	9.00		8.56	8.56	2.16	0.00	0.47	193.90	3.24	6.40	5.29
8/31/2003	2003	2003	8	5.00		0.00	0.23	5.29	8.27	5.09	9.30		8.84	8.84	2.09	0.00	0.45	187.45	2.91	6.75	5.29
9/1/2003	2003	2003	9	5.10		0.00	0.23	5.29	8.27	5.09	8.60		8.19	8.19	2.11	0.00	0.46	189.11	2.99	6.08	5.29
9/2/2003	2003	2003	9	4.80		0.00	0.18	4.92	6.58	3.96	7.80		8.14	8.14	2.05	0.00	0.44	184.03	2.75	6.09	4.92
9/3/2003	2003	2003	9	4.90		0.00	0.18	0.97	1.07	0.76	7.80		7.45	7.45	2.07	0.00	0.45	185.76	2.83	5.38	0.97
9/4/2003	2003	2003	9	4.50		0.00	0.19	5.60	5.71	3.47	9.30		10.63	10.63	1.99	0.00	0.43	178.62	2.51	8.64	5.60
9/5/2003	2003	2003	9	4.20		(0.02)	0.18	5.12	9.52	5.85	10.00		8.61	8.61	1.92	(0.01)	0.41	172.10	2.28	6.70	5.12
9/6/2003	2003	2003	9	4.50		0.00	0.18	5.12	9.52	5.85	10.00		8.61	8.61	1.99	0.00	0.43	178.62	2.51	6.62	5.12
9/7/2003	2003	2003	9	4.70		0.00	0.18	5.12	9.52	5.85	9.70		8.33	8.33	2.03	0.00	0.44	182.26	2.67	6.31	5.12
9/8/2003	2003	2003	9	5.30		0.00	0.17	4.86	6.05	3.52	9.20		9.81	9.81	2.14	0.00	0.46	192.33	3.16	7.66	4.86
9/9/2003	2003	2003	9	5.10		0.00	0.18	5.20	6.42	3.73	8.20		8.99	8.99	2.11	0.00	0.46	189.11	2.99	6.88	5.20
9/10/2003	2003	2003	9	5.10		0.00	0.18	5.33	6.87	3.89	8.20		8.97	8.97	2.11	0.00	0.46	189.11	2.99	6.87	5.33
9/11/2003	2003	2003	9	4.80		0.00	0.18	4.28	5.19	3.03	6.80		7.49	7.49	2.05	0.00	0.44	184.03	2.75	5.44	4.28
9/12/2003	2003	2003	9	4.20		(0.02)	0.18	5.42	8.30	4.82	6.80		6.89	6.89	1.92	(0.01)	0.41	172.10	2.28	4.97	4.97
9/13/2003	2003	2003	9	5.10		0.00	0.18	5.42	8.30	4.82	7.50		7.54	7.54	2.11	0.00	0.46	189.11	2.99	5.43	5.42
9/14/2003	2003	2003	9	4.40		0.00	0.18	5.42	8.30	4.82	7.50		7.54	7.54	1.97	0.00	0.43	176.74	2.43	5.57	5.42
9/15/2003	2003	2003	9	4.40		0.00	0.17	4.88	5.84	3.57	6.40		7.17	7.17	1.97	0.00	0.43	176.74	2.43	5.20	4.88
9/16/2003	2003	2003	9	4.70		0.00	0.18	5.40	7.00	4.06	6.40		7.20	7.20	2.03	0.00	0.44	182.26	2.67	5.17	5.17
9/17/2003	2003	2003	9	4.00		(0.09)	0.17	4.81	5.53	4.14	6.80		6.95	6.95	1.88	(0.04)	0.40	165.12	2.16	5.11	4.81
9/18/2003	2003	2003	9	4.00		(0.09)	0.18	4.84	5.50	4.14	5.60		5.86	5.86	1.88	(0.04)	0.40	165.12	2.16	4.02	4.02
9/19/2003	2003	2003	9	4.40		0.00	0.17	5.17	8.61	5.28	6.40		5.85	5.85	1.97	0.00	0.43	176.74	2.43	3.88	3.88
9/20/2003	2003	2003	9	4.10		(0.05)	0.17	5.17	8.61	5.28	5.60		5.17	5.17	1.90	(0.02)	0.41	168.66	2.22	3.29	3.29
9/21/2003	2003	2003	9	3.90		(0.12)	0.17	5.17	8.61	5.28	6.40		5.85	5.85	1.86	(0.06)	0.39	161.49	2.10	4.05	4.05
9/22/2003	2003	2003	9	4.10		(0.05)	0.17	5.14	6.74	4.09	5.80		6.37	6.37	1.90	(0.02)	0.41	168.66	2.22	4.50	4.50
9/23/2003	2003	2003	9	4.10		(0.05)	0.17	5.13	6.74	4.11	5.60		6.16	6.16	1.90	(0.02)	0.41	168.66	2.22	4.28	4.28
9/24/2003	2003	2003	9	4.00		(0.09)	0.16	5.11	6.74	4.15	5.80		6.29	6.29	1.88	(0.04)	0.40	165.12	2.16	4.45	4.45
9/25/2003	2003	2003	9	4.00		(0.09)	0.17	5.12	6.74	4.19	6.40		6.82	6.82	1.88	(0.04)	0.40	165.12	2.16	4.98	4.98
9/26/2003	2003	2003	9	4.40		0.00	0.17	6.46	6.39	4.03	6.80		8.58	8.58	1.97	0.00	0.43	176.74	2.43	6.61	6.46
9/27/2003	2003	2003	9	4.20		(0.02)	0.17	6.46	6.39	4.03	9.00		10.63	10.63	1.92	(0.01)	0.41	172.10	2.28	8.71	6.46
9/28/2003	2003	2003	9	4.20		(0.02)	0.17	6.46	6.39	4.03	8.20		9.88	9.88	1.92	(0.01)	0.41	172.10	2.28	7.97	6.46
9/29/2003	2003	2003	9	3.90		(0.12)	0.16	5.13	4.15	2.12	6.80		9.12	9.12	1.86	(0.06)	0.39	161.49	2.10	7.32	5.13
9/30/2003	2003	2003	9	4.20		(0.02)	0.16	4.78	2.90	0.91	8.20		11.22	11.22	1.92	(0.01)	0.41	172.10	2.28	9.30	4.78
10/1/2003	2003	2004	10	3.60		(0.24)	0.16	5.02	3.17	0.85	5.60		9.08	9.08	1.78	(0.11)	0.36	149.97	1.93	7.41	5.02
10/2/2003	2003	2004	10	3.80		(0.16)	0.16	5.59	4.26	1.87	5.00		8.11	8.11	1.83	(0.07)	0.38	157.75	2.04	6.35	5.59
10/3/2003	2003	2004	10	4.20		(0.02)	0.16	6.39	7.08	4.25	5.10		6.73	6.73	1.92	(0.01)	0.41	172.10	2.28	4.81	4.81
10/4/2003	2003	2004	10	3.90		(0.12)	0.16	6.39	7.08	4.25	5.30		6.92	6.92	1.86	(0.06)	0.39	161.49	2.10	5.12	5.12
10/5/2003	2003	2004	10	4.00		(0.09)	0.16	6.39	7.08	4.25	4.90		6.54	6.54	1.88	(0.04)	0.40	165.12	2.16	4.70	4.70
10/6/2003	2003	2004	10	4.00		(0.09)	0.16	10.04	8.40	5.46	5.00		10.04	10.04	1.88	(0.04)	0.40	165.12	2.16	8.20	8.20
10/7/2003	2003	2004	10	4.00		(0.09)	0.17	9.06	9.24	5.90	5.50		9.06	9.06	1.88	(0.04)	0.40	165.12	2.16	7.22	7.22
10/8/2003	2003	2004	10	3.80		(0.16)	0.16	8.60	9.05	5.68	5.70		8.60	8.60	1.83	(0.07)	0.38	157.75	2.04	6.84	6.84
10/9/2003	2003	2004	10	3.80		(0.16)	0.17	8.37	7.61	5.08	5.80		8.46	8.46	1.83	(0.07)	0.38	157.75	2.04	6.70	6.70
10/10/2003	2003	2004	10	4.00		(0.09)	0.16	8.68	10.02	6.43	5.70		8.68	8.68	1.88	(0.04)	0.40	165.12	2.16	6.85	6.85
10/11/2003	2003	2004	10	4.00		(0.09)	0.16	8.68	10.02	6.43	6.00		8.68	8.68	1.88	(0.04)	0.40	165.12	2.16	6.85	6.85
10/12/2003	2003	2004	10	3.40		(0.32)	0.16	8.68	10.02	6.43	5.60		8.68	8.68	1.73	(0.15)	0.34	141.76	1.82	7.11	7.11
10/13/2003	2003	2004	10	3.20		(0.41)	0.16	8.63	9.75	7.52	6.50		8.63	8.63	1.67	(0.19)	0.32	133.09	1.72	7.15	7.15
10/14/2003	2003	2004	10	4.00		(0.09)	0.14	8.45	13.29	9.53	7.80		8.45	8.45	1.88	(0.04)	0.40	165.12	2.16	6.61	6.61
10/15/2003	2003	2004	10	3.40		(0.32)	0.15	8.45	11.74	8.55	7.80		8.45	8.45	1.73	(0.15)	0.34	141.76	1.82	6.87	6.87
10/16/2003	2003	2004	10	3.50		(0.28)	0.16	8.52	9.08	6.50	7.80		9.14	9.14	1.75	(0.13)	0.35	145.92	1.88	7.51	7.51
10/17/2003	2003	2004	10	3.10		(0.45)	0.17	8.62	12.41	9.24	8.20		8.62	8.62	1.64	(0.21)	0.31	128.59	1.67	7.19	7.19
10/18/2003	2003	2004	10	2.80		(0.60)	0.17	8.62	12.41	9.24	8.90		8.62	8.62	1.55	(0.27)	0.28	114.39	1.53	7.35	7.35
10/19/2003	2003	2004	10	3.20		(0.41)	0.17	8.62	12.41	9.24	10.00		8.73	8.73	1.67	(0.19)	0.32	133.09	1.72	7.24	7.24
10/20/2003	2003	2004	10	2.80		(0.60)	0.16	8.59	11.36	7.30	9.30		9.85	9.85	1.55	(0.27)	0.28	114.39	1.53	8.57	8.57
10/21/2003	2003	2004	10	3.10		(0.45)	0.16	8.56	11.36	9.44	9.90		8.56	8.56	1.64	(0.21)	0.31	128.59	1.67	7.13	7.13
10/22/2003	2003	2004	10	2.90		(0.55)	0.16	8.56	10.08	7.42	8.40		8.86	8.86	1.58	(0.25)	0.29	119.24	1.57	7.54	7.54
10/23/2003	2003	2004	10	2.80		(0.60)	0.17	8.65	12.13	8.76	8.30		8.65	8.65	1.55	(0.27)	0.28	114.39	1.53	7.37	7.37
10/24/2003	2003	2004	10	2.90		(0.55)	0.17	8.51	12.29	9.16	8.10		8.51	8.51	1.58	(0.25)	0.29	119.24	1.57	7.18	7.18
10/25/2003	2003	2004	10	2.80		(0.60)	0.17	8.51	12.29	9.16	7.50		8.51	8.51	1.55	(0.27)	0.28	114.39	1.53	7.24	7.24
10/26/2003	2003	2004	10	2.60		(0.71)	0.17	8.51	12.29	9.16	7.50		8.51	8.51	1.48	(0.32)	0.25	104.34	1.44	7.35	7.35
10/27/2003	2003	2004	10	3.00		(0.50)	0.16	5.81	10.34	7.43	8.00		5.93	5.93	1.61	(0.23)	0.30	123.97	1.62	4.55	4.55
10/28/2003	2003	2004	10	2.90		(0.55)	0.16	5.92	10.79	8.52	8.50		5.92	5.92	1.58	(0.25)	0.29	119.24	1.57	4.60	4.60
10/29/2003	2003	2004	10	2.70		(0.65)	0.17	5.91	11.34	10.76	13.00		7.58	7.58	1.51	(0.29)	0.26	109.42	1.48	6.36	5.91

								Existing Condition					0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm	With Project Diversion		
						Est. Loss,		San Joaquin Marsh Operations					**Adjusted	**Adjusted		Est. Loss,	39.7 ppb	16.5 ppm		**Adjusted	using SDC at Cam
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	San Diego Cr (SDC) at Campus (cfs)	San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	San Diego Cr (SDC) at Campus (cfs)	SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW Ba	Project - Diversi	Project - Diversi	Project - PCW Ba	Project - SDC Ca	Project - SJM In
10/30/2003	2003	2004	10	2.70		(0.65)	0.16	7.13	9.59	9.32	14.00		10.98	10.98	1.51	(0.29)	0.26	109.42	1.48	9.76	7.13
10/31/2003	2003	2004	10	3.40		(0.32)	0.17	7.44	10.13	7.57	8.40		7.69	7.69	1.73	(0.15)	0.34	141.76	1.82	6.11	6.11
11/1/2003	2003	2004	11	17.00		0.00	0.17	7.44	10.13	7.57	113.00		104.96		0.00	0.00	0.00	0.00	17.00	104.96	7.44
11/2/2003	2003	2004	11	2.70		(0.65)	0.17	7.44	10.13	7.57	18.00		16.61	16.61	1.51	(0.29)	0.26	109.42	1.48	15.40	7.44
11/3/2003	2003	2004	11	7.30		0.00	0.16	6.98	9.44	7.44	20.00		18.18	18.18	2.44	0.00	0.53	219.16	4.86	15.74	6.98
11/4/2003	2003	2004	11	3.70		(0.20)	0.17	7.27	9.56	7.14	22.00		20.58		0.00	0.00	0.00	0.00	3.70	20.58	7.27
11/5/2003	2003	2004	11	2.70		(0.65)	0.11	6.74	9.14	6.98	7.90		7.13	7.13	1.51	(0.29)	0.26	109.42	1.48	5.91	5.91
11/6/2003	2003	2004	11	2.70		(0.65)	0.29	6.28	8.94	6.89	7.50		6.41	6.41	1.51	(0.29)	0.26	109.42	1.48	5.19	5.19
11/7/2003	2003	2004	11	3.30		(0.36)	0.19	7.15	10.17	7.77	7.50		7.15	7.15	1.70	(0.17)	0.33	137.48	1.77	5.62	5.62
11/8/2003	2003	2004	11	3.90		(0.12)	0.19	7.15	10.17	7.77	11.00		9.65	9.65	1.86	(0.06)	0.39	161.49	2.10	7.85	7.15
11/9/2003	2003	2004	11	4.30		0.00	0.19	7.15	10.17	7.77	14.00		12.44	12.44	1.95	0.00	0.42	174.81	2.35	10.49	7.15
11/10/2003	2003	2004	11	3.20		(0.41)	0.28	7.26	8.92	6.82	11.00		10.64	10.64	1.67	(0.19)	0.32	133.09	1.72	9.16	7.26
11/11/2003	2003	2004	11	2.80		(0.60)	0.12	7.15	8.99	6.75	8.40		8.18	8.18	1.55	(0.27)	0.28	114.39	1.53	6.90	6.90
11/12/2003	2003	2004	11	3.70		(0.20)	0.13	6.93	8.71	6.53	9.30		9.02	9.02	1.81	(0.09)	0.37	153.91	1.99	7.31	6.93
11/13/2003	2003	2004	11	3.60		(0.24)	0.13	6.64	7.58	5.70	15.00		14.82	14.82	1.78	(0.11)	0.36	149.97	1.93	13.15	6.64
11/14/2003	2003	2004	11	3.30		(0.36)	0.13	7.39	8.19	8.12	10.00		8.62	8.62	1.70	(0.17)	0.33	137.48	1.77	7.09	7.09
11/15/2003	2003	2004	11	5.50		0.00	0.13	7.39	8.19	8.12	19.00		16.99	16.99	2.18	0.00	0.47	195.44	3.32	14.81	7.39
11/16/2003	2003	2004	11	3.60		(0.24)	0.13	7.39	8.19	8.12	23.00		20.71		0.00	0.00	0.00	0.00	3.60	20.71	7.39
11/17/2003	2003	2004	11	2.80		(0.60)	0.12	7.00	7.76	6.96	15.00		13.98	13.98	1.55	(0.27)	0.28	114.39	1.53	12.71	7.00
11/18/2003	2003	2004	11	2.70		(0.65)	0.10	7.67	7.64	7.11	11.00		10.75	10.75	1.51	(0.29)	0.26	109.42	1.48	9.53	7.67
11/19/2003	2003	2004	11	2.70		(0.65)	0.10	6.60	6.64	4.65	7.90		9.16	9.16	1.51	(0.29)	0.26	109.42	1.48	7.94	6.60
11/20/2003	2003	2004	11	2.80		(0.60)	0.13	6.52	7.12	5.01	6.20		7.17	7.17	1.55	(0.27)	0.28	114.39	1.53	5.90	5.90
11/21/2003	2003	2004	11	2.70		(0.65)	0.12	7.32	7.73	7.55	8.20		7.41	7.41	1.51	(0.29)	0.26	109.42	1.48	6.19	6.19
11/22/2003	2003	2004	11	2.70		(0.65)	0.12	7.32	7.73	7.55	9.20		8.34	8.34	1.51	(0.29)	0.26	109.42	1.48	7.12	7.12
11/23/2003	2003	2004	11	2.60		(0.71)	0.12	7.32	7.73	7.55	8.50		7.69	7.69	1.48	(0.32)	0.25	104.34	1.44	6.52	6.52
11/24/2003	2003	2004	11	2.80		(0.60)	0.13	7.23	6.39	7.66	8.20		7.23	7.23	1.55	(0.27)	0.28	114.39	1.53	5.96	5.96
11/25/2003	2003	2004	11	2.90		(0.55)	0.11	7.09	9.12	5.69	7.00		7.82	7.82	1.58	(0.25)	0.29	119.24	1.57	6.49	6.49
11/26/2003	2003	2004	11	3.30		(0.36)	0.15	6.85	7.29	5.41	6.10		7.01	7.01	1.70	(0.17)	0.33	137.48	1.77	5.48	5.48
11/27/2003	2003	2004	11	3.00		(0.50)	0.15	6.85	7.29	5.41	6.10		7.01	7.01	1.61	(0.23)	0.30	123.97	1.62	5.63	5.63
11/28/2003	2003	2004	11	2.90		(0.55)	0.15	6.85	7.29	5.41	7.00		7.85	7.85	1.58	(0.25)	0.29	119.24	1.57	6.52	6.52
11/29/2003	2003	2004	11	3.10		(0.45)	0.15	6.85	7.29	5.41	7.00		7.85	7.85	1.64	(0.21)	0.31	128.59	1.67	6.42	6.42
11/30/2003	2003	2004	11	3.10		(0.45)	0.15	6.85	7.29	5.41	6.90		7.76	7.76	1.64	(0.21)	0.31	128.59	1.67	6.32	6.32
12/1/2003	2003	2004	12	3.40		(0.32)	0.14	4.13	6.02	3.99	6.30		5.99	5.99	1.73	(0.15)	0.34	141.76	1.82	4.41	4.13
12/2/2003	2003	2004	12	3.40		(0.32)	0.12	7.04	6.02	3.99	3.50		7.04	7.04	1.73	(0.15)	0.34	141.76	1.82	5.46	5.46
12/3/2003	2003	2004	12	3.90		(0.12)	0.11	6.01	6.93	5.12	7.00		7.33	7.33	1.86	(0.06)	0.39	161.49	2.10	5.53	5.53
12/4/2003	2003	2004	12	4.00		(0.09)	0.11	7.65	9.78	7.10	7.60		7.65	7.65	1.88	(0.04)	0.40	165.12	2.16	5.81	5.81
12/5/2003	2003	2004	12	3.80		(0.16)	0.12	7.33	9.12	6.69	8.40		8.41	8.41	1.83	(0.07)	0.38	157.75	2.04	6.65	6.65
12/6/2003	2003	2004	12	3.70		(0.20)	0.12	7.33	9.12	6.69	8.20		8.22	8.22	1.81	(0.09)	0.37	153.91	1.99	6.51	6.51
12/7/2003	2003	2004	12	9.60		0.00	0.12	7.33	9.12	6.69	44.00		41.51		0.00	0.00	0.00	0.00	9.60	41.51	7.33
12/8/2003	2003	2004	12	6.30		0.00	0.12	6.03	6.23	4.29	40.00		38.82		0.00	0.00	0.00	0.00	6.30	38.82	6.03
12/9/2003	2003	2004	12	5.90		0.00	0.08	7.98	7.13	4.89	17.00		18.68		0.00	0.00	0.00	0.00	5.90	18.68	7.98
12/10/2003	2003	2004	12	4.00		(0.09)	0.10	5.73	5.69	3.64	6.40		7.90	7.90	1.88	(0.04)	0.40	165.12	2.16	6.06	5.73
12/11/2003	2003	2004	12	3.90		(0.12)	0.13	8.57	8.31	6.99	6.60		8.57	8.57	1.86	(0.06)	0.39	161.49	2.10	6.78	6.78
12/12/2003	2003	2004	12	3.30		(0.36)	0.13	0.00	7.39	1.34	17.00		14.56	14.56	1.70	(0.17)	0.33	137.48	1.77	13.03	0.00
12/13/2003	2003	2004	12	3.60		(0.24)	0.13	0.00	7.39	0.00	9.10		8.46	8.46	1.78	(0.11)	0.36	149.97	1.93	6.79	0.00
12/14/2003	2003	2004	12	10.00		0.00	0.13	0.00	7.39	0.00	31.00		28.83		0.00	0.00	0.00	0.00	10.00	28.83	0.00
12/15/2003	2003	2004	12	6.50		0.00	0.14	0.00	8.19	0.00	40.00		37.20		0.00	0.00	0.00	0.00	6.50	37.20	0.00
12/16/2003	2003	2004	12	3.90		(0.12)	0.11	0.00	9.04	0.00	11.00		10.23	10.23	1.86	(0.06)	0.39	161.49	2.10	8.43	0.00
12/17/2003	2003	2004	12	3.90		(0.12)	0.14	0.00	8.15	0.00	9.50		8.84	8.84	1.86	(0.06)	0.39	161.49	2.10	7.04	0.00
12/18/2003	2003	2004	12	3.90		(0.12)	0.15	0.00	9.86	0.00	9.30		8.65	8.65	1.86	(0.06)	0.39	161.49	2.10	6.85	0.00
12/19/2003	2003	2004	12	4.50		0.00	0.10	0.00	8.92	0.00	7.20		6.70	6.70	1.99	0.00	0.43	178.62	2.51	4.71	0.00
12/20/2003	2003	2004	12	4.20		(0.02)	0.10	0.00	8.92	0.00	5.00		4.65	4.65	1.92	(0.01)	0.41	172.10	2.28	2.73	0.00
12/21/2003	2003	2004	12	4.20		(0.02)	0.10	0.00	8.92	0.00	5.70		5.30	5.30	1.92	(0.01)	0.41	172.10	2.28	3.38	0.00
12/22/2003	2003	2004	12	3.80		(0.16)	0.13	0.00	8.92	0.00	6.20		5.77	5.77	1.83	(0.07)	0.38	157.75	2.04	4.01	0.00
12/23/2003	2003	2004	12	3.70		(0.20)	0.15	0.00	8.92	0.00	7.50		6.98	6.98	1.81	(0.09)	0.37	153.91	1.99	5.26	0.00
12/24/2003	2003	2004	12	4.60		0.00	0.15	0.00	8.92	0.00	9.40		8.74	8.74	2.01	0.00	0.43	180.46	2.59	6.73	0.00
12/25/2003	2003	2004	12	104.00		0.00	0.15	0.00	8.92	0.00	417.00		387.81		0.00	0.00	0.00	0.00	104.00	387.81	0.00
12/26/2003	2003	2004	12	9.00		0.00	0.15	0.00	8.92	0.00	90.00		83.70		0.00	0.00	0.00	0.00	9.00	83.70	0.00
12/27/2003	2003	2004	12	4.40		0.00	0.15	0.00	8.92	0.00	18.00		16.74	16.74	1.97	0.00	0.43	176.74	2.43	14.77	0.00
12/28/2003	2003	2004	12	5.30		0.00	0.15	0.00	8.92	0.00	18.00		16.74	16.74	2.14	0.00	0.46	192.33	3.16	14.60	0.00
12/29/2003	2003	2004	12	4.80		0.00	0.17	0.00	8.42	0.00	16.00		14.88	14.88	2.05	0.00	0.44	184.03	2.75	12.83	0.00
12/30/2003	2003	2004	12	3.40		(0.32)	0.20	0.00	9.09	0.00	10.00		9.30	9.30	1.73	(0.15)	0.34	141.76	1.82	7.72	0.00
12/31/2003	2003	2004	12	3.10		(0.45)	0.18	0.00	9.23	0.00	7.80		7.25	7.25	1.64	(0.21)	0.31	128.59	1.67	5.82	0.00
1/1/2004	2004	2004	1	2.80		(0.60)	0.18	0.00	9.23	0.00	6.00		5.58	5.58	1.55	(0.27)	0.28	114.39	1.53	4.31	0.00
1/2/2004	2004	2004	1	27.00		0.00	0.18	0.00	9.23	0.00	96.00		89.28		0.00	0.00	0.00	0.00	27.00	89.28	0.00
1/3/2004	2004	2004	1	9.30		0.00	0.18	0.00	9.23	0.00	68.00		63.24		0.00	0.00	0.00	0.00	9.30	63.24	0.00
1/4/2004	2004	2004	1	4.30		0.00	0.18	0.00	9.23	0.00	11.00		10.23	10.23	1.95	0.00	0.42	174.81	2.35	8.28	0.00
1/5/2004	2004	2004	1	4.10		(0.05)	0.15	0.00	9.36	0.00	9.20		8.56	8.56	1.90	(0.02)	0.41	168.66	2.22	6.68	0.00
1/6/2004	2004	2004	1	3.70		(0.20)	0.18	0.00	8.21	0.00	8.10		7.53	7.53	1.81	(0.09)	0.37	153.91	1.99	5.82	0.00
1/7/2004	2004	2004	1	3.70		(0.20)	0.19	0.00	9.45	0.00	7.70		7.16	7.16	1.81	(0.09)	0.37	153.91	1.99	5.45	0.00
1/8/2004	2004	2004	1	3.60		(0.24)	0.19	0.00	7.87	0.00	7.90		7.35	7.35	1.78	(0.11)	0.36	149.97	1.93	5.68	0.00

Existing Condition | **With Project Diversion**

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	San Joaquin Marsh Operations: SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
1/9/2004	2004	2004	1	3.70		(0.20)	0.17	0.00	5.31	0.00	7.20		6.70	6.70	1.81	(0.09)	0.37	153.91	1.99	4.98	0.00
1/10/2004	2004	2004	1	3.50		(0.28)	0.17	0.00	5.31	0.00	7.10		6.60	6.60	1.75	(0.13)	0.35	145.92	1.88	4.98	0.00
1/11/2004	2004	2004	1	3.30		(0.36)	0.17	0.00	5.31	0.00	7.20		6.70	6.70	1.70	(0.17)	0.33	137.48	1.77	5.17	0.00
1/12/2004	2004	2004	1	3.50		(0.28)	0.17	0.00	7.56	0.00	7.50		6.98	6.98	1.75	(0.13)	0.35	145.92	1.88	5.35	0.00
1/13/2004	2004	2004	1	3.60		(0.24)	0.18	0.00	6.87	0.00	7.60		7.07	7.07	1.78	(0.11)	0.36	149.97	1.93	5.40	0.00
1/14/2004	2004	2004	1	3.40		(0.32)	0.20	0.00	8.18	0.00	8.50		7.91	7.91	1.73	(0.15)	0.34	141.76	1.82	6.33	0.00
1/15/2004	2004	2004	1	3.50		(0.28)	0.20	0.00	7.77	0.00	8.30		7.72	7.72	1.75	(0.13)	0.35	145.92	1.88	6.09	0.00
1/16/2004	2004	2004	1	3.60		(0.24)	0.21	0.00	6.73	0.00	8.60		8.00	8.00	1.78	(0.11)	0.36	149.97	1.93	6.33	0.00
1/17/2004	2004	2004	1	3.70		(0.20)	0.21	0.00	6.73	0.00	8.20		7.63	7.63	1.81	(0.09)	0.37	153.91	1.99	5.91	0.00
1/18/2004	2004	2004	1	3.60		(0.24)	0.21	0.00	6.73	0.00	7.80		7.25	7.25	1.78	(0.11)	0.36	149.97	1.93	5.58	0.00
1/19/2004	2004	2004	1	4.70		0.00	0.26	0.00	5.44	0.00	12.00		11.16	11.16	2.03	0.00	0.44	182.26	2.67	9.13	0.00
1/20/2004	2004	2004	1	4.20		(0.02)	0.20	0.00	5.69	0.00	10.00		9.30	9.30	1.92	(0.01)	0.41	172.10	2.28	7.38	0.00
1/21/2004	2004	2004	1	3.80		(0.16)	0.22	0.00	8.56	0.00	7.90		7.35	7.35	1.83	(0.07)	0.38	157.75	2.04	5.59	0.00
1/22/2004	2004	2004	1	3.40		(0.32)	0.23	0.00	7.96	0.00	7.20		6.70	6.70	1.73	(0.15)	0.34	141.76	1.82	5.12	0.00
1/23/2004	2004	2004	1	3.40		(0.32)	0.22	0.00	7.86	0.00	8.10		7.53	7.53	1.73	(0.15)	0.34	141.76	1.82	5.95	0.00
1/24/2004	2004	2004	1	3.90		(0.12)	0.22	0.00	7.86	0.00	9.20		8.56	8.56	1.86	(0.06)	0.39	161.49	2.10	6.76	0.00
1/25/2004	2004	2004	1	3.80		(0.16)	0.22	0.00	7.86	0.00	8.00		7.44	7.44	1.83	(0.07)	0.38	157.75	2.04	5.68	0.00
1/26/2004	2004	2004	1	3.70		(0.20)	0.22	0.00	6.63	0.00	6.80		6.32	6.32	1.81	(0.09)	0.37	153.91	1.99	4.61	0.00
1/27/2004	2004	2004	1	4.20		(0.02)	0.22	0.00	0.16	0.00	7.40		6.88	6.88	1.92	(0.01)	0.41	172.10	2.28	4.97	0.00
1/28/2004	2004	2004	1	8.20		0.00	0.23	0.00	7.36	0.00	29.00		26.97		0.00	0.00	0.00	0.00	8.20	26.97	0.00
1/29/2004	2004	2004	1	4.10		(0.05)	0.23	0.00	6.81	0.00	12.00		11.16	11.16	1.90	(0.02)	0.41	168.66	2.22	9.28	0.00
1/30/2004	2004	2004	1	3.50		(0.28)	0.21	0.00	6.95	0.00	7.20		6.70	6.70	1.75	(0.13)	0.35	145.92	1.88	5.07	0.00
1/31/2004	2004	2004	1	3.70		(0.20)	0.21	0.00	6.95	0.00	6.90		6.42	6.42	1.81	(0.09)	0.37	153.91	1.99	4.70	0.00
2/1/2004	2004	2004	2	4.10		(0.05)	0.25	0.00	6.95	0.00	6.70		6.23	6.23	1.90	(0.02)	0.41	168.66	2.22	4.35	0.00
2/2/2004	2004	2004	2	103.00		0.00	0.26	0.00	3.59	0.00	190.00		176.70		0.00	0.00	0.00	0.00	103.00	176.70	0.00
2/3/2004	2004	2004	2	33.00		0.00	0.25	0.00	4.40	0.00	391.00		363.63		0.00	0.00	0.00	0.00	33.00	363.63	0.00
2/4/2004	2004	2004	2	5.20		0.00	0.23	0.00	6.21	0.00	21.00		19.53		0.00	0.00	0.00	0.00	5.20	19.53	0.00
2/5/2004	2004	2004	2	4.20		(0.02)	0.20	0.00	7.57	0.00	9.70		9.02	9.02	1.92	(0.01)	0.41	172.10	2.28	7.10	0.00
2/6/2004	2004	2004	2	4.10		(0.05)	0.19	0.00	5.00	0.00	7.40		6.88	6.88	1.90	(0.02)	0.41	168.66	2.22	5.00	0.00
2/7/2004	2004	2004	2	4.10		(0.05)	0.19	0.00	5.00	0.00	7.10		6.60	6.60	1.90	(0.02)	0.41	168.66	2.22	4.73	0.00
2/8/2004	2004	2004	2	3.90		(0.12)	0.19	0.00	5.00	0.00	7.00		6.51	6.51	1.86	(0.06)	0.39	161.49	2.10	4.71	0.00
2/9/2004	2004	2004	2	4.20		(0.02)	0.19	0.00	6.84	0.00	6.60		6.14	6.14	1.92	(0.01)	0.41	172.10	2.28	4.22	0.00
2/10/2004	2004	2004	2	3.90		(0.12)	0.20	0.00	4.01	0.00	6.20		5.77	5.77	1.86	(0.06)	0.39	161.49	2.10	3.97	0.00
2/11/2004	2004	2004	2	3.30		(0.36)	0.20	0.00	2.54	0.00	6.20		5.77	5.77	1.70	(0.17)	0.33	137.48	1.77	4.24	0.00
2/12/2004	2004	2004	2	2.70		(0.65)	0.22	0.00	4.56	0.00	6.80		6.32	6.32	1.51	(0.29)	0.26	109.42	1.48	5.11	0.00
2/13/2004	2004	2004	2	3.10		(0.45)	0.23	0.00	3.23	0.00	4.90		4.56	4.56	1.64	(0.21)	0.31	128.59	1.67	3.13	0.00
2/14/2004	2004	2004	2	3.40		(0.32)	0.23	0.00	3.23	0.00	2.20		2.05	2.05	1.73	(0.15)	0.34	141.76	1.82	0.47	0.00
2/15/2004	2004	2004	2	3.80		(0.16)	0.23	6.67	3.23	2.14	6.10		9.89	9.89	1.83	(0.07)	0.38	157.75	2.04	8.14	6.67
2/16/2004	2004	2004	2	4.40		0.00	0.23	6.67	3.23	2.14	2.80		6.82	6.82	1.97	0.00	0.43	176.74	2.43	4.86	4.86
2/17/2004	2004	2004	2	4.70		0.00	0.16	4.68	6.54	4.97	2.60		4.68	4.68	2.03	0.00	0.44	182.26	2.67	2.65	2.65
2/18/2004	2004	2004	2	98.00		0.00	0.22	4.68	5.94	4.97	284.00		263.85		0.00	0.00	0.00	0.00	98.00	263.85	4.68
2/19/2004	2004	2004	2	10.00		0.00	0.25	6.42	9.30	9.13	57.00		50.50		0.00	0.00	0.00	0.00	10.00	50.50	6.42
2/20/2004	2004	2004	2	5.00		0.00	0.23	5.78	9.85	9.59	15.00		10.41	10.41	2.09	0.00	0.45	187.45	2.91	8.32	5.78
2/21/2004	2004	2004	2	7.70		0.00	0.23	5.78	9.85	9.59	11.00		6.69	6.69	2.49	0.00	0.54	223.63	5.21	4.20	4.20
2/22/2004	2004	2004	2	221.00		0.00	0.24	5.78	9.85	9.59	600.00		554.46		0.00	0.00	0.00	0.00	221.00	554.46	5.78
2/23/2004	2004	2004	2	156.00		0.00	0.21	7.59	10.99	10.81	568.00		525.24		0.00	0.00	0.00	0.00	156.00	525.24	7.59
2/24/2004	2004	2004	2	7.00		0.00	0.22	7.81	9.04	8.44	30.00		27.32		0.00	0.00	0.00	0.00	7.00	27.32	7.81
2/25/2004	2004	2004	2	105.00		0.00	0.24	5.90	6.21	5.05	40.00		37.99		0.00	0.00	0.00	0.00	105.00	37.99	5.90
2/26/2004	2004	2004	2	1030.00		0.00	0.24	4.74	8.83	7.29	2480.00		2304.03		0.00	0.00	0.00	0.00	1030.00	2304.03	4.74
2/27/2004	2004	2004	2	9.30		0.00	0.25	7.55	6.66	5.49	52.00		50.28		0.00	0.00	0.00	0.00	9.30	50.28	7.55
2/28/2004	2004	2004	2	6.20		0.00	0.25	7.55	6.66	5.49	22.00		22.38		0.00	0.00	0.00	0.00	6.20	22.38	7.55
2/29/2004	2004	2004	2	5.40		0.00	0.25	7.55	6.66	5.49	9.70		10.94	10.94	2.16	0.00	0.47	193.90	3.24	8.78	7.55
3/1/2004	2004	2004	3	54.00		0.00	0.26	6.68	5.21	3.61	54.00		53.08		0.00	0.00	0.00	0.00	54.00	53.08	6.68
3/2/2004	2004	2004	3	76.00		0.00	0.26	10.77	0.00	0.00	444.00		422.94		0.00	0.00	0.00	0.00	76.00	422.94	10.77
3/3/2004	2004	2004	3	7.70		0.00	0.26	8.08	1.83	0.00	46.00		50.30		0.00	0.00	0.00	0.00	7.70	50.30	8.08
3/4/2004	2004	2004	3	5.30		0.00	0.27	0.00	6.33	0.00	16.00		14.88	14.88	2.14	0.00	0.46	192.33	3.16	12.74	0.00
3/5/2004	2004	2004	3	5.20		0.00	0.23	0.00	6.83	0.00	13.00		12.09	12.09	2.12	0.00	0.46	190.74	3.08	9.97	0.00
3/6/2004	2004	2004	3	5.30		0.00	0.23	0.00	6.83	0.00	11.00		10.23	10.23	2.14	0.00	0.46	192.33	3.16	8.09	0.00
3/7/2004	2004	2004	3	5.20		0.00	0.23	0.00	6.83	0.00	11.00		10.23	10.23	2.12	0.00	0.46	190.74	3.08	8.11	0.00
3/8/2004	2004	2004	3	4.60		0.00	0.23	0.00	7.04	0.00	9.90		9.21	9.21	2.01	0.00	0.43	180.46	2.59	7.20	0.00
3/9/2004	2004	2004	3	4.80		0.00	0.21	0.00	7.15	0.00	12.00		11.16	11.16	2.05	0.00	0.44	184.03	2.75	9.11	0.00
3/10/2004	2004	2004	3	5.20		0.00	0.23	0.00	5.54	0.00	12.00		11.16	11.16	2.12	0.00	0.46	190.74	3.08	9.04	0.00
3/11/2004	2004	2004	3	5.20		0.00	0.23	0.00	6.81	0.00	11.00		10.23	10.23	2.12	0.00	0.46	190.74	3.08	8.11	0.00
3/12/2004	2004	2004	3	4.80		0.00	0.24	0.00	7.14	0.00	10.00		9.30	9.30	2.05	0.00	0.44	184.03	2.75	7.25	0.00
3/13/2004	2004	2004	3	4.60		0.00	0.23	0.00	7.14	0.00	10.00		9.30	9.30	2.01	0.00	0.43	180.46	2.59	7.29	0.00
3/14/2004	2004	2004	3	4.60		0.00	0.24	0.00	7.14	0.00	9.40		8.74	8.74	2.01	0.00	0.43	180.46	2.59	6.73	0.00
3/15/2004	2004	2004	3	4.70		0.00	0.28	0.00	4.67	0.00	9.30		8.65	8.65	2.03	0.00	0.44	182.26	2.67	6.62	0.00
3/16/2004	2004	2004	3	5.10		0.00	0.25	0.00	3.61	0.00	10.00		9.30	9.30	2.11	0.00	0.46	189.11	2.99	7.19	0.00
3/17/2004	2004	2004	3	5.40		0.00	0.43	0.00	3.61	0.00	9.40		8.74	8.74	2.16	0.00	0.47	193.90	3.24	6.58	0.00
3/18/2004	2004	2004	3	5.00		0.00	0.28	0.00	5.82	0.00	9.80		9.11	9.11	2.09	0.00	0.45	187.45	2.91	7.03	0.00
3/19/2004	2004	2004	3	4.90		0.00	0.25	0.00	5.21	0.00	10.00		9.30	9.30	2.07	0.00	0.45	185.76	2.83	7.23	0.00

Existing Condition | With Project Diversion

San Joaquin Marsh Operations

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW Ba	Project - Diversi	Project - Diversi	Project - PCW Ba	Project - SDC Ca	Project - SJM In
3/20/2004	2004	2004	3	4.80		0.00	0.25	0.00	5.21	0.00	9.40		8.74	8.74	2.05	0.00	0.44	184.03	2.75	6.69	0.00
3/21/2004	2004	2004	3	4.70		0.00	0.25	0.00	5.21	0.00	9.70		9.02	9.02	2.03	0.00	0.44	182.26	2.67	6.99	0.00
3/22/2004	2004	2004	3	5.10		0.00	0.27	0.00	1.00	0.00	11.00		10.23	10.23	2.11	0.00	0.46	189.11	2.99	8.12	0.00
3/23/2004	2004	2004	3	5.90		0.00	0.27	0.00	4.27	0.00	13.00		12.09	12.09	2.24	0.00	0.48	201.32	3.66	9.85	0.00
3/24/2004	2004	2004	3	4.60		0.00	0.28	0.00	5.23	0.00	11.00		10.23	10.23	2.01	0.00	0.43	180.46	2.59	8.22	0.00
3/25/2004	2004	2004	3	4.40		0.00	0.29	0.00	4.26	0.00	10.00		9.30	9.30	1.97	0.00	0.43	176.74	2.43	7.33	0.00
3/26/2004	2004	2004	3	4.40		0.00	0.30	0.00	2.55	0.00	9.80		9.11	9.11	1.97	0.00	0.43	176.74	2.43	7.15	0.00
3/27/2004	2004	2004	3	4.40		0.00	0.30	0.00	2.55	0.00	9.70		9.02	9.02	1.97	0.00	0.43	176.74	2.43	7.05	0.00
3/28/2004	2004	2004	3	4.10		(0.05)	0.30	0.00	2.55	0.00	9.30		8.65	8.65	1.90	(0.02)	0.41	168.66	2.22	6.77	0.00
3/29/2004	2004	2004	3	4.10		(0.05)	0.28	0.00	1.55	0.00	9.00		8.37	8.37	1.90	(0.02)	0.41	168.66	2.22	6.49	0.00
3/30/2004	2004	2004	3	4.70		0.00	0.28	0.00	3.84	0.00	9.70		9.02	9.02	2.03	0.00	0.44	182.26	2.67	6.99	0.00
3/31/2004	2004	2004	3	5.00		0.00	0.31	0.00	1.88	0.00	10.00		9.30	9.30	2.09	0.00	0.45	187.45	2.91	7.21	0.00
4/1/2004	2004	2004	4	43.00		0.00	0.28	0.00	3.63	0.00	186.00		172.98		0.00	0.00	0.00	0.00	43.00	172.98	0.00
4/2/2004	2004	2004	4	9.30		0.00	0.00	0.00	2.60	0.00	89.00		82.77		0.00	0.00	0.00	0.00	9.30	82.77	0.00
4/3/2004	2004	2004	4	4.70		0.00	0.00	0.00	2.60	0.00	17.00		15.81	15.81	2.03	0.00	0.44	182.26	2.67	13.78	0.00
4/4/2004	2004	2004	4	4.00		(0.09)	0.83	0.00	2.60	0.00	11.00		10.23	10.23	1.88	(0.04)	0.40	165.12	2.16	8.39	0.00
4/5/2004	2004	2004	4	4.20		(0.02)	0.29	0.00	3.38	0.00	5.50		5.12	5.12	1.92	(0.01)	0.41	172.10	2.28	3.20	0.00
4/6/2004	2004	2004	4	5.60		0.00	0.30	7.37	3.30	2.30	8.40		12.53	12.53	2.19	0.00	0.47	196.95	3.41	10.34	7.37
4/7/2004	2004	2004	4	4.70		0.00	0.29	6.33	0.52	0.18	3.30		8.78	8.78	2.03	0.00	0.44	182.26	2.67	6.75	6.33
4/8/2004	2004	2004	4	4.70		0.00	0.00	7.50	3.19	1.21	2.40		8.08	8.08	2.03	0.00	0.44	182.26	2.67	6.05	6.05
4/9/2004	2004	2004	4	4.30		0.00	0.00	7.50	3.19	1.21	2.50		8.17	8.17	1.95	0.00	0.42	174.81	2.35	6.23	6.23
4/10/2004	2004	2004	4	4.30		0.00	0.00	7.50	3.19	1.21	2.40		8.08	8.08	1.95	0.00	0.42	174.81	2.35	6.13	6.13
4/11/2004	2004	2004	4	4.00		(0.09)	1.27	7.50	3.19	1.21	2.30		7.99	7.99	1.88	(0.04)	0.40	165.12	2.16	6.15	6.15
4/12/2004	2004	2004	4	3.70		(0.20)	0.30	7.81	3.78	2.55	2.50		7.81	7.81	1.81	(0.09)	0.37	153.91	1.99	6.10	6.10
4/13/2004	2004	2004	4	3.70		(0.20)	0.31	7.36	5.44	2.93	3.60		7.47	7.47	1.81	(0.09)	0.37	153.91	1.99	5.75	5.75
4/14/2004	2004	2004	4	3.50		(0.28)	0.32	6.88	1.22	0.68	2.30		7.91	7.91	1.75	(0.13)	0.35	145.92	1.88	6.28	6.28
4/15/2004	2004	2004	4	3.10		(0.45)	0.34	6.60	4.82	2.90	2.80		6.60	6.60	1.64	(0.21)	0.31	128.59	1.67	5.16	5.16
4/16/2004	2004	2004	4	3.30		(0.36)	0.00	7.05	5.92	3.97	3.60		7.05	7.05	1.70	(0.17)	0.33	137.48	1.77	5.52	5.52
4/17/2004	2004	2004	4	30.00		0.00	0.00	7.05	5.92	3.97	133.00		126.55		0.00	0.00	0.00	0.00	30.00	126.55	7.05
4/18/2004	2004	2004	4	5.90		0.00	0.98	7.05	5.92	3.97	25.00		26.11		0.00	0.00	0.00	0.00	5.90	26.11	7.05
4/19/2004	2004	2004	4	4.70		0.00	0.32	7.05	7.59	3.97	6.80		9.18	9.18	2.03	0.00	0.44	182.26	2.67	7.15	7.05
4/20/2004	2004	2004	4	4.20		(0.02)	0.32	6.36	7.13	5.04	6.30		7.08	7.08	1.92	(0.01)	0.41	172.10	2.28	5.17	5.17
4/21/2004	2004	2004	4	4.30		0.00	0.33	8.28	8.94	6.87	6.00		8.28	8.28	1.95	0.00	0.42	174.81	2.35	6.34	6.34
4/22/2004	2004	2004	4	4.40		0.00	0.35	5.97	7.73	5.72	6.70		6.47	6.47	1.97	0.00	0.43	176.74	2.43	4.50	4.50
4/23/2004	2004	2004	4	4.30		0.00	0.00	7.35	9.21	7.25	7.40		7.35	7.35	1.95	0.00	0.42	174.81	2.35	5.40	5.40
4/24/2004	2004	2004	4	4.40		0.00	0.00	7.35	9.21	7.25	6.70		7.35	7.35	1.97	0.00	0.43	176.74	2.43	5.38	5.38
4/25/2004	2004	2004	4	4.60		0.00	1.05	7.35	9.21	7.25	6.80		7.35	7.35	2.01	0.00	0.43	180.46	2.59	5.34	5.34
4/26/2004	2004	2004	4	4.50		0.00	0.33	7.24	9.72	7.17	7.70		7.24	7.24	1.99	0.00	0.43	178.62	2.51	5.25	5.25
4/27/2004	2004	2004	4	4.50		0.00	0.34	7.55	9.63	6.87	7.80		7.88	7.88	1.99	0.00	0.43	178.62	2.51	5.90	5.90
4/28/2004	2004	2004	4	4.50		0.00	0.34	7.37	9.26	5.98	8.50		9.20	9.20	1.99	0.00	0.43	178.62	2.51	7.21	7.21
4/29/2004	2004	2004	4	4.80		0.00	0.35	6.65	8.98	6.41	8.30		7.94	7.94	2.05	0.00	0.44	184.03	2.75	5.89	5.89
4/30/2004	2004	2004	4	4.70		0.00	0.34	7.08	9.45	6.80	9.40		9.01	9.01	2.03	0.00	0.44	182.26	2.67	6.98	6.98
5/1/2004	2004	2004	5	4.60		0.00	0.00	7.08	9.45	6.80	10.00		9.56	9.56	2.01	0.00	0.43	180.46	2.59	7.55	7.08
5/2/2004	2004	2004	5	4.30		0.00	0.70	7.08	9.45	6.80	16.00		15.14	15.14	1.95	0.00	0.42	174.81	2.35	13.20	7.08
5/3/2004	2004	2004	5	4.20		(0.02)	0.35	5.87	5.89	3.97	11.00		11.99	11.99	1.92	(0.01)	0.41	172.10	2.28	10.08	5.87
5/4/2004	2004	2004	5	4.30		0.00	0.33	7.57	7.32	4.48	6.70		9.11	9.11	1.95	0.00	0.42	174.81	2.35	7.16	7.16
5/5/2004	2004	2004	5	4.80		0.00	0.36	5.94	5.91	3.97	8.00		9.27	9.27	2.05	0.00	0.44	184.03	2.75	7.22	5.94
5/6/2004	2004	2004	5	4.00		(0.09)	0.33	7.58	9.14	6.34	8.50		9.05	9.05	1.88	(0.04)	0.40	165.12	2.16	7.22	7.22
5/7/2004	2004	2004	5	4.20		(0.02)	0.00	7.15	8.48	6.58	7.90		7.88	7.88	1.92	(0.01)	0.41	172.10	2.28	5.96	5.96
5/8/2004	2004	2004	5	4.10		(0.05)	0.00	7.15	8.48	6.58	7.50		7.50	7.50	1.90	(0.02)	0.41	168.66	2.22	5.63	5.63
5/9/2004	2004	2004	5	4.00		(0.09)	1.04	7.15	8.48	6.58	7.30		7.32	7.32	1.88	(0.04)	0.40	165.12	2.16	5.48	5.48
5/10/2004	2004	2004	5	4.00		(0.09)	0.33	6.35	7.92	6.27	7.10		6.68	6.68	1.88	(0.04)	0.40	165.12	2.16	4.84	4.84
5/11/2004	2004	2004	5	4.70		0.00	0.32	8.42	10.72	8.17	7.60		8.42	8.42	2.03	0.00	0.44	182.26	2.67	6.39	6.39
5/12/2004	2004	2004	5	4.40		0.00	0.33	6.83	9.05	6.33	7.10		7.06	7.06	1.97	0.00	0.43	176.74	2.43	5.09	5.09
5/13/2004	2004	2004	5	4.30		0.00	0.34	6.70	8.99	6.93	6.80		6.70	6.70	1.95	0.00	0.42	174.81	2.35	4.75	4.75
5/14/2004	2004	2004	5	4.20		(0.02)	0.00	6.78	9.29	6.87	6.90		6.78	6.78	1.92	(0.01)	0.41	172.10	2.28	4.86	4.86
5/15/2004	2004	2004	5	4.50		0.00	0.00	6.78	9.29	6.87	7.20		6.78	6.78	1.99	0.00	0.43	178.62	2.51	4.79	4.79
5/16/2004	2004	2004	5	4.60		0.00	1.03	6.78	9.29	6.87	7.30		6.78	6.78	2.01	0.00	0.43	180.46	2.59	4.77	4.77
5/17/2004	2004	2004	5	5.00		0.00	0.32	7.68	10.05	7.56	7.30		7.68	7.68	2.09	0.00	0.45	187.45	2.91	5.60	5.60
5/18/2004	2004	2004	5	4.90		0.00	0.33	6.58	8.12	5.98	6.60		6.70	6.70	2.07	0.00	0.45	185.76	2.83	4.63	4.63
5/19/2004	2004	2004	5	4.70		0.00	0.33	5.73	7.15	5.31	6.50		6.44	6.44	2.03	0.00	0.44	182.26	2.67	4.41	4.41
5/20/2004	2004	2004	5	4.20		(0.02)	0.33	7.22	7.87	5.73	5.70		7.22	7.22	1.92	(0.01)	0.41	172.10	2.28	5.31	5.31
5/21/2004	2004	2004	5	3.90		(0.12)	0.00	7.17	7.67	5.69	5.60		7.17	7.17	1.86	(0.06)	0.39	161.49	2.10	5.37	5.37
5/22/2004	2004	2004	5	3.90		(0.12)	0.00	7.17	7.67	5.69	5.40		7.17	7.17	1.86	(0.06)	0.39	161.49	2.10	5.37	5.37
5/23/2004	2004	2004	5	4.20		(0.02)	1.07	7.17	7.67	5.69	5.20		7.17	7.17	1.92	(0.01)	0.41	172.10	2.28	5.25	5.25
5/24/2004	2004	2004	5	4.20		(0.02)	0.32	7.96	9.01	6.93	6.00		7.96	7.96	1.92	(0.01)	0.41	172.10	2.28	6.05	6.05
5/25/2004	2004	2004	5	4.10		(0.05)	0.30	6.92	7.86	6.23	6.10		6.92	6.92	1.90	(0.02)	0.41	168.66	2.22	5.04	5.04
5/26/2004	2004	2004	5	4.10		(0.05)	0.33	6.89	8.05	6.45	6.40		6.89	6.89	1.90	(0.02)	0.41	168.66	2.22	5.01	5.01
5/27/2004	2004	2004	5	3.50		(0.28)	0.32	6.14	7.07	5.81	7.00		6.82	6.82	1.75	(0.13)	0.35	145.92	1.88	5.19	5.19
5/28/2004	2004	2004	5	3.60		(0.24)	0.00	7.17	8.41	7.11	7.50		7.17	7.17	1.78	(0.11)	0.36	149.97	1.93	5.50	5.50
5/29/2004	2004	2004	5	4.10		(0.05)	0.00	7.17	8.41	7.11	8.00		7.50	7.50	1.90	(0.02)	0.41	168.66	2.22	5.62	5.62

										Existing Condition								With Project Diversion			
													0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
								San Joaquin Marsh Operations									39.7 ppb	16.5 ppm			
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW B	Project - Diversi	Project - Diversi	Project - PCW B	Project - SDC Ca	Project - SJM In
5/30/2004	2004	2004	5	3.40		(0.32)	0.00	7.17	8.41	7.11	8.00		7.50	7.50	1.73	(0.15)	0.34	141.76	1.82	5.92	5.92
5/31/2004	2004	2004	5	3.20		(0.41)	1.30	7.17	8.41	7.11	7.50		7.17	7.17	1.67	(0.19)	0.32	133.09	1.72	5.69	5.69
6/1/2004	2004	2004	6	3.20		(0.41)	0.29	7.46	8.48	6.98	7.60		7.52	7.52	1.67	(0.19)	0.32	133.09	1.72	6.04	6.04
6/2/2004	2004	2004	6	4.00		(0.09)	0.32	7.46	8.48	6.98	7.60		7.52	7.52	1.88	(0.04)	0.40	165.12	2.16	5.68	5.68
6/3/2004	2004	2004	6	3.90		(0.12)	0.33	6.99	8.16	6.82	7.60		7.23	7.23	1.86	(0.06)	0.39	161.49	2.10	5.43	5.43
6/4/2004	2004	2004	6	3.50		(0.28)	0.00	6.72	7.94	6.64	8.10		7.61	7.61	1.75	(0.13)	0.35	145.92	1.88	5.99	5.99
6/5/2004	2004	2004	6	3.40		(0.32)	0.00	6.72	7.94	6.64	8.20		7.70	7.70	1.73	(0.15)	0.34	141.76	1.82	6.13	6.13
6/6/2004	2004	2004	6	3.40		(0.32)	0.96	6.72	7.94	6.64	8.20		7.70	7.70	1.73	(0.15)	0.34	141.76	1.82	6.13	6.13
6/7/2004	2004	2004	6	3.70		(0.20)	0.33	7.20	5.86	4.90	7.70		9.30	9.30	1.81	(0.09)	0.37	153.91	1.99	7.59	7.20
6/8/2004	2004	2004	6	3.90		(0.12)	0.32	7.22	6.32	5.30	6.80		8.12	8.12	1.86	(0.06)	0.39	161.49	2.10	6.32	6.32
6/9/2004	2004	2004	6	3.90		(0.12)	0.32	7.06	7.32	6.14	6.70		7.09	7.09	1.86	(0.06)	0.39	161.49	2.10	5.29	5.29
6/10/2004	2004	2004	6	3.40		(0.32)	0.29	7.08	7.08	5.62	6.90		7.78	7.78	1.73	(0.15)	0.34	141.76	1.82	6.20	6.20
6/11/2004	2004	2004	6	3.60		(0.24)	0.00	7.23	9.52	7.73	6.50		7.23	7.23	1.78	(0.11)	0.36	149.97	1.93	5.56	5.56
6/12/2004	2004	2004	6	3.80		(0.16)	0.00	7.23	9.52	7.73	9.10		8.00	8.00	1.83	(0.07)	0.38	157.75	2.04	6.24	6.24
6/13/2004	2004	2004	6	4.20		(0.02)	0.88	7.23	9.52	7.73	9.50		8.37	8.37	1.92	(0.01)	0.41	172.10	2.28	6.46	6.46
6/14/2004	2004	2004	6	4.10		(0.05)	0.29	5.19	7.33	5.68	6.80		5.87	5.87	1.90	(0.02)	0.41	168.66	2.22	3.99	3.99
6/15/2004	2004	2004	6	4.00		(0.09)	0.23	7.51	7.32	5.52	7.50		8.82	8.82	1.88	(0.04)	0.40	165.12	2.16	6.98	6.98
6/16/2004	2004	2004	6	4.10		(0.05)	0.28	7.17	6.31	4.87	6.00		7.72	7.72	1.90	(0.02)	0.41	168.66	2.22	5.84	5.84
6/17/2004	2004	2004	6	4.10		(0.05)	0.31	7.75	8.33	6.59	5.50		7.75	7.75	1.90	(0.02)	0.41	168.66	2.22	5.88	5.88
6/18/2004	2004	2004	6	4.40		0.00	0.00	8.11	7.08	5.69	5.70		8.11	8.11	1.97	0.00	0.43	176.74	2.43	6.14	6.14
6/19/2004	2004	2004	6	4.00		(0.09)	0.00	8.11	7.08	5.69	7.90		9.59	9.59	1.88	(0.04)	0.40	165.12	2.16	7.75	7.75
6/20/2004	2004	2004	6	4.30		0.00	0.88	8.11	7.08	5.69	2.90		8.11	8.11	1.95	0.00	0.42	174.81	2.35	6.16	6.16
6/21/2004	2004	2004	6	4.20		(0.02)	0.28	4.30	7.79	5.54	5.60		4.30	4.30	1.92	(0.01)	0.41	172.10	2.28	2.39	2.39
6/22/2004	2004	2004	6	4.40		0.00	0.30	4.72	7.79	5.57	7.80		6.47	6.47	1.97	0.00	0.43	176.74	2.43	4.50	4.50
6/23/2004	2004	2004	6	4.60		0.00	0.28	7.50	7.32	5.09	8.90		10.52	10.52	2.01	0.00	0.43	180.46	2.59	8.51	7.50
6/24/2004	2004	2004	6	4.30		0.00	0.28	7.43	6.90	5.30	6.00		7.57	7.57	1.95	0.00	0.42	174.81	2.35	5.62	5.62
6/25/2004	2004	2004	6	3.80		(0.16)	0.00	6.72	9.25	7.00	6.10		6.72	6.72	1.83	(0.07)	0.38	157.75	2.04	4.96	4.96
6/26/2004	2004	2004	6	3.80		(0.16)	0.00	6.72	9.25	7.00	8.50		7.65	7.65	1.83	(0.07)	0.38	157.75	2.04	5.89	5.89
6/27/2004	2004	2004	6	4.10		(0.05)	0.87	6.72	9.25	7.00	9.10		8.21	8.21	1.90	(0.02)	0.41	168.66	2.22	6.33	6.33
6/28/2004	2004	2004	6	4.40		0.00	0.28	4.80	6.18	4.43	7.10		6.95	6.95	1.97	0.00	0.43	176.74	2.43	4.98	4.80
6/29/2004	2004	2004	6	4.60		0.00	0.28	4.73	7.01	5.09	9.30		8.31	8.31	2.01	0.00	0.43	180.46	2.59	6.30	4.73
6/30/2004	2004	2004	6	4.40		0.00	0.28	4.73	7.13	5.39	10.00		8.69	8.69	1.97	0.00	0.43	176.74	2.43	6.72	4.73
7/1/2004	2004	2004	7	4.70		0.00	0.28	4.73	7.48	5.75	11.00		9.28	9.28	2.03	0.00	0.44	182.26	2.67	7.25	4.73
7/2/2004	2004	2004	7	4.80		0.00	0.00	5.72	9.10	7.34	13.00		10.58	10.58	2.05	0.00	0.44	184.03	2.75	8.53	5.72
7/3/2004	2004	2004	7	4.30		0.00	0.00	5.72	9.10	7.34	14.00		11.51	11.51	1.95	0.00	0.42	174.81	2.35	9.57	5.72
7/4/2004	2004	2004	7	3.70		(0.20)	0.00	5.72	9.10	7.34	11.00		8.72	8.72	1.81	(0.09)	0.37	153.91	1.99	7.01	5.72
7/5/2004	2004	2004	7	3.70		(0.20)	1.09	5.72	9.10	7.34	9.30		7.14	7.14	1.81	(0.09)	0.37	153.91	1.99	5.43	5.43
7/6/2004	2004	2004	7	3.70		(0.20)	0.26	4.86	6.70	5.15	11.00		9.96	9.96	1.81	(0.09)	0.37	153.91	1.99	8.25	4.86
7/7/2004	2004	2004	7	3.80		(0.16)	0.27	4.10	5.57	3.95	8.80		8.33	8.33	1.83	(0.07)	0.38	157.75	2.04	6.57	4.10
7/8/2004	2004	2004	7	3.50		(0.28)	0.10	5.07	6.93	5.13	8.40		7.75	7.75	1.75	(0.13)	0.35	145.92	1.88	6.13	5.07
7/9/2004	2004	2004	7	3.60		(0.24)	0.00	6.30	6.69	5.19	7.80		8.28	8.28	1.78	(0.11)	0.36	149.97	1.93	6.61	6.30
7/10/2004	2004	2004	7	3.30		(0.36)	0.00	6.30	6.69	5.19	8.00		8.47	8.47	1.70	(0.17)	0.33	137.48	1.77	6.94	6.30
7/11/2004	2004	2004	7	3.30		(0.36)	1.02	6.30	6.69	5.19	5.20		6.30	6.30	1.70	(0.17)	0.33	137.48	1.77	4.77	4.77
7/12/2004	2004	2004	7	3.20		(0.41)	0.28	4.79	3.12	0.95	4.10		7.38	7.38	1.67	(0.19)	0.32	133.09	1.72	5.90	4.79
7/13/2004	2004	2004	7	3.10		(0.45)	0.28	4.82	3.91	2.43	3.80		5.76	5.76	1.64	(0.21)	0.31	128.59	1.67	4.33	4.33
7/14/2004	2004	2004	7	3.20		(0.41)	0.26	4.80	4.63	3.32	4.80		5.84	5.84	1.67	(0.19)	0.32	133.09	1.72	4.35	4.35
7/15/2004	2004	2004	7	3.30		(0.36)	0.28	4.43	5.50	4.22	5.50		5.31	5.31	1.70	(0.17)	0.33	137.48	1.77	3.78	3.78
7/16/2004	2004	2004	7	3.60		(0.24)	0.00	6.33	7.81	6.28	6.50		6.33	6.33	1.78	(0.11)	0.36	149.97	1.93	4.66	4.66
7/17/2004	2004	2004	7	3.60		(0.24)	0.00	6.33	7.81	6.28	7.40		6.92	6.92	1.78	(0.11)	0.36	149.97	1.93	5.25	5.25
7/18/2004	2004	2004	7	4.00		(0.09)	0.81	6.33	7.81	6.28	6.40		6.33	6.33	1.88	(0.04)	0.40	165.12	2.16	4.49	4.49
7/19/2004	2004	2004	7	3.70		(0.20)	0.27	4.81	6.59	5.06	6.20		5.54	5.54	1.81	(0.09)	0.37	153.91	1.99	3.83	3.83
7/20/2004	2004	2004	7	3.80		(0.16)	0.26	3.92	5.30	4.15	7.00		6.29	6.29	1.83	(0.07)	0.38	157.75	2.04	4.53	3.92
7/21/2004	2004	2004	7	3.80		(0.16)	0.27	5.69	7.06	5.47	7.20		6.89	6.89	1.83	(0.07)	0.38	157.75	2.04	5.14	5.14
7/22/2004	2004	2004	7	3.90		(0.12)	0.27	4.55	5.55	4.47	6.40		6.03	6.03	1.86	(0.06)	0.39	161.49	2.10	4.23	4.23
7/23/2004	2004	2004	7	3.70		(0.20)	0.00	6.26	5.04	3.58	7.10		9.10	9.10	1.81	(0.09)	0.37	153.91	1.99	7.39	6.26
7/24/2004	2004	2004	7	3.70		(0.20)	0.00	6.26	5.04	3.58	6.40		8.45	8.45	1.81	(0.09)	0.37	153.91	1.99	6.74	6.26
7/25/2004	2004	2004	7	3.70		(0.20)	0.80	6.26	5.04	3.58	4.00		6.26	6.26	1.81	(0.09)	0.37	153.91	1.99	4.55	4.55
7/26/2004	2004	2004	7	3.00		(0.50)	0.26	4.78	2.97	2.00	3.90		6.22	6.22	1.61	(0.23)	0.30	123.97	1.62	4.84	4.78
7/27/2004	2004	2004	7	3.50		(0.28)	0.25	4.72	3.10	1.23	7.10		9.85	9.85	1.75	(0.13)	0.35	145.92	1.88	8.23	4.72
7/28/2004	2004	2004	7	3.40		(0.32)	0.25	4.78	3.75	2.56	4.50		6.25	6.25	1.73	(0.15)	0.34	141.76	1.82	4.67	4.67
7/29/2004	2004	2004	7	3.30		(0.36)	0.27	4.79	4.21	2.96	4.70		6.07	6.07	1.70	(0.17)	0.33	137.48	1.77	4.54	4.54
7/30/2004	2004	2004	7	3.30		(0.36)	0.00	6.20	5.42	3.77	4.80		6.73	6.73	1.70	(0.17)	0.33	137.48	1.77	5.20	5.20
7/31/2004	2004	2004	7	3.60		(0.24)	0.00	6.20	5.42	3.77	4.90		6.82	6.82	1.78	(0.11)	0.36	149.97	1.93	5.15	5.15
8/1/2004	2004	2004	8	3.80		(0.16)	0.78	6.20	5.42	3.77	4.30		6.26	6.26	1.83	(0.07)	0.38	157.75	2.04	4.51	4.51
8/2/2004	2004	2004	8	3.90		(0.12)	0.21	4.90	5.12	4.20	4.40		4.90	4.90	1.86	(0.06)	0.39	161.49	2.10	3.10	3.10
8/3/2004	2004	2004	8	3.80		(0.16)	0.23	6.63	7.08	5.68	5.80		6.63	6.63	1.83	(0.07)	0.38	157.75	2.04	4.87	4.87
8/4/2004	2004	2004	8	4.00		(0.09)	0.24	6.07	7.04	5.70	5.90		6.07	6.07	1.88	(0.04)	0.40	165.12	2.16	4.23	4.23
8/5/2004	2004	2004	8	3.90		(0.12)	0.32	6.62	7.76	6.31	5.90		6.62	6.62	1.86	(0.06)	0.39	161.49	2.10	4.82	4.82
8/6/2004	2004	2004	8	4.00		(0.09)	0.00	7.20	7.49	6.21	5.90		7.20	7.20	1.88	(0.04)	0.40	165.12	2.16	5.36	5.36
8/7/2004	2004	2004	8	4.00		(0.09)	0.00	7.20	7.49	6.21	5.60		7.20	7.20	1.88	(0.04)	0.40	165.12	2.16	5.36	5.36
8/8/2004	2004	2004	8	4.20		(0.02)	0.90	7.20	7.49	6.21	5.60		7.20	7.20	1.92	(0.01)	0.41	172.10	2.28	5.29	5.29

									Existing Condition								With Project Diversion				
													0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
									San Joaquin Marsh Operations												
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
8/9/2004	2004	2004	8	4.70		0.00	0.23	7.05	7.03	6.02	5.20		7.05	7.05	2.03	0.00	0.44	182.26	2.67	5.02	5.02
8/10/2004	2004	2004	8	4.80		0.00	0.21	6.41	6.39	5.59	5.70		6.41	6.41	2.05	0.00	0.44	184.03	2.75	4.36	4.36
8/11/2004	2004	2004	8	4.90		0.00	0.20	5.60	5.99	4.72	5.80		6.21	6.21	2.07	0.00	0.45	185.76	2.83	4.14	4.14
8/12/2004	2004	2004	8	5.20		0.00	0.18	7.59	7.46	5.62	5.60		7.59	7.59	2.12	0.00	0.46	190.74	3.08	5.46	5.46
8/13/2004	2004	2004	8	5.80		0.00	0.00	6.64	7.19	5.58	6.40		6.94	6.94	2.23	0.00	0.48	199.89	3.57	4.71	4.71
8/14/2004	2004	2004	8	6.30		0.00	0.00	6.64	7.19	5.58	6.80		7.31	7.31	2.30	0.00	0.50	206.81	4.00	5.01	5.01
8/15/2004	2004	2004	8	5.10		0.00	0.63	6.64	7.19	5.58	6.90		7.40	7.40	2.11	0.00	0.46	189.11	2.99	5.30	5.30
8/16/2004	2004	2004	8	5.00		0.00	0.20	6.89	7.56	5.79	6.10		6.89	6.89	2.09	0.00	0.45	187.45	2.91	4.81	4.81
8/17/2004	2004	2004	8	5.30		0.00	0.20	6.20	6.71	4.79	6.00		6.89	6.89	2.14	0.00	0.46	192.33	3.16	4.75	4.75
8/18/2004	2004	2004	8	5.00		0.00	0.23	6.66	7.43	5.09	5.60		6.67	6.67	2.09	0.00	0.45	187.45	2.91	4.58	4.58
8/19/2004	2004	2004	8	4.80		0.00	0.21	5.87	4.51	3.12	5.30		7.48	7.48	2.05	0.00	0.44	184.03	2.75	5.43	5.43
8/20/2004	2004	2004	8	5.20		0.00	0.00	6.41	6.73	4.63	4.10		6.41	6.41	2.12	0.00	0.46	190.74	3.08	4.29	4.29
8/21/2004	2004	2004	8	5.40		0.00	0.00	6.41	6.73	4.63	5.70		6.96	6.96	2.16	0.00	0.47	193.90	3.24	4.80	4.80
8/22/2004	2004	2004	8	5.70		0.00	0.62	6.41	6.73	4.63	5.80		7.05	7.05	2.21	0.00	0.48	198.43	3.49	4.85	4.85
8/23/2004	2004	2004	8	6.00		0.00	0.19	7.15	9.36	7.21	6.00		7.15	7.15	2.26	0.00	0.49	202.73	3.74	4.89	4.89
8/24/2004	2004	2004	8	6.40		0.00	0.16	6.56	9.32	7.11	7.30		6.56	6.56	2.32	0.00	0.50	208.13	4.08	4.24	4.24
8/25/2004	2004	2004	8	6.20		0.00	0.19	4.97	7.86	6.08	7.40		5.84	5.84	2.29	0.00	0.49	205.47	3.91	3.56	3.56
8/26/2004	2004	2004	8	6.40		0.00	0.18	7.10	11.44	8.66	7.70		7.10	7.10	2.32	0.00	0.50	208.13	4.08	4.78	4.78
8/27/2004	2004	2004	8	6.90		0.00	0.00	6.20	9.69	7.51	7.70		6.20	6.20	2.39	0.00	0.52	214.44	4.51	3.81	3.81
8/28/2004	2004	2004	8	6.80		0.00	0.00	6.20	9.69	7.51	7.90		6.20	6.20	2.37	0.00	0.51	213.21	4.43	3.82	3.82
8/29/2004	2004	2004	8	5.60		0.00	0.62	6.20	9.69	7.51	8.20		6.41	6.41	2.19	0.00	0.47	196.95	3.41	4.21	4.21
8/30/2004	2004	2004	8	5.10		0.00	0.21	4.77	6.93	5.21	6.50		5.64	5.64	2.11	0.00	0.46	189.11	2.99	3.53	3.53
8/31/2004	2004	2004	8	4.80		0.00	0.21	4.39	6.41	4.77	7.00		6.16	6.16	2.05	0.00	0.44	184.03	2.75	4.11	4.11
9/1/2004	2004	2004	9	4.70		0.00	0.20	5.20	7.57	5.82	7.40		6.31	6.31	2.03	0.00	0.44	182.26	2.67	4.28	4.28
9/2/2004	2004	2004	9	5.10		0.00	0.21	4.25	6.60	5.13	7.70		6.34	6.34	2.11	0.00	0.46	189.11	2.99	4.24	4.24
9/3/2004	2004	2004	9	4.90		0.00	0.00	5.62	8.21	6.16	8.80		7.68	7.68	2.07	0.00	0.45	185.76	2.83	5.61	5.61
9/4/2004	2004	2004	9	5.20		0.00	0.00	5.62	8.21	6.16	8.90		7.77	7.77	2.12	0.00	0.46	190.74	3.08	5.65	5.62
9/5/2004	2004	2004	9	4.70		0.00	0.00	5.62	8.21	6.16	7.60		6.57	6.57	2.03	0.00	0.44	182.26	2.67	4.54	4.54
9/6/2004	2004	2004	9	4.60		0.00	0.78	5.62	8.21	6.16	7.50		6.47	6.47	2.01	0.00	0.43	180.46	2.59	4.46	4.46
9/7/2004	2004	2004	9	5.00		0.00	0.13	4.81	1.31	1.07	5.30		8.41	8.41	2.09	0.00	0.45	187.45	2.91	6.32	4.81
9/8/2004	2004	2004	9	4.70		0.00	0.16	4.57	4.74	3.77	5.30		5.67	5.67	2.03	0.00	0.44	182.26	2.67	3.64	3.64
9/9/2004	2004	2004	9	5.30		0.00	0.06	4.49	4.31	3.64	7.70		7.95	7.95	2.14	0.00	0.46	192.33	3.16	5.81	4.49
9/10/2004	2004	2004	9	5.10		0.00	0.00	6.14	6.34	5.27	7.70		7.97	7.97	2.11	0.00	0.46	189.11	2.99	5.87	5.87
9/11/2004	2004	2004	9	5.50		0.00	0.00	6.14	6.34	5.27	8.00		8.25	8.25	2.18	0.00	0.47	195.44	3.32	6.08	6.08
9/12/2004	2004	2004	9	5.50		0.00	1.66	6.14	6.34	5.27	7.70		7.97	7.97	2.18	0.00	0.47	195.44	3.32	5.80	5.80
9/13/2004	2004	2004	9	5.40		0.00	0.00	4.43	5.19	4.54	6.40		5.86	5.86	2.16	0.00	0.47	193.90	3.24	3.70	3.70
9/14/2004	2004	2004	9	5.30		0.00	0.11	5.14	6.05	5.03	6.20		5.87	5.87	2.14	0.00	0.46	192.33	3.16	3.72	3.72
9/15/2004	2004	2004	9	5.00		0.00	0.10	4.29	6.64	5.14	6.60		5.35	5.35	2.09	0.00	0.45	187.45	2.91	3.27	3.27
9/16/2004	2004	2004	9	5.10		0.00	0.16	4.56	6.94	5.29	7.70		6.48	6.48	2.11	0.00	0.46	189.11	2.99	4.37	4.37
9/17/2004	2004	2004	9	5.20		0.00	0.00	6.01	7.88	5.92	8.00		7.52	7.52	2.12	0.00	0.46	190.74	3.08	5.40	5.40
9/18/2004	2004	2004	9	5.00		0.00	0.00	6.01	7.88	5.92	9.20		8.64	8.64	2.09	0.00	0.45	187.45	2.91	6.55	6.01
9/19/2004	2004	2004	9	5.40		0.00	0.44	6.01	7.88	5.92	6.20		6.01	6.01	2.16	0.00	0.47	193.90	3.24	3.85	3.85
9/20/2004	2004	2004	9	4.20		(0.02)	0.14	4.11	4.03	2.74	6.00		6.86	6.86	1.92	(0.01)	0.41	172.10	2.28	4.94	4.11
9/21/2004	2004	2004	9	3.60		(0.24)	0.11	5.17	3.32	1.71	4.60		7.49	7.49	1.78	(0.11)	0.36	149.97	1.93	5.82	5.17
9/22/2004	2004	2004	9	3.10		(0.45)	0.19	4.37	4.78	3.25	3.70		4.48	4.48	1.64	(0.21)	0.31	128.59	1.67	3.05	3.05
9/23/2004	2004	2004	9	3.20		(0.41)	0.15	4.74	6.76	5.01	5.50		4.86	4.86	1.67	(0.19)	0.32	133.09	1.72	3.38	3.38
9/24/2004	2004	2004	9	3.40		(0.32)	0.00	6.05	8.76	6.64	7.50		6.43	6.43	1.73	(0.15)	0.34	141.76	1.82	4.85	4.85
9/25/2004	2004	2004	9	3.70		(0.20)	0.00	6.05	8.76	6.64	8.90		7.73	7.73	1.81	(0.09)	0.37	153.91	1.99	6.02	6.02
9/26/2004	2004	2004	9	4.20		(0.02)	0.27	6.05	8.76	6.64	7.90		6.80	6.80	1.92	(0.01)	0.41	172.10	2.28	4.88	4.88
9/27/2004	2004	2004	9	4.80		0.00	0.08	4.70	7.22	5.48	7.80		6.53	6.53	2.05	0.00	0.44	184.03	2.75	4.48	4.48
9/28/2004	2004	2004	9	5.50		0.00	0.09	4.45	8.09	6.16	8.90		6.68	6.68	2.18	0.00	0.47	195.44	3.32	4.50	4.45
9/29/2004	2004	2004	9	5.30		0.00	0.09	4.22	7.61	6.17	9.10		6.65	6.65	2.14	0.00	0.46	192.33	3.16	4.50	4.22
9/30/2004	2004	2004	9	5.60		0.00	0.09	4.88	8.39	7.15	9.40		6.63	6.63	2.19	0.00	0.47	196.95	3.41	4.43	4.43
10/1/2004	2004	2005	10	5.70		0.00	0.00	6.04	9.60	7.93	10.00		7.55	7.55	2.21	0.00	0.48	198.43	3.49	5.34	5.34
10/2/2004	2004	2005	10	5.70		0.00	0.00	6.04	9.60	7.93	12.00		9.41	9.41	2.21	0.00	0.48	198.43	3.49	7.20	6.04
10/3/2004	2004	2005	10	5.80		0.00	0.27	6.04	9.60	7.93	9.50		7.08	7.08	2.23	0.00	0.48	199.89	3.57	4.86	4.86
10/4/2004	2004	2005	10	6.00		0.00	0.08	5.76	6.07	4.91	6.20		6.56	6.56	2.26	0.00	0.49	202.73	3.74	4.30	4.30
10/5/2004	2004	2005	10	5.60		0.00	0.11	5.20	8.59	6.96	6.20		5.20	5.20	2.19	0.00	0.47	196.95	3.41	3.00	3.00
10/6/2004	2004	2005	10	5.50		0.00	0.11	5.50	8.16	6.77	6.70		5.50	5.50	2.18	0.00	0.47	195.44	3.32	3.32	3.32
10/7/2004	2004	2005	10	5.30		0.00	0.11	7.01	9.67	8.12	7.90		7.01	7.01	2.14	0.00	0.46	192.33	3.16	4.87	4.87
10/8/2004	2004	2005	10	5.40		0.00	0.00	5.87	7.68	6.53	6.60		5.87	5.87	2.16	0.00	0.47	193.90	3.24	3.71	3.71
10/9/2004	2004	2005	10	5.90		0.00	0.00	5.87	7.68	6.53	8.80		7.57	7.57	2.24	0.00	0.48	201.32	3.66	5.33	5.33
10/10/2004	2004	2005	10	6.00		0.00	0.33	5.87	7.68	6.53	6.10		5.87	5.87	2.26	0.00	0.49	202.73	3.74	3.61	3.61
10/11/2004	2004	2005	10	5.50		0.00	0.10	5.87	6.43	5.49	5.60		5.87	5.87	2.18	0.00	0.47	195.44	3.32	3.69	3.69
10/12/2004	2004	2005	10	6.80		0.00	0.11	8.57	9.63	7.09	6.10		8.57	8.57	2.37	0.00	0.51	213.21	4.43	6.20	6.20
10/13/2004	2004	2005	10	6.00		0.00	0.10	5.96	6.55	5.40	5.60		5.96	5.96	2.26	0.00	0.49	202.73	3.74	3.70	3.70
10/14/2004	2004	2005	10	5.70		0.00	0.10	7.22	8.05	6.63	4.90		7.22	7.22	2.21	0.00	0.48	198.43	3.49	5.01	5.01
10/15/2004	2004	2005	10	6.00		0.00	0.00	5.20	8.25	7.16	4.70		5.20	5.20	2.26	0.00	0.49	202.73	3.74	2.94	2.94
10/16/2004	2004	2005	10	6.80		0.00	0.00	5.20	8.25	7.16	4.80		5.20	5.20	2.37	0.00	0.51	213.21	4.43	2.82	2.82
10/17/2004	2004	2005	10	232.00		0.00	0.33	5.20	8.25	7.16	625.00		579.43		0.00	0.00	0.00	0.00	232.00	579.43	5.20
10/18/2004	2004	2005	10	12.00		0.00	0.11	6.06	8.30	7.02	303.00		280.89		0.00	0.00	0.00	0.00	12.00	280.89	6.06

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
											Existing Condition / San Joaquin Marsh Operations				**With Project Diversion**						
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW Ba	Project - Diversi	Project - Diversi	Project - PCW Ba	Project - SDC Ca	Project - SJM In
10/19/2004	2004	2005	10	18.00		0.00	0.11	4.07	10.57	9.19	65.00		55.69		0.00	0.00	0.00	0.00	18.00	55.69	4.07
10/20/2004	2004	2005	10	1040.00		0.00	0.16	1.02	10.04	8.55	2800.00		2596.99		0.00	0.00	0.00	0.00	1040.00	2596.99	1.02
10/21/2004	2004	2005	10	22.00		0.00	0.03	6.87	13.47	11.50	162.00		146.35		0.00	0.00	0.00	0.00	22.00	146.35	6.87
10/22/2004	2004	2005	10	6.80		0.00	0.00	6.53	8.55	7.01	34.00		31.18		0.00	0.00	0.00	0.00	6.80	31.18	6.53
10/23/2004	2004	2005	10	4.70		0.00	0.00	6.53	8.55	7.01	22.00		20.02		0.00	0.00	0.00	0.00	4.70	20.02	6.53
10/24/2004	2004	2005	10	3.70		(0.20)	0.23	6.53	8.55	7.01	14.00		12.58	12.58	1.81	(0.09)	0.37	153.91	1.99	10.86	6.53
10/25/2004	2004	2005	10	3.70		(0.20)	0.07	0.00	5.27	0.00	19.00		17.67	17.67	1.81	(0.09)	0.37	153.91	1.99	15.96	0.00
10/26/2004	2004	2005	10	8.80		0.00	0.08	0.00	7.57	0.00	12.00		11.16	11.16	2.60	0.00	0.56	233.51	6.20	8.56	0.00
10/27/2004	2004	2005	10	958.00		0.00	0.09	0.00	11.42	0.00	2590.00		2408.70		0.00	0.00	0.00	0.00	958.00	2408.70	0.00
10/28/2004	2004	2005	10	30.00		0.00	0.08	0.00	10.24	0.00	260.00		241.80		0.00	0.00	0.00	0.00	30.00	241.80	0.00
10/29/2004	2004	2005	10	7.00		0.00	0.00	0.00	9.06	0.00	54.00		50.22		0.00	0.00	0.00	0.00	7.00	50.22	0.00
10/30/2004	2004	2005	10	5.70		0.00	0.00	0.00	9.06	0.00	34.00		31.62		0.00	0.00	0.00	0.00	5.70	31.62	0.00
10/31/2004	2004	2005	10	4.80		0.00	0.25	0.00	9.06	0.00	25.00		23.25		0.00	0.00	0.00	0.00	4.80	23.25	0.00
11/1/2004	2004	2005	11	4.70		0.00	0.09	0.00	8.70	0.00	23.00		21.39		0.00	0.00	0.00	0.00	4.70	21.39	0.00
11/2/2004	2004	2005	11	5.90		0.00	0.07	0.00	6.97	0.00	18.00		16.74	16.74	2.24	0.00	0.48	201.32	3.66	14.50	0.00
11/3/2004	2004	2005	11	6.40		0.00	0.08	0.00	7.48	0.00	17.00		15.81	15.81	2.32	0.00	0.50	208.13	4.08	13.49	0.00
11/4/2004	2004	2005	11	6.20		0.00	0.08	0.00	5.74	0.00	10.00		9.30	9.30	2.29	0.00	0.49	205.47	3.91	7.01	0.00
11/5/2004	2004	2005	11	5.90		0.00	0.00	0.00	6.31	0.00	13.00		12.09	12.09	2.24	0.00	0.48	201.32	3.66	9.85	0.00
11/6/2004	2004	2005	11	4.90		0.00	0.00	0.00	6.31	0.00	12.00		11.16	11.16	2.07	0.00	0.45	185.76	2.83	9.09	0.00
11/7/2004	2004	2005	11	4.30		0.00	0.25	0.00	6.31	0.00	9.80		9.11	9.11	1.95	0.00	0.42	174.81	2.35	7.17	0.00
11/8/2004	2004	2005	11	4.80		0.00	0.08	0.00	7.44	0.00	17.00		15.81	15.81	2.05	0.00	0.44	184.03	2.75	13.76	0.00
11/9/2004	2004	2005	11	5.00		0.00	0.08	0.00	7.85	0.00	20.00		18.60	18.60	2.09	0.00	0.45	187.45	2.91	16.51	0.00
11/10/2004	2004	2005	11	4.70		0.00	0.08	0.00	6.51	0.00	13.00		12.09	12.09	2.03	0.00	0.44	182.26	2.67	10.06	0.00
11/11/2004	2004	2005	11	4.30		0.00	0.09	0.00	6.57	0.00	11.00		10.23	10.23	1.95	0.00	0.42	174.81	2.35	8.28	0.00
11/12/2004	2004	2005	11	4.00		(0.09)	0.00	0.00	6.31	0.00	8.50		7.91	7.91	1.88	(0.04)	0.40	165.12	2.16	6.07	0.00
11/13/2004	2004	2005	11	3.90		(0.12)	0.00	0.00	6.31	0.00	9.30		8.65	8.65	1.86	(0.06)	0.39	161.49	2.10	6.85	0.00
11/14/2004	2004	2005	11	3.50		(0.28)	0.26	0.00	6.31	0.00	7.70		7.16	7.16	1.75	(0.13)	0.35	145.92	1.88	5.54	0.00
11/15/2004	2004	2005	11	4.20		(0.02)	0.05	0.00	5.92	0.00	8.30		7.72	7.72	1.92	(0.01)	0.41	172.10	2.28	5.80	0.00
11/16/2004	2004	2005	11	4.50		0.00	0.09	0.00	5.44	0.00	10.00		9.30	9.30	1.99	0.00	0.43	178.62	2.51	7.31	0.00
11/17/2004	2004	2005	11	4.60		0.00	0.12	0.00	5.24	0.00	12.00		11.16	11.16	2.01	0.00	0.43	180.46	2.59	9.15	0.00
11/18/2004	2004	2005	11	4.70		0.00	0.09	0.00	4.85	0.00	15.00		13.95	13.95	2.03	0.00	0.44	182.26	2.67	11.92	0.00
11/19/2004	2004	2005	11	4.50		0.00	0.00	0.00	5.28	0.00	14.00		13.02	13.02	1.99	0.00	0.43	178.62	2.51	11.03	0.00
11/20/2004	2004	2005	11	4.40		0.00	0.00	0.00	5.28	0.00	14.00		13.02	13.02	1.97	0.00	0.43	176.74	2.43	11.05	0.00
11/21/2004	2004	2005	11	42.00		0.00	0.28	0.00	5.28	0.00	587.00		545.91		0.00	0.00	0.00	0.00	42.00	545.91	0.00
11/22/2004	2004	2005	11	6.30		0.00	0.09	0.00	4.57	0.00	29.00		26.97		0.00	0.00	0.00	0.00	6.30	26.97	0.00
11/23/2004	2004	2005	11	5.70		0.00	0.09	0.00	5.70	0.00	20.00		18.60	18.60	2.21	0.00	0.48	198.43	3.49	16.39	0.00
11/24/2004	2004	2005	11	5.20		0.00	0.00	0.00	5.27	0.00	17.00		15.81	15.81	2.12	0.00	0.46	190.74	3.08	13.69	0.00
11/25/2004	2004	2005	11	4.20		(0.02)	0.00	0.00	5.27	0.00	16.00		14.88	14.88	1.92	(0.01)	0.41	172.10	2.28	12.96	0.00
11/26/2004	2004	2005	11	3.50		(0.28)	0.00	0.00	5.27	0.00	13.00		12.09	12.09	1.75	(0.13)	0.35	145.92	1.88	10.47	0.00
11/27/2004	2004	2005	11	7.40		0.00	0.00	0.00	5.27	0.00	22.00		20.46		0.00	0.00	0.00	0.00	7.40	20.46	0.00
11/28/2004	2004	2005	11	6.10		0.00	0.49	0.00	5.27	0.00	58.00		53.94		0.00	0.00	0.00	0.00	6.10	53.94	0.00
11/29/2004	2004	2005	11	4.40		0.00	0.10	0.00	5.02	0.00	13.00		12.09	12.09	1.97	0.00	0.43	176.74	2.43	10.12	0.00
11/30/2004	2004	2005	11	4.80		0.00	0.09	0.00	3.78	0.00	19.00		17.67	17.67	2.05	0.00	0.44	184.03	2.75	15.62	0.00
12/1/2004	2004	2005	12	4.70		0.00	0.10	0.00	0.77	0.00	19.00		17.67	17.67	2.03	0.00	0.44	182.26	2.67	15.64	0.00
12/2/2004	2004	2005	12	3.90		(0.12)	0.10	0.00	0.04	0.00	18.00		16.74	16.74	1.86	(0.06)	0.39	161.49	2.10	14.94	0.00
12/3/2004	2004	2005	12	3.10		(0.45)	0.00	0.00	0.00	0.00	15.00		13.95	13.95	1.64	(0.21)	0.31	128.59	1.67	12.52	0.00
12/4/2004	2004	2005	12	3.70		(0.20)	0.00	0.00	0.00	0.00	15.00		13.95	13.95	1.81	(0.09)	0.37	153.91	1.99	12.24	0.00
12/5/2004	2004	2005	12	48.00		0.00	0.32	0.00	0.00	0.00	227.00		211.11		0.00	0.00	0.00	0.00	48.00	211.11	0.00
12/6/2004	2004	2005	12	8.40		0.00	0.11	0.00	1.43	0.00	61.00		56.73		0.00	0.00	0.00	0.00	8.40	56.73	0.00
12/7/2004	2004	2005	12	4.40		0.00	0.10	0.00	0.00	0.00	19.00		17.67	17.67	1.97	0.00	0.43	176.74	2.43	15.70	0.00
12/8/2004	2004	2005	12	9.00		0.00	0.11	0.00	0.00	0.00	37.00		34.41		0.00	0.00	0.00	0.00	9.00	34.41	0.00
12/9/2004	2004	2005	12	4.50		0.00	0.11	0.00	0.13	0.00	19.00		17.67	17.67	1.99	0.00	0.43	178.62	2.51	15.68	0.00
12/10/2004	2004	2005	12	4.30		0.00	0.00	0.00	0.00	0.00	12.00		11.16	11.16	1.95	0.00	0.42	174.81	2.35	9.21	0.00
12/11/2004	2004	2005	12	4.20		(0.02)	0.00	0.00	0.00	0.00	11.00		10.23	10.23	1.92	(0.01)	0.41	172.10	2.28	8.31	0.00
12/12/2004	2004	2005	12	4.10		(0.05)	0.40	0.00	0.00	0.00	10.00		9.30	9.30	1.90	(0.02)	0.41	168.66	2.22	7.42	0.00
12/13/2004	2004	2005	12	4.00		(0.09)	0.17	0.00	0.00	0.00	10.00		9.30	9.30	1.88	(0.04)	0.40	165.12	2.16	7.46	0.00
12/14/2004	2004	2005	12	4.00		(0.09)	0.16	0.00	0.00	0.00	9.10		8.46	8.46	1.88	(0.04)	0.40	165.12	2.16	6.62	0.00
12/15/2004	2004	2005	12	4.00		(0.09)	0.14	0.00	0.25	0.00	8.60		8.00	8.00	1.88	(0.04)	0.40	165.12	2.16	6.16	0.00
12/16/2004	2004	2005	12	3.90		(0.12)	0.13	0.00	4.93	0.00	8.60		8.00	8.00	1.86	(0.06)	0.39	161.49	2.10	6.20	0.00
12/17/2004	2004	2005	12	3.60		(0.24)	0.00	0.00	2.63	0.00	8.00		7.44	7.44	1.78	(0.11)	0.36	149.97	1.93	5.77	0.00
12/18/2004	2004	2005	12	3.70		(0.20)	0.00	0.00	2.63	0.00	9.00		8.37	8.37	1.81	(0.09)	0.37	153.91	1.99	6.66	0.00
12/19/2004	2004	2005	12	3.50		(0.28)	0.43	0.00	2.63	0.00	8.40		7.81	7.81	1.75	(0.13)	0.35	145.92	1.88	6.19	0.00
12/20/2004	2004	2005	12	3.60		(0.24)	0.17	0.00	1.52	0.00	8.60		8.00	8.00	1.78	(0.11)	0.36	149.97	1.93	6.33	0.00
12/21/2004	2004	2005	12	3.50		(0.28)	0.14	0.00	2.64	0.00	9.40		8.74	8.74	1.75	(0.13)	0.35	145.92	1.88	7.12	0.00
12/22/2004	2004	2005	12	4.00		(0.09)	0.14	0.00	2.75	0.00	9.70		9.02	9.02	1.88	(0.04)	0.40	165.12	2.16	7.18	0.00
12/23/2004	2004	2005	12	4.10		(0.05)	0.00	0.00	2.21	0.00	9.00		8.37	8.37	1.90	(0.02)	0.41	168.66	2.22	6.49	0.00
12/24/2004	2004	2005	12	4.40		0.00	0.00	0.00	2.21	0.00	8.20		7.63	7.63	1.97	0.00	0.43	176.74	2.43	5.66	0.00
12/25/2004	2004	2005	12	4.70		0.00	0.00	0.00	2.21	0.00	9.10		8.46	8.46	2.03	0.00	0.44	182.26	2.67	6.43	0.00
12/26/2004	2004	2005	12	5.20		0.00	0.71	0.00	2.21	0.00	9.40		8.74	8.74	2.12	0.00	0.46	190.74	3.08	6.62	0.00
12/27/2004	2004	2005	12	5.50		0.00	0.18	0.00	2.25	0.00	7.40		6.88	6.88	2.18	0.00	0.47	195.44	3.32	4.71	0.00
12/28/2004	2004	2005	12	297.00		0.00	0.19	0.00	2.14	0.00	921.00		856.53		0.00	0.00	0.00	0.00	297.00	856.53	0.00

									Existing Condition								With Project Diversion				
													0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
						Est. Loss,		San Joaquin Marsh Operations					**Adjusted	**Adjusted		Est. Loss,	39.7 ppb	16.5 ppm		**Adjusted	using SDC at Can
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	San Diego Cr (SDC) at Campus (cfs)	San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	San Diego Cr (SDC) at Campus (cfs)	SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
12/29/2004	2004	2005	12	369.00		0.00	0.19	0.00	2.97	0.00	902.00		838.86		0.00	0.00	0.00	0.00	369.00	838.86	0.00
12/30/2004	2004	2005	12	10.00		0.00	0.00	0.00	4.73	0.00	57.00		53.01		0.00	0.00	0.00	0.00	10.00	53.01	0.00
12/31/2004	2004	2005	12	361.00		0.00	0.00	0.00	4.73	0.00	739.00		687.27		0.00	0.00	0.00	0.00	361.00	687.27	0.00
1/1/2005	2005	2005	1	16.00		0.00	0.00	0.00	4.73	0.00	72.00		66.96		0.00	0.00	0.00	0.00	16.00	66.96	0.00
1/2/2005	2005	2005	1	11.00		0.00	0.00	0.00	4.73	0.00	34.00		31.62		0.00	0.00	0.00	0.00	11.00	31.62	0.00
1/3/2005	2005	2005	1	552.00		0.00	1.01	0.00	4.73	0.00	1020.00		948.60		0.00	0.00	0.00	0.00	552.00	948.60	0.00
1/4/2005	2005	2005	1	57.00		0.00	0.18	0.00	10.86	1.52	374.00		346.41		0.00	0.00	0.00	0.00	57.00	346.41	0.00
1/5/2005	2005	2005	1	18.00		0.00	0.20	0.00	6.56	6.34	74.00		62.92		0.00	0.00	0.00	0.00	18.00	62.92	0.00
1/6/2005	2005	2005	1	10.00		0.00	0.21	0.00	8.47	8.72	38.00		27.23		0.00	0.00	0.00	0.00	10.00	27.23	0.00
1/7/2005	2005	2005	1	260.00		0.00	0.00	0.00	6.04	5.69	587.00		540.62		0.00	0.00	0.00	0.00	260.00	540.62	0.00
1/8/2005	2005	2005	1	174.00		0.00	0.00	0.00	6.04	5.69	525.00		482.96		0.00	0.00	0.00	0.00	174.00	482.96	0.00
1/9/2005	2005	2005	1	1430.00		0.00	0.66	0.00	6.04	5.69	3070.00		2849.81		0.00	0.00	0.00	0.00	1430.00	2849.81	0.00
1/10/2005	2005	2005	1	1280.00		0.00	0.24	0.00	11.65	11.47	2670.00		2472.43		0.00	0.00	0.00	0.00	1280.00	2472.43	0.00
1/11/2005	2005	2005	1	389.00		0.00	0.24	0.00	11.92	9.95	1360.00		1255.55		0.00	0.00	0.00	0.00	389.00	1255.55	0.00
1/12/2005	2005	2005	1	18.00		0.00	0.24	0.00	8.48	9.95	122.00		104.21		0.00	0.00	0.00	0.00	18.00	104.21	0.00
1/13/2005	2005	2005	1	13.00		0.00	0.25	0.00	7.02	6.76	76.00		64.40		0.00	0.00	0.00	0.00	13.00	64.40	0.00
1/14/2005	2005	2005	1	9.10		0.00	0.00	0.00	0.43	0.48	45.00		41.40		0.00	0.00	0.00	0.00	9.10	41.40	0.00
1/15/2005	2005	2005	1	8.50		0.00	0.00	0.00	0.00	0.00	36.00		33.48		0.00	0.00	0.00	0.00	8.50	33.48	0.00
1/16/2005	2005	2005	1	8.10		0.00	0.71	0.00	0.00	0.00	32.00		29.76		0.00	0.00	0.00	0.00	8.10	29.76	0.00
1/18/2005	2005	2005	1	7.00		0.00	0.22	0.00	0.00	0.00	28.00		26.04		0.00	0.00	0.00	0.00	7.00	26.04	0.00
1/19/2005	2005	2005	1	6.70		0.00	0.25	0.00	0.41	0.00	25.00		23.25		0.00	0.00	0.00	0.00	6.70	23.25	0.00
1/20/2005	2005	2005	1	6.80		0.00	0.21	0.00	3.95	0.00	22.00		20.46		0.00	0.00	0.00	0.00	6.80	20.46	0.00
1/21/2005	2005	2005	1	5.90		0.00	0.00	0.00	5.28	0.00	20.00		18.60	18.60	2.24	0.00	0.48	201.32	3.66	16.36	0.00
1/22/2005	2005	2005	1	5.90		0.00	0.00	0.00	5.28	0.00	18.00		16.74	16.74	2.24	0.00	0.48	201.32	3.66	14.50	0.00
1/23/2005	2005	2005	1	5.60		0.00	0.80	0.00	5.28	0.00	17.00		15.81	15.81	2.19	0.00	0.47	196.95	3.41	13.62	0.00
1/24/2005	2005	2005	1	6.50		0.00	0.25	0.00	0.00	0.00	17.00		15.81	15.81	2.33	0.00	0.50	209.43	4.17	13.48	0.00
1/25/2005	2005	2005	1	7.00		0.00	0.24	0.00	2.20	0.00	19.00		17.67	17.67	2.40	0.00	0.52	215.64	4.60	15.27	0.00
1/26/2005	2005	2005	1	8.10		0.00	0.26	0.00	4.64	0.00	20.00		18.60	18.60	2.54	0.00	0.55	227.87	5.56	16.06	0.00
1/27/2005	2005	2005	1	7.40		0.00	0.32	0.00	5.10	0.00	21.00		19.53		0.00	0.00	0.00	0.00	7.40	19.53	0.00
1/28/2005	2005	2005	1	37.00		0.00	0.00	0.00	4.74	0.00	79.00		73.47		0.00	0.00	0.00	0.00	37.00	73.47	0.00
1/29/2005	2005	2005	1	6.20		0.00	0.00	0.00	4.74	0.00	31.00		28.83		0.00	0.00	0.00	0.00	6.20	28.83	0.00
1/30/2005	2005	2005	1	4.80		0.00	0.70	0.00	4.74	0.00	16.00		14.88	14.88	2.05	0.00	0.44	184.03	2.75	12.83	0.00
1/31/2005	2005	2005	1	4.60		0.00	0.24	0.00	2.11	0.00	16.00		14.88	14.88	2.01	0.00	0.43	180.46	2.59	12.87	0.00
2/1/2005	2005	2005	2	4.30		0.00	0.20	0.00	2.75	0.00	15.00		13.95	13.95	1.95	0.00	0.42	174.81	2.35	12.00	0.00
2/2/2005	2005	2005	2	4.40		0.00	0.23	0.00	4.72	0.00	15.00		13.95	13.95	1.97	0.00	0.43	176.74	2.43	11.98	0.00
2/3/2005	2005	2005	2	4.90		0.00	0.29	0.00	5.21	0.00	15.00		13.95	13.95	2.07	0.00	0.45	185.76	2.83	11.88	0.00
2/4/2005	2005	2005	2	5.00		0.00	0.00	0.00	5.79	0.00	15.00		13.95	13.95	2.09	0.00	0.45	187.45	2.91	11.86	0.00
2/5/2005	2005	2005	2	5.70		0.00	0.00	0.00	5.79	0.00	16.00		14.88	14.88	2.21	0.00	0.48	198.43	3.49	12.67	0.00
2/6/2005	2005	2005	2	8.10		0.00	0.72	0.00	5.79	0.00	27.00		25.11		0.00	0.00	0.00	0.00	8.10	25.11	0.00
2/7/2005	2005	2005	2	6.70		0.00	0.00	0.00	3.79	0.00	23.00		21.39		0.00	0.00	0.00	0.00	6.70	21.39	0.00
2/8/2005	2005	2005	2	4.90		0.00	0.29	0.00	3.44	0.00	16.00		14.88	14.88	2.07	0.00	0.45	185.76	2.83	12.81	0.00
2/9/2005	2005	2005	2	4.40		0.00	0.25	0.00	3.67	0.00	15.00		13.95	13.95	1.97	0.00	0.43	176.74	2.43	11.98	0.00
2/10/2005	2005	2005	2	4.50		0.00	0.26	0.00	2.22	0.00	9.10		8.46	8.46	1.99	0.00	0.43	178.62	2.51	6.47	0.00
2/11/2005	2005	2005	2	311.00		0.00	0.00	0.00	2.91	0.00	1160.00		1078.80		0.00	0.00	0.00	0.00	311.00	1078.80	0.00
2/12/2005	2005	2005	2	360.00		0.00	0.00	0.00	2.91	0.00	962.00		894.66		0.00	0.00	0.00	0.00	360.00	894.66	0.00
2/13/2005	2005	2005	2	11.00		0.00	0.00	0.00	2.91	0.00	53.00		49.29		0.00	0.00	0.00	0.00	11.00	49.29	0.00
2/14/2005	2005	2005	2	7.80		0.00	0.29	0.00	9.16	0.00	31.00		28.83		0.00	0.00	0.00	0.00	7.80	28.83	0.00
2/15/2005	2005	2005	2	7.10		0.00	0.29	0.00	7.46	0.00	24.00		22.32		0.00	0.00	0.00	0.00	7.10	22.32	0.00
2/16/2005	2005	2005	2	6.30		0.00	0.27	0.00	0.76	0.00	21.00		19.53		0.00	0.00	0.00	0.00	6.30	19.53	0.00
2/17/2005	2005	2005	2	14.00		0.00	0.28	0.00	1.91	0.00	39.00		36.27		0.00	0.00	0.00	0.00	14.00	36.27	0.00
2/18/2005	2005	2005	2	83.00		0.00	0.00	0.00	2.83	0.00	356.00		331.08		0.00	0.00	0.00	0.00	83.00	331.08	0.00
2/19/2005	2005	2005	2	431.00		0.00	0.00	0.00	2.83	0.00	1860.00		1729.80		0.00	0.00	0.00	0.00	431.00	1729.80	0.00
2/20/2005	2005	2005	2	145.00		0.00	0.00	0.00	2.83	0.00	1300.00		1209.00		0.00	0.00	0.00	0.00	145.00	1209.00	0.00
2/21/2005	2005	2005	2	1150.00		0.00	1.07	0.00	2.83	0.33	2780.00		2585.09		0.00	0.00	0.00	0.00	1150.00	2585.09	0.00
2/22/2005	2005	2005	2	465.00		0.00	0.28	0.00	9.16	9.03	1450.00		1340.10		0.00	0.00	0.00	0.00	465.00	1340.10	0.00
2/23/2005	2005	2005	2	453.00		0.00	0.29	0.00	12.19	11.01	1360.00		1254.56		0.00	0.00	0.00	0.00	453.00	1254.56	0.00
2/24/2005	2005	2005	2	19.00		0.00	0.28	0.00	11.36	10.00	135.00		116.25		0.00	0.00	0.00	0.00	19.00	116.25	0.00
2/25/2005	2005	2005	2	14.00		0.00	0.00	0.00	9.66	10.00	94.00		78.12		0.00	0.00	0.00	0.00	14.00	78.12	0.00
2/26/2005	2005	2005	2	12.00		0.00	0.00	0.00	9.66	10.00	64.00		50.22		0.00	0.00	0.00	0.00	12.00	50.22	0.00
2/27/2005	2005	2005	2	10.00		0.00	0.91	0.00	9.66	10.00	54.00		40.92		0.00	0.00	0.00	0.00	10.00	40.92	0.00
2/28/2005	2005	2005	2	9.60		0.00	0.32	0.00	0.01	0.00	44.00		40.92		0.00	0.00	0.00	0.00	9.60	40.92	0.00
3/1/2005	2005	2005	3	10.00		0.00	0.32	0.00	4.58	0.00	42.00		39.06		0.00	0.00	0.00	0.00	10.00	39.06	0.00
3/2/2005	2005	2005	3	9.20		0.00	0.35	0.00	4.93	0.00	37.00		34.41		0.00	0.00	0.00	0.00	9.20	34.41	0.00
3/3/2005	2005	2005	3	11.00		0.00	0.36	0.00	4.18	0.00	34.00		31.62		0.00	0.00	0.00	0.00	11.00	31.62	0.00
3/4/2005	2005	2005	3	18.00		0.00	0.00	0.00	5.05	0.00	63.00		58.59		0.00	0.00	0.00	0.00	18.00	58.59	0.00
3/5/2005	2005	2005	3	8.70		0.00	0.00	0.00	5.05	0.00	24.00		22.32		0.00	0.00	0.00	0.00	8.70	22.32	0.00
3/6/2005	2005	2005	3	7.60		0.00	0.98	0.00	5.05	0.00	22.00		20.46		0.00	0.00	0.00	0.00	7.60	20.46	0.00
3/7/2005	2005	2005	3	8.00		0.00	0.30	0.00	4.33	0.00	22.00		20.46		0.00	0.00	0.00	0.00	8.00	20.46	0.00
3/8/2005	2005	2005	3	8.40		0.00	0.32	0.00	5.70	0.00	26.00		24.18		0.00	0.00	0.00	0.00	8.40	24.18	0.00
3/9/2005	2005	2005	3	7.60		0.00	0.32	0.00	6.19	0.00	16.00		14.88	14.88	2.48	0.00	0.54	222.53	5.12	12.40	0.00
3/10/2005	2005	2005	3	7.50		0.00	0.34	0.00	7.54	0.00	12.00		11.16	11.16	2.47	0.00	0.53	221.42	5.03	8.69	0.00

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	Existing Condition / San Joaquin Marsh Operations: SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	With Project Diversion: Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
3/11/2005	2005	2005	3	7.40		0.00	0.00	0.00	6.24	0.00	13.00		12.09	12.09	2.45	0.00	0.53	220.30	4.95	9.64	0.00
3/12/2005	2005	2005	3	7.10		0.00	0.00	0.00	6.24	0.00	12.00		11.16	11.16	2.41	0.00	0.52	216.83	4.69	8.75	0.00
3/13/2005	2005	2005	3	7.30		0.00	1.03	0.00	6.24	0.00	12.00		11.16	11.16	2.44	0.00	0.53	219.16	4.86	8.72	0.00
3/14/2005	2005	2005	3	6.60		0.00	0.33	0.00	3.25	0.00	11.00		10.23	10.23	2.35	0.00	0.51	210.71	4.25	7.88	0.00
3/15/2005	2005	2005	3	6.70		0.00	0.31	0.00	0.00	0.00	9.30		8.65	8.65	2.36	0.00	0.51	211.97	4.34	6.29	0.00
3/16/2005	2005	2005	3	7.90		0.00	0.27	0.00	2.39	0.00	9.90		9.21	9.21	2.51	0.00	0.54	225.78	5.39	6.69	0.00
3/17/2005	2005	2005	3	9.20		0.00	0.29	0.00	4.72	0.00	13.00		12.09	12.09	2.60	0.00	0.56	233.51	6.60	9.49	0.00
3/18/2005	2005	2005	3	14.00		0.00	0.00	0.00	2.41	0.00	12.00		11.16	11.16	2.60	0.00	0.56	233.51	11.40	8.56	0.00
3/19/2005	2005	2005	3	16.00		0.00	0.00	0.00	2.41	0.00	51.00		47.43		0.00	0.00	0.00	0.00	16.00	47.43	0.00
3/20/2005	2005	2005	3	8.80		0.00	0.87	0.00	2.41	0.00	25.00		23.25		0.00	0.00	0.00	0.00	8.80	23.25	0.00
3/21/2005	2005	2005	3	9.10		0.00	0.27	0.00	2.78	0.00	9.90		9.21	9.21	2.60	0.00	0.56	233.51	6.50	6.61	0.00
3/22/2005	2005	2005	3	188.00		0.00	0.26	0.00	2.52	0.00	258.00		239.94		0.00	0.00	0.00	0.00	188.00	239.94	0.00
3/23/2005	2005	2005	3	24.00		0.00	0.25	0.00	4.99	0.00	316.00		293.88		0.00	0.00	0.00	0.00	24.00	293.88	0.00
3/24/2005	2005	2005	3	14.00		0.00	0.00	0.00	5.36	0.00	36.00		33.48		0.00	0.00	0.00	0.00	14.00	33.48	0.00
3/25/2005	2005	2005	3	9.20		0.00	0.00	0.00	5.36	0.00	20.00		18.60	18.60	2.60	0.00	0.56	233.51	6.60	16.00	0.00
3/26/2005	2005	2005	3	8.10		0.00	0.00	0.00	5.36	0.00	13.00		12.09	12.09	2.54	0.00	0.55	227.87	5.56	9.55	0.00
3/27/2005	2005	2005	3	7.50		0.00	1.11	0.00	5.36	0.00	9.60		8.93	8.93	2.47	0.00	0.53	221.42	5.03	6.46	0.00
3/28/2005	2005	2005	3	9.70		0.00	0.29	0.00	3.79	0.00	16.00		14.88	14.88	2.60	0.00	0.56	233.51	7.10	12.28	0.00
3/29/2005	2005	2005	3	8.60		0.00	0.22	0.00	4.16	0.00	18.00		16.74	16.74	2.59	0.00	0.56	232.89	6.01	14.15	0.00
3/30/2005	2005	2005	3	7.50		0.00	0.28	0.00	5.20	0.00	13.00		12.09	12.09	2.47	0.00	0.53	221.42	5.03	9.62	0.00
3/31/2005	2005	2005	3	7.10		0.00	0.35	0.00	4.64	0.00	13.00		12.09	12.09	2.41	0.00	0.52	216.83	4.69	9.68	0.00
4/1/2005	2005	2005	4	7.10		0.00	0.00	0.00	4.03	0.00	14.00		13.02	13.02	2.41	0.00	0.52	216.83	4.69	10.61	0.00
4/2/2005	2005	2005	4	7.30		0.00	0.00	0.00	4.03	0.00	16.00		14.88	14.88	2.44	0.00	0.53	219.16	4.86	12.44	0.00
4/3/2005	2005	2005	4	7.00		0.00	1.05	0.00	4.03	0.00	16.00		14.88	14.88	2.40	0.00	0.52	215.64	4.60	12.48	0.00
4/4/2005	2005	2005	4	7.30		0.00	0.36	0.00	0.00	0.00	19.00		17.67	17.67	2.44	0.00	0.53	219.16	4.86	15.23	0.00
4/5/2005	2005	2005	4	6.50		0.00	0.33	0.00	0.00	0.00	18.00		16.74	16.74	2.33	0.00	0.50	209.43	4.17	14.41	0.00
4/6/2005	2005	2005	4	6.50		0.00	0.37	0.00	0.00	0.00	19.00		17.67	17.67	2.33	0.00	0.50	209.43	4.17	15.34	0.00
4/7/2005	2005	2005	4	6.50		0.00	0.39	0.00	0.00	0.00	19.00		17.67	17.67	2.33	0.00	0.50	209.43	4.17	15.34	0.00
4/8/2005	2005	2005	4	6.60		0.00	0.00	0.00	0.00	0.00	17.00		15.81	15.81	2.35	0.00	0.51	210.71	4.25	13.46	0.00
4/9/2005	2005	2005	4	6.40		0.00	0.00	0.00	0.00	0.00	18.00		16.74	16.74	2.32	0.00	0.50	208.13	4.08	14.42	0.00
4/10/2005	2005	2005	4	6.20		0.00	1.17	0.00	0.00	0.00	18.00		16.74	16.74	2.29	0.00	0.49	205.47	3.91	14.45	0.00
4/11/2005	2005	2005	4	6.10		0.00	0.32	0.00	11.96	11.63	22.00		9.64	9.64	2.27	0.00	0.49	204.11	3.83	7.37	0.00
4/12/2005	2005	2005	4	6.50		0.00	0.31	11.05	10.34	10.03	18.00		17.69	17.69	2.33	0.00	0.50	209.43	4.17	15.36	11.05
4/13/2005	2005	2005	4	6.30		0.00	0.37	6.75	5.68	5.53	17.00		16.94	16.94	2.30	0.00	0.50	206.81	4.00	14.64	6.75
4/14/2005	2005	2005	4	6.20		0.00	0.40	6.81	3.47	3.36	11.00		13.44	13.44	2.29	0.00	0.49	205.47	3.91	11.16	6.81
4/15/2005	2005	2005	4	6.00		0.00	0.00	7.21	3.63	3.55	8.90		11.67	11.67	2.26	0.00	0.49	202.73	3.74	9.42	7.21
4/16/2005	2005	2005	4	6.40		0.00	0.00	7.21	3.63	3.55	9.70		12.42	12.42	2.32	0.00	0.50	208.13	4.08	10.10	7.21
4/17/2005	2005	2005	4	6.50		0.00	1.30	7.21	3.63	3.55	9.90		12.60	12.60	2.33	0.00	0.50	209.43	4.17	10.27	7.21
4/18/2005	2005	2005	4	6.50		0.00	0.16	7.37	4.26	4.10	9.40		11.78	11.78	2.33	0.00	0.50	209.43	4.17	9.45	7.37
4/19/2005	2005	2005	4	6.50		0.00	0.31	7.73	3.00	2.98	10.00		13.72	13.72	2.33	0.00	0.50	209.43	4.17	11.38	7.73
4/20/2005	2005	2005	4	6.40		0.00	0.31	8.24	2.76	2.65	7.30		11.98	11.98	2.32	0.00	0.50	208.13	4.08	9.67	8.24
4/21/2005	2005	2005	4	6.90		0.00	0.33	7.19	4.34	4.24	7.10		9.35	9.35	2.39	0.00	0.52	214.44	4.51	6.96	6.96
4/22/2005	2005	2005	4	6.70		0.00	0.00	6.99	5.21	5.00	11.00		12.08	12.08	2.36	0.00	0.51	211.97	4.34	9.72	6.99
4/23/2005	2005	2005	4	7.50		0.00	0.00	6.99	5.21	5.00	14.00		14.87	14.87	2.47	0.00	0.53	221.42	5.03	12.40	6.99
4/24/2005	2005	2005	4	53.00		0.00	3.99	6.99	5.21	5.00	330.00		308.75		0.00	0.00	0.00	0.00	53.00	308.75	6.99
4/25/2005	2005	2005	4	7.60		0.00	0.00	7.70	6.37	4.68	21.00		22.34		0.00	0.00	0.00	0.00	7.60	22.34	7.70
4/26/2005	2005	2005	4	8.00		0.00	0.28	7.37	8.29	6.31	13.00		13.08	13.08	2.53	0.00	0.55	226.83	5.47	10.55	7.37
4/27/2005	2005	2005	4	8.50		0.00	0.31	5.71	8.00	6.19	12.00		10.71	10.71	2.58	0.00	0.56	231.91	5.92	8.13	5.71
4/28/2005	2005	2005	4	172.00		0.00	0.28	7.00	9.93	7.58	611.00		567.68		0.00	0.00	0.00	0.00	172.00	567.68	7.00
4/29/2005	2005	2005	4	10.00		0.00	0.00	7.68	8.65	6.60	36.00		34.48		0.00	0.00	0.00	0.00	10.00	34.48	7.68
4/30/2005	2005	2005	4	8.50		0.00	0.59	7.68	8.65	6.60	19.00		18.67		0.00	0.00	0.00	0.00	8.50	18.67	7.68
5/1/2005	2005	2005	5	8.00		0.00	0.59	7.68	8.65	6.60	14.00		14.02	14.02	2.53	0.00	0.55	226.83	5.47	11.50	7.68
5/2/2005	2005	2005	5	7.80		0.00	0.59	7.03	10.27	8.32	14.00		11.82	11.82	2.50	0.00	0.54	224.71	5.30	9.32	7.03
5/3/2005	2005	2005	5	9.70		0.00	0.59	5.87	8.21	6.71	18.00		15.96	15.96	2.60	0.00	0.56	233.51	7.10	13.36	5.87
5/4/2005	2005	2005	5	8.70		0.00	0.59	7.58	11.12	8.72	17.00		14.75	14.75	2.60	0.00	0.56	233.51	6.10	12.15	7.58
5/5/2005	2005	2005	5	28.00		0.00	0.59	3.70	9.05	7.10	43.00		36.83		0.00	0.00	0.00	0.00	28.00	36.83	3.70
5/6/2005	2005	2005	5	60.00		0.00	0.59	6.46	9.21	7.23	255.00		236.43		0.00	0.00	0.00	0.00	60.00	236.43	6.46
5/7/2005	2005	2005	5	9.50		0.00	0.59	6.46	9.21	7.23	28.00		25.32		0.00	0.00	0.00	0.00	9.50	25.32	6.46
5/8/2005	2005	2005	5	7.80		0.00	0.59	6.46	9.21	7.23	18.00		16.02	16.02	2.50	0.00	0.54	224.71	5.30	13.52	6.46
5/9/2005	2005	2005	5	7.40		0.00	0.59	8.07	10.28	8.33	16.00		14.64	14.64	2.45	0.00	0.53	220.30	4.95	12.19	8.07
5/10/2005	2005	2005	5	7.20		0.00	0.59	6.91	8.83	6.98	13.00		12.02	12.02	2.43	0.00	0.52	218.00	4.77	9.60	6.91
5/11/2005	2005	2005	5	7.40		0.00	0.59	8.27	9.43	7.92	12.00		11.49	11.49	2.45	0.00	0.53	220.30	4.95	9.03	8.27
5/12/2005	2005	2005	5	7.60		0.00	0.59	7.92	8.31	6.61	15.00		15.17	15.17	2.48	0.00	0.54	222.53	5.12	12.69	7.92
5/13/2005	2005	2005	5	7.60		0.00	0.59	7.99	8.30	6.50	10.00		10.69	10.69	2.48	0.00	0.54	222.53	5.12	8.22	7.99
5/14/2005	2005	2005	5	7.50		0.00	0.59	7.99	8.30	6.50	7.10		8.00	8.00	2.47	0.00	0.53	221.42	5.03	5.53	5.53
5/15/2005	2005	2005	5	7.50		0.00	0.59	7.99	8.30	6.50	7.00		7.99	7.99	2.47	0.00	0.53	221.42	5.03	5.53	5.53
5/16/2005	2005	2005	5	7.60		0.00	0.59	8.00	9.61	7.95	7.40		8.00	8.00	2.48	0.00	0.54	222.53	5.12	5.53	5.53
5/17/2005	2005	2005	5	7.70		0.00	0.59	5.65	7.81	6.40	10.00		8.60	8.60	2.49	0.00	0.54	223.63	5.21	6.11	5.65
5/18/2005	2005	2005	5	7.70		0.00	0.59	7.48	10.07	8.61	13.00		11.04	11.04	2.49	0.00	0.54	223.63	5.21	8.55	7.48
5/19/2005	2005	2005	5	9.40		0.00	0.59	8.18	9.63	8.13	15.00		13.99	13.99	2.60	0.00	0.56	233.51	6.80	11.39	8.18
5/20/2005	2005	2005	5	9.10		0.00	0.59	8.19	9.72	8.04	16.00		15.02	15.02	2.60	0.00	0.56	233.51	6.50	12.42	8.19

									Existing Condition								With Project Diversion				
								San Joaquin Marsh Operations					0.93	20.00 cfs		PROJ. Div	39.7 ppb 39.7 ppb	16.5 ppm 16.5 ppm			
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW Bo	Project - Diversi	Project - Diversi	Project - PCW Bo	Project - SDC Ca	Project - SJM In
5/21/2005	2005	2005	5	9.50		0.00	0.59	8.19	9.72	8.04	14.00		13.16	13.16	2.60	0.00	0.56	233.51	6.90	10.56	8.19
5/22/2005	2005	2005	5	9.20		0.00	0.59	8.19	9.72	8.04	14.00		13.16	13.16	2.60	0.00	0.56	233.51	6.60	10.56	8.19
5/23/2005	2005	2005	5	9.00		0.00	0.59	6.58	8.74	6.91	13.00		11.79	11.79	2.60	0.00	0.56	233.51	6.40	9.19	6.58
5/24/2005	2005	2005	5	9.60		0.00	0.59	5.79	7.72	6.40	17.00		15.24	15.24	2.60	0.00	0.56	233.51	7.00	12.64	5.79
5/25/2005	2005	2005	5	8.70		0.00	0.59	6.01	7.68	4.82	18.00		17.85	17.85	2.60	0.00	0.56	233.51	6.10	15.25	6.01
5/26/2005	2005	2005	5	8.70		0.00	0.59	4.42	9.79	7.72	18.00		13.67	13.67	2.60	0.00	0.56	233.51	6.10	11.07	4.42
5/27/2005	2005	2005	5	8.70		0.00	0.59	4.12	9.81	7.63	21.00		16.27	16.27	2.60	0.00	0.56	233.51	6.10	13.67	4.12
5/28/2005	2005	2005	5	8.20		0.00	0.59	0.00	9.81	7.63	26.00		17.08	17.08	2.55	0.00	0.55	228.90	5.65	14.54	0.00
5/29/2005	2005	2005	5	8.20		0.00	0.59	0.00	9.81	7.63	26.00		17.08	17.08	2.55	0.00	0.55	228.90	5.65	14.54	0.00
5/30/2005	2005	2005	5	8.20		0.00	0.59	0.00	9.81	7.63	26.00		17.08	17.08	2.55	0.00	0.55	228.90	5.65	14.54	0.00
5/31/2005	2005	2005	5	8.10		0.00	0.59	0.00	6.70	4.92	25.00		18.68		0.00	0.00	0.00	0.00	8.10	18.68	0.00
6/1/2005	2005	2005	6	8.30		0.00	0.35	0.00	3.52	2.14	22.00		18.47	18.47	2.56	0.00	0.55	229.92	5.74	15.91	0.00
6/2/2005	2005	2005	6	8.50		0.00	0.35	0.00	5.41	4.01	23.00		17.66	17.66	2.58	0.00	0.56	231.91	5.92	15.07	0.00
6/3/2005	2005	2005	6	8.50		0.00	0.00	0.00	0.00	0.00	21.00		19.53		0.00	0.00	0.00	0.00	8.50	19.53	0.00
6/4/2005	2005	2005	6	8.20		0.00	0.00	0.00	0.00	0.00	18.00		16.74	16.74	2.55	0.00	0.55	228.90	5.65	14.19	0.00
6/5/2005	2005	2005	6	8.30		0.00	1.04	0.00	0.00	0.00	18.00		16.74	16.74	2.56	0.00	0.55	229.92	5.74	14.18	0.00
6/6/2005	2005	2005	6	8.10		0.00	0.34	0.00	0.00	0.00	18.00		16.74	16.74	2.54	0.00	0.55	227.87	5.56	14.20	0.00
6/7/2005	2005	2005	6	7.90		0.00	0.32	0.00	0.00	0.00	18.00		16.74	16.74	2.51	0.00	0.54	225.78	5.39	14.23	0.00
6/8/2005	2005	2005	6	7.70		0.00	0.32	0.00	0.00	0.00	18.00		16.74	16.74	2.49	0.00	0.54	223.63	5.21	14.25	0.00
6/9/2005	2005	2005	6	7.70		0.00	0.40	0.00	0.00	0.00	18.00		16.74	16.74	2.49	0.00	0.54	223.63	5.21	14.25	0.00
6/10/2005	2005	2005	6	8.00		0.00	0.00	0.00	0.00	0.00	20.00		18.60	18.60	2.53	0.00	0.55	226.83	5.47	16.07	0.00
6/11/2005	2005	2005	6	8.30		0.00	0.00	0.00	0.00	0.00	22.00		20.46		0.00	0.00	0.00	0.00	8.30	20.46	0.00
6/12/2005	2005	2005	6	6.90		0.00	1.19	0.00	0.00	0.00	18.00		16.74	16.74	2.39	0.00	0.52	214.44	4.51	14.35	0.00
6/13/2005	2005	2005	6	6.20		0.00	0.41	0.00	0.00	0.00	16.00		14.88	14.88	2.29	0.00	0.49	205.47	3.91	12.59	0.00
6/14/2005	2005	2005	6	6.20		0.00	0.36	8.64	2.34	1.43	11.00		16.94	16.94	2.29	0.00	0.49	205.47	3.91	14.65	8.64
6/15/2005	2005	2005	6	7.10		0.00	0.40	8.39	2.47	1.63	6.60		12.43	12.43	2.41	0.00	0.52	216.83	4.69	10.02	8.39
6/16/2005	2005	2005	6	7.20		0.00	0.38	5.48	3.57	2.63	5.80		8.05	8.05	2.43	0.00	0.52	218.00	4.77	5.62	5.48
6/17/2005	2005	2005	6	6.60		0.00	0.00	7.39	5.72	4.43	7.50		9.72	9.72	2.35	0.00	0.51	210.71	4.25	7.38	7.38
6/18/2005	2005	2005	6	7.00		0.00	0.00	7.39	5.72	4.43	7.90		10.09	10.09	2.40	0.00	0.52	215.64	4.60	7.69	7.39
6/19/2005	2005	2005	6	6.50		0.00	1.20	7.39	5.72	4.43	6.70		8.98	8.98	2.33	0.00	0.50	209.43	4.17	6.65	6.65
6/20/2005	2005	2005	6	6.50		0.00	0.38	4.42	4.19	3.51	6.90		7.26	7.26	2.33	0.00	0.50	209.43	4.17	4.93	4.42
6/21/2005	2005	2005	6	6.70		0.00	0.35	6.85	7.44	6.19	8.90		8.90	8.90	2.36	0.00	0.51	211.97	4.34	6.54	6.54
6/22/2005	2005	2005	6	6.60		0.00	0.38	4.61	5.23	4.49	11.00		10.34	10.34	2.35	0.00	0.51	210.71	4.25	7.99	4.61
6/23/2005	2005	2005	6	6.70		0.00	0.40	6.22	7.18	6.05	12.00		11.32	11.32	2.36	0.00	0.51	211.97	4.34	8.96	6.22
6/24/2005	2005	2005	6	6.50		0.00	0.00	7.48	6.83	5.71	12.00		12.80	12.80	2.33	0.00	0.50	209.43	4.17	10.47	7.48
6/25/2005	2005	2005	6	6.30		0.00	0.00	7.48	6.83	5.71	14.00		14.66	14.66	2.30	0.00	0.50	206.81	4.00	12.36	7.48
6/26/2005	2005	2005	6	6.00		0.00	1.16	7.48	6.83	5.71	6.50		7.69	7.69	2.26	0.00	0.49	202.73	3.74	5.43	5.43
6/27/2005	2005	2005	6	5.70		0.00	0.39	4.54	5.14	4.32	8.20		7.83	7.83	2.21	0.00	0.48	198.43	3.49	5.62	4.54
6/28/2005	2005	2005	6	6.20		0.00	0.31	5.59	5.33	4.43	11.00		11.30	11.30	2.29	0.00	0.49	205.47	3.91	9.01	5.59
6/29/2005	2005	2005	6	6.00		0.00	0.36	5.78	5.59	4.55	19.00		18.81		0.00	0.00	0.00	0.00	6.00	18.81	5.78
6/30/2005	2005	2005	6	5.60		0.00	0.37	5.73	5.92	4.80	13.00		12.95	12.95	2.19	0.00	0.47	196.95	3.41	10.76	5.73
7/1/2005	2005	2005	7	6.00		0.00	0.00	7.12	7.27	5.98	11.00		11.29	11.29	2.26	0.00	0.49	202.73	3.74	9.04	7.12
7/2/2005	2005	2005	7	6.50		0.00	0.00	7.12	7.27	5.98	12.00		12.22	12.22	2.33	0.00	0.50	209.43	4.17	9.89	7.12
7/3/2005	2005	2005	7	6.70		0.00	0.00	7.12	7.27	5.98	12.00		12.22	12.22	2.36	0.00	0.51	211.97	4.34	9.86	7.12
7/4/2005	2005	2005	7	6.80		0.00	1.49	7.12	7.27	5.98	12.00		12.22	12.22	2.37	0.00	0.51	213.21	4.43	9.85	7.12
7/5/2005	2005	2005	7	7.00		0.00	0.35	5.62	5.76	4.71	14.00		13.87	13.87	2.40	0.00	0.52	215.64	4.60	11.47	5.62
7/6/2005	2005	2005	7	7.30		0.00	0.36	5.23	5.55	4.64	13.00		12.64	12.64	2.44	0.00	0.53	219.16	4.86	10.20	5.23
7/7/2005	2005	2005	7	7.10		0.00	0.39	5.67	6.12	5.19	15.00		14.40	14.40	2.41	0.00	0.52	216.83	4.69	11.99	5.67
7/8/2005	2005	2005	7	6.20		0.00	0.00	6.88	6.79	5.63	11.00		11.39	11.39	2.29	0.00	0.49	205.47	3.91	9.10	6.88
7/9/2005	2005	2005	7	6.10		0.00	0.00	6.88	6.79	5.63	12.00		12.32	12.32	2.27	0.00	0.49	204.11	3.83	10.05	6.88
7/10/2005	2005	2005	7	6.00		0.00	1.14	6.88	6.79	5.63	10.00		10.46	10.46	2.26	0.00	0.49	202.73	3.74	8.20	6.88
7/11/2005	2005	2005	7	6.00		0.00	0.31	4.36	6.79	5.63	8.30		6.54	6.54	2.26	0.00	0.49	202.73	3.74	4.29	4.29
7/12/2005	2005	2005	7	6.00		0.00	0.35	4.34	6.79	5.63	8.30		6.52	6.52	2.26	0.00	0.49	202.73	3.74	4.26	4.26
7/13/2005	2005	2005	7	6.00		0.00	0.36	6.80	7.77	6.47	11.00		10.54	10.54	2.26	0.00	0.49	202.73	3.74	8.29	6.80
7/14/2005	2005	2005	7	6.00		0.00	0.35	5.35	6.16	5.07	12.00		11.42	11.42	2.26	0.00	0.49	202.73	3.74	9.16	5.35
7/15/2005	2005	2005	7	6.40		0.00	0.00	7.21	8.31	6.92	12.00		11.43	11.43	2.32	0.00	0.50	208.13	4.08	9.12	7.21
7/16/2005	2005	2005	7	6.70		0.00	0.00	7.21	8.31	6.92	12.00		11.43	11.43	2.36	0.00	0.51	211.97	4.34	9.07	7.21
7/17/2005	2005	2005	7	6.80		0.00	1.10	7.21	8.31	6.92	11.00		10.50	10.50	2.37	0.00	0.51	213.21	4.43	8.13	7.21
7/18/2005	2005	2005	7	6.90		0.00	0.34	4.70	5.50	4.47	10.00		9.52	9.52	2.39	0.00	0.52	214.44	4.51	7.13	4.70
7/19/2005	2005	2005	7	7.00		0.00	0.33	6.41	7.27	6.16	13.00		12.32	12.32	2.40	0.00	0.52	215.64	4.60	9.92	6.41
7/20/2005	2005	2005	7	7.30		0.00	0.38	5.39	6.99	5.87	15.00		13.51	13.51	2.44	0.00	0.53	219.16	4.86	11.07	5.39
7/21/2005	2005	2005	7	8.30		0.00	0.39	4.82	6.24	5.27	14.00		12.61	12.61	2.56	0.00	0.55	229.92	5.74	10.05	4.82
7/22/2005	2005	2005	7	9.00		0.00	0.00	7.13	8.45	7.02	17.00		15.91	15.91	2.60	0.00	0.56	233.51	6.40	13.31	7.13
7/23/2005	2005	2005	7	7.20		0.00	0.00	7.13	8.45	7.02	15.00		14.05	14.05	2.43	0.00	0.52	218.00	4.77	11.62	7.13
7/24/2005	2005	2005	7	7.30		0.00	1.13	7.13	8.45	7.02	12.00		11.26	11.26	2.44	0.00	0.53	219.16	4.86	8.82	7.13
7/25/2005	2005	2005	7	7.20		0.00	0.38	4.95	5.93	4.83	12.00		11.27	11.27	2.43	0.00	0.52	218.00	4.77	8.84	4.95
7/26/2005	2005	2005	7	7.30		0.00	0.35	6.40	7.27	6.21	14.00		13.20	13.20	2.44	0.00	0.53	219.16	4.86	10.76	6.40
7/27/2005	2005	2005	7	7.30		0.00	0.44	5.52	6.39	5.37	14.00		13.17	13.17	2.44	0.00	0.53	219.16	4.86	10.73	5.52
7/28/2005	2005	2005	7	8.30		0.00	0.41	5.44	6.34	5.28	16.00		15.03	15.03	2.56	0.00	0.55	229.92	5.74	12.47	5.44
7/29/2005	2005	2005	7	7.90		0.00	0.00	7.10	8.00	6.82	15.00	E	14.21	14.21	2.51	0.00	0.54	225.78	5.39	11.70	7.10
7/30/2005	2005	2005	7	7.30		0.00	0.00	7.10	8.00	6.82	14.00	E	13.28	13.28	2.44	0.00	0.53	219.16	4.86	10.84	7.10

Existing Condition | **San Joaquin Marsh Operations** | **With Project Diversion**

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
7/31/2005	2005	2005	7	7.10		0.00	1.21	7.10	8.00	6.82	14.00	E	13.28	13.28	2.41	0.00	0.52	216.83	4.69	10.87	7.10
8/1/2005	2005	2005	8	7.10		0.00	0.42	5.54	5.45	4.66	14.00	E	13.84	13.84	2.41	0.00	0.52	216.83	4.69	11.42	5.54
8/2/2005	2005	2005	8	7.00		0.00	0.38	5.53	5.54	4.77	14.00	E	13.72	13.72	2.40	0.00	0.52	215.64	4.60	11.32	5.53
8/3/2005	2005	2005	8	6.80		0.00	0.40	4.70	4.87	4.23	12.00		11.60	11.60	2.37	0.00	0.51	213.21	4.43	9.23	4.70
8/4/2005	2005	2005	8	6.90		0.00	0.39	6.02	6.74	5.78	12.00		11.39	11.39	2.39	0.00	0.52	214.44	4.51	9.00	6.02
8/5/2005	2005	2005	8	6.70		0.00	0.00	7.03	8.11	6.87	12.00		11.30	11.30	2.36	0.00	0.51	211.97	4.34	8.94	7.03
8/6/2005	2005	2005	8	6.60		0.00	0.00	7.03	8.11	6.87	11.00		10.37	10.37	2.35	0.00	0.51	210.71	4.25	8.02	7.03
8/7/2005	2005	2005	8	6.70		0.00	1.35	7.03	8.11	6.87	11.00		10.37	10.37	2.36	0.00	0.51	211.97	4.34	8.01	7.03
8/8/2005	2005	2005	8	6.80		0.00	0.43	4.47	5.16	4.36	12.00		11.27	11.27	2.37	0.00	0.51	213.21	4.43	8.89	4.47
8/9/2005	2005	2005	8	7.10		0.00	0.27	6.32	7.66	6.60	13.00		11.83	11.83	2.41	0.00	0.52	216.83	4.69	9.42	6.32
8/10/2005	2005	2005	8	6.50		0.00	0.43	4.57	7.00	5.98	14.00		11.72	11.72	2.33	0.00	0.50	209.43	4.17	9.38	4.57
8/11/2005	2005	2005	8	6.80		0.00	0.38	4.73	6.23	5.38	14.00		12.42	12.42	2.37	0.00	0.51	213.21	4.43	10.05	4.73
8/12/2005	2005	2005	8	6.20		0.00	0.00	6.07	8.05	6.86	16.00		14.15	14.15	2.29	0.00	0.49	205.47	3.91	11.86	6.07
8/13/2005	2005	2005	8	6.40		0.00	0.00	6.07	8.05	6.86	13.00		11.36	11.36	2.32	0.00	0.50	208.13	4.08	9.04	6.07
8/14/2005	2005	2005	8	6.40		0.00	1.21	6.07	8.05	6.86	11.00	E	9.50	9.50	2.32	0.00	0.50	208.13	4.08	7.18	6.07
8/15/2005	2005	2005	8	6.90		0.00	0.39	3.94	5.59	4.65	11.00	E	9.57	9.57	2.39	0.00	0.52	214.44	4.51	7.19	3.94
8/16/2005	2005	2005	8	6.70		0.00	0.35	4.56	5.85	5.17	9.80	E	8.55	8.55	2.36	0.00	0.51	211.97	4.34	6.18	4.56
8/17/2005	2005	2005	8	6.70		0.00	0.40	5.00	6.78	5.63	11.00	E	9.65	9.65	2.36	0.00	0.51	211.97	4.34	7.29	5.00
8/18/2005	2005	2005	8	7.00		0.00	0.40	4.83	6.41	5.47	13.00	E	11.50	11.50	2.40	0.00	0.52	215.64	4.60	9.09	4.83
8/19/2005	2005	2005	8	6.90		0.00	0.00	6.23	7.01	5.84	13.00	E	12.45	12.45	2.39	0.00	0.52	214.44	4.51	10.06	6.23
8/20/2005	2005	2005	8	6.50		0.00	0.00	6.23	7.01	5.84	9.80	E	9.47	9.47	2.33	0.00	0.50	209.43	4.17	7.14	6.23
8/21/2005	2005	2005	8	6.50		0.00	1.17	6.23	7.01	5.84	7.50		7.33	7.33	2.33	0.00	0.50	209.43	4.17	5.00	5.00
8/22/2005	2005	2005	8	6.60		0.00	0.38	3.89	3.92	3.12	7.50		7.69	7.69	2.35	0.00	0.51	210.71	4.25	5.34	3.89
8/23/2005	2005	2005	8	7.00		0.00	0.35	5.56	6.48	5.58	9.10		8.44	8.44	2.40	0.00	0.52	215.64	4.60	6.04	5.56
8/24/2005	2005	2005	8	6.80		0.00	0.41	4.71	5.92	5.11	11.00		9.86	9.86	2.37	0.00	0.51	213.21	4.43	7.49	4.71
8/25/2005	2005	2005	8	6.70		0.00	0.40	4.64	5.88	5.02	11.00		9.87	9.87	2.36	0.00	0.51	211.97	4.34	7.51	4.64
8/26/2005	2005	2005	8	7.30		0.00	0.00	6.03	6.04	5.16	15.00		14.75	14.75	2.44	0.00	0.53	219.16	4.86	12.31	6.03
8/27/2005	2005	2005	8	5.20		0.00	0.00	6.03	6.04	5.16	12.00		11.96	11.96	2.12	0.00	0.46	190.74	3.08	9.84	6.03
8/28/2005	2005	2005	8	5.30		0.00	2.44	6.03	6.04	5.16	9.10		9.27	9.27	2.14	0.00	0.46	192.33	3.16	7.12	6.03
8/29/2005	2005	2005	8	5.40		0.00	0.00	4.71	5.12	4.42	5.70		5.57	5.57	2.16	0.00	0.47	193.90	3.24	3.41	3.41
8/30/2005	2005	2005	8	5.70		0.00	0.40	4.70	5.52	4.78	7.00		6.44	6.44	2.21	0.00	0.48	198.43	3.49	4.23	4.23
8/31/2005	2005	2005	8	5.70		0.00	0.37	4.16	5.07	4.45	8.80		7.92	7.92	2.21	0.00	0.48	198.43	3.49	5.71	4.16
9/1/2005	2005	2005	9	5.30		0.00	0.43	4.71	5.89	5.04	9.70		8.71	8.71	2.14	0.00	0.46	192.33	3.16	6.57	4.71
9/2/2005	2005	2005	9	5.40		0.00	0.00	6.29	4.87	3.74	9.20		10.92	10.92	2.16	0.00	0.47	193.90	3.24	8.76	6.29
9/3/2005	2005	2005	9	6.00		0.00	0.00	6.29	4.87	3.74	9.10		10.83	10.83	2.26	0.00	0.49	202.73	3.74	8.57	6.29
9/4/2005	2005	2005	9	4.80		0.00	0.00	6.29	4.87	3.74	6.20		8.13	8.13	2.05	0.00	0.44	184.03	2.75	6.08	6.08
9/5/2005	2005	2005	9	4.80		0.00	1.61	6.29	4.87	3.74	5.20		7.20	7.20	2.05	0.00	0.44	184.03	2.75	5.15	5.15
9/6/2005	2005	2005	9	5.20		0.00	0.45	4.16	5.50	3.96	5.80		5.58	5.58	2.12	0.00	0.46	190.74	3.08	3.45	3.45
9/7/2005	2005	2005	9	5.00		0.00	0.44	3.85	5.63	3.98	8.10		7.41	7.41	2.09	0.00	0.45	187.45	2.91	5.32	3.85
9/8/2005	2005	2005	9	4.10		(0.05)	0.36	5.39	6.61	4.88	9.10		8.93	8.93	1.90	(0.02)	0.41	168.66	2.22	7.05	5.39
9/9/2005	2005	2005	9	4.30		0.00	0.00	6.29	5.89	4.21	8.80		10.11	10.11	1.95	0.00	0.42	174.81	2.35	8.17	6.29
9/10/2005	2005	2005	9	4.70		0.00	0.00	6.29	5.89	4.21	8.80		10.11	10.11	2.03	0.00	0.44	182.26	2.67	8.08	6.29
9/11/2005	2005	2005	9	4.90		0.00	1.08	6.29	5.89	4.21	7.10		8.53	8.53	2.07	0.00	0.45	185.76	2.83	6.46	6.29
9/12/2005	2005	2005	9	5.30		0.00	0.48	5.51	3.88	2.61	5.90		8.19	8.19	2.14	0.00	0.46	192.33	3.16	6.04	5.51
9/13/2005	2005	2005	9	5.70		0.00	0.39	4.47	3.69	2.49	5.60		7.05	7.05	2.21	0.00	0.48	198.43	3.49	4.84	4.47
9/14/2005	2005	2005	9	6.20		0.00	0.43	8.09	4.69	2.87	5.60		10.06	10.06	2.29	0.00	0.49	205.47	3.91	7.77	7.77
9/15/2005	2005	2005	9	6.10		0.00	0.42	5.66	4.65	2.63	4.60		7.09	7.09	2.27	0.00	0.49	204.11	3.83	4.82	4.82
9/16/2005	2005	2005	9	6.00		0.00	0.00	5.95	5.88	0.00	4.50		9.72	9.72	2.26	0.00	0.49	202.73	3.74	7.46	5.95
9/17/2005	2005	2005	9	5.80		0.00	0.00	5.95	5.88	0.00	3.30		8.60	8.60	2.23	0.00	0.48	199.89	3.57	6.38	5.95
9/18/2005	2005	2005	9	6.40		0.00	1.28	5.95	5.88	0.00	2.50		7.86	7.86	2.32	0.00	0.50	208.13	4.08	5.54	5.54
9/19/2005	2005	2005	9	6.30		0.00	0.41	0.00	4.45	0.00	11.00		10.23	10.23	2.30	0.00	0.50	206.81	4.00	7.93	0.00
9/20/2005	2005	2005	9	26.00		0.00	0.35	0.00	4.45	0.00	60.00		55.80		0.00	0.00	0.00	0.00	26.00	55.80	0.00
9/21/2005	2005	2005	9	6.20		0.00	0.41	0.00	4.45	0.00	24.00		22.32		0.00	0.00	0.00	0.00	6.20	22.32	0.00
9/22/2005	2005	2005	9	6.10		0.00	0.42	0.00	5.20	0.00	14.00		13.02	13.02	2.27	0.00	0.49	204.11	3.83	10.75	0.00
9/23/2005	2005	2005	9	6.00		0.00	0.00	0.00	5.20	0.00	12.00		11.16	11.16	2.26	0.00	0.49	202.73	3.74	8.90	0.00
9/24/2005	2005	2005	9	4.60		0.00	0.00	0.00	5.20	0.00	11.00		10.23	10.23	2.01	0.00	0.43	180.46	2.59	8.22	0.00
9/25/2005	2005	2005	9	4.40		0.00	1.28	0.00	5.20	0.00	9.80		9.11	9.11	1.97	0.00	0.43	176.74	2.43	7.15	0.00
9/26/2005	2005	2005	9	5.00		0.00	0.40	0.00	5.20	0.00	9.80		9.11	9.11	2.09	0.00	0.45	187.45	2.91	7.03	0.00
9/27/2005	2005	2005	9	5.50		0.00	0.39	0.00	5.20	0.00	9.70		9.02	9.02	2.18	0.00	0.47	195.44	3.32	6.84	0.00
9/28/2005	2005	2005	9	5.30		0.00	0.38	0.00	5.20	0.00	9.90		9.21	9.21	2.14	0.00	0.46	192.33	3.16	7.07	0.00
9/29/2005	2005	2005	9	5.80		0.00	0.42	0.00	4.12	0.00	9.50		8.84	8.84	2.23	0.00	0.48	199.89	3.57	6.61	0.00
9/30/2005	2005	2005	9	6.20		0.00	0.00	0.00	4.12	0.00	10.00		9.30	9.30	2.29	0.00	0.49	205.47	3.91	7.01	0.00
10/1/2005	2005	2006	10	6.40		0.00	0.00	0.00	4.12	0.00	12.00		11.16	11.16	2.32	0.00	0.50	208.13	4.08	8.84	0.00
10/2/2005	2005	2006	10	6.40		0.00	1.19	0.00	4.12	0.00	13.00		12.09	12.09	2.32	0.00	0.50	208.13	4.08	9.77	0.00
10/3/2005	2005	2006	10	6.60		0.00	0.39	0.00	4.12	0.00	14.00		13.02	13.02	2.35	0.00	0.51	210.71	4.25	10.67	0.00
10/4/2005	2005	2006	10	6.20		0.00	0.39	0.00	4.12	0.00	15.00		13.95	13.95	2.29	0.00	0.49	205.47	3.91	11.66	0.00
10/5/2005	2005	2006	10	6.20		0.00	0.43	0.00	4.12	0.00	15.00		13.95	13.95	2.29	0.00	0.49	205.47	3.91	11.66	0.00
10/6/2005	2005	2006	10	6.10		0.00	0.41	0.00	2.83	0.00	14.00		13.02	13.02	2.27	0.00	0.49	204.11	3.83	10.75	0.00
10/7/2005	2005	2006	10	6.00		0.00	0.00	0.00	2.83	0.00	20.00		18.60	18.60	2.26	0.00	0.49	202.73	3.74	16.34	0.00
10/8/2005	2005	2006	10	5.90		0.00	0.00	0.00	2.83	0.00	17.00		15.81	15.81	2.24	0.00	0.48	201.32	3.66	13.57	0.00
10/9/2005	2005	2006	10	5.70		0.00	1.26	0.00	2.83	0.00	16.00		14.88	14.88	2.21	0.00	0.48	198.43	3.49	12.67	0.00

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	Existing Condition / San Joaquin Marsh Operations: SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	With Project Diversion: Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb / 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm / 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
10/10/2005	2005	2006	10	5.80		0.00	0.41	0.00	2.83	0.00	16.00		14.88	14.88	2.23	0.00	0.48	199.89	3.57	12.65	0.00
10/11/2005	2005	2006	10	5.80		0.00	0.31	0.00	2.83	0.00	17.00		15.81	15.81	2.23	0.00	0.48	199.89	3.57	13.58	0.00
10/12/2005	2005	2006	10	5.70		0.00	0.43	0.00	2.83	0.00	16.00		14.88	14.88	2.21	0.00	0.48	198.43	3.49	12.67	0.00
10/13/2005	2005	2006	10	5.40		0.00	0.43	0.00	2.91	0.00	17.00		15.81	15.81	2.16	0.00	0.47	193.90	3.24	13.65	0.00
10/14/2005	2005	2006	10	5.00		0.00	0.00	0.00	2.91	0.00	17.00		15.81	15.81	2.09	0.00	0.45	187.45	2.91	13.72	0.00
10/15/2005	2005	2006	10	4.70		0.00	0.00	0.00	2.91	0.00	16.00		14.88	14.88	2.03	0.00	0.44	182.26	2.67	12.85	0.00
10/16/2005	2005	2006	10	4.50		0.00	1.14	0.00	2.91	0.00	19.00		17.67	17.67	1.99	0.00	0.43	178.62	2.51	15.68	0.00
10/17/2005	2005	2006	10	32.00		0.00	0.40	0.00	2.91	0.00	119.00		110.67		0.00	0.00	0.00	0.00	32.00	110.67	0.00
10/18/2005	2005	2006	10	19.00		0.00	0.36	0.00	2.91	0.00	91.00		84.63		0.00	0.00	0.00	0.00	19.00	84.63	0.00
10/19/2005	2005	2006	10	5.10		0.00	0.34	0.00	2.91	0.00	22.00		20.46		0.00	0.00	0.00	0.00	5.10	20.46	0.00
10/20/2005	2005	2006	10	4.60		0.00	0.40	0.00	1.69	0.00	16.00		14.88	14.88	2.01	0.00	0.43	180.46	2.59	12.87	0.00
10/21/2005	2005	2006	10	4.60		0.00	0.00	0.00	1.69	0.00	15.00		13.95	13.95	2.01	0.00	0.43	180.46	2.59	11.94	0.00
10/22/2005	2005	2006	10	4.90		0.00	0.00	0.00	1.69	0.00	13.00		12.09	12.09	2.07	0.00	0.45	185.76	2.83	10.02	0.00
10/23/2005	2005	2006	10	5.40		0.00	0.00	0.00	1.69	0.00	14.00		13.02	13.02	2.16	0.00	0.47	193.90	3.24	10.86	0.00
10/24/2005	2005	2006	10	5.90		0.00	0.44	0.00	1.69	0.00	13.00		12.09	12.09	2.24	0.00	0.48	201.32	3.66	9.85	0.00
10/25/2005	2005	2006	10	6.40		0.00	0.00	0.00	1.69	0.00	15.00		13.95	13.95	2.32	0.00	0.50	208.13	4.08	11.63	0.00
10/26/2005	2005	2006	10	6.10		0.00	0.37	0.00	1.69	0.00	13.00		12.09	12.09	2.27	0.00	0.49	204.11	3.83	9.82	0.00
10/27/2005	2005	2006	10	6.30		0.00	0.37	0.00	1.55	0.00	11.00		10.23	10.23	2.30	0.00	0.50	206.81	4.00	7.93	0.00
10/28/2005	2005	2006	10	6.70		0.00	0.00	0.00	1.55	0.00	11.00		10.23	10.23	2.36	0.00	0.51	211.97	4.34	7.87	0.00
10/29/2005	2005	2006	10	6.70		0.00	0.00	0.00	1.55	0.00	12.00		11.16	11.16	2.36	0.00	0.51	211.97	4.34	8.80	0.00
10/30/2005	2005	2006	10	6.60		0.00	1.16	0.00	1.55	0.00	11.00		10.23	10.23	2.35	0.00	0.51	210.71	4.25	7.88	0.00
10/31/2005	2005	2006	10	6.30		0.00	0.38	0.00	1.55	0.00	12.00		11.16	11.16	2.30	0.00	0.50	206.81	4.00	8.86	0.00
11/1/2005	2005	2006	11	6.10		0.00	0.34	0.00	1.55	0.00	12.00		11.16	11.16	2.27	0.00	0.49	204.11	3.83	8.89	0.00
11/2/2005	2005	2006	11	6.50		0.00	0.40	0.00	1.55	0.00	13.00		12.09	12.09	2.33	0.00	0.50	209.43	4.17	9.76	0.00
11/3/2005	2005	2006	11	6.60		0.00	0.39	0.00	0.88	0.00	12.00		11.16	11.16	2.35	0.00	0.51	210.71	4.25	8.81	0.00
11/4/2005	2005	2006	11	6.10		0.00	0.00	0.00	0.88	0.00	12.00		11.16	11.16	2.27	0.00	0.49	204.11	3.83	8.89	0.00
11/5/2005	2005	2006	11	5.90		0.00	0.00	0.00	0.88	0.00	11.00		10.23	10.23	2.24	0.00	0.48	201.32	3.66	7.99	0.00
11/6/2005	2005	2006	11	6.10		0.00	1.20	0.00	0.88	0.00	12.00		11.16	11.16	2.27	0.00	0.49	204.11	3.83	8.89	0.00
11/7/2005	2005	2006	11	5.90		0.00	0.40	0.00	0.88	0.00	11.00		10.23	10.23	2.24	0.00	0.48	201.32	3.66	7.99	0.00
11/8/2005	2005	2006	11	5.70		0.00	0.36	0.00	0.88	0.00	11.00		10.23	10.23	2.21	0.00	0.48	198.43	3.49	8.02	0.00
11/9/2005	2005	2006	11	5.50		0.00	0.38	0.00	0.88	0.00	10.00		9.30	9.30	2.18	0.00	0.47	195.44	3.32	7.12	0.00
11/10/2005	2005	2006	11	8.10		0.00	0.39	0.00	0.65	0.00	31.00		28.83		0.00	0.00	0.00	0.00	8.10	28.83	0.00
11/11/2005	2005	2006	11	7.10		0.00	0.00	0.00	0.65	0.00	22.00		20.46		0.00	0.00	0.00	0.00	7.10	20.46	0.00
11/12/2005	2005	2006	11	4.60		0.00	0.00	0.00	0.65	0.00	13.00		12.09	12.09	2.01	0.00	0.43	180.46	2.59	10.08	0.00
11/13/2005	2005	2006	11	4.50		0.00	1.22	0.00	0.65	0.00	9.70		9.02	9.02	1.99	0.00	0.43	178.62	2.51	7.03	0.00
11/14/2005	2005	2006	11	4.90		0.00	0.41	0.00	0.65	0.00	9.30		8.65	8.65	2.07	0.00	0.45	185.76	2.83	6.58	0.00
11/15/2005	2005	2006	11	4.80		0.00	0.36	0.00	0.65	0.00	10.00		9.30	9.30	2.05	0.00	0.44	184.03	2.75	7.25	0.00
11/16/2005	2005	2006	11	4.80		0.00	0.42	0.00	0.65	0.00	10.00		9.30	9.30	2.05	0.00	0.44	184.03	2.75	7.25	0.00
11/17/2005	2005	2006	11	5.10		0.00	0.42	0.00	1.07	0.00	12.00		11.16	11.16	2.11	0.00	0.46	189.11	2.99	9.05	0.00
11/18/2005	2005	2006	11	4.70		0.00	0.00	0.00	1.07	0.00	10.00		9.30	9.30	2.03	0.00	0.44	182.26	2.67	7.27	0.00
11/19/2005	2005	2006	11	4.80		0.00	0.00	0.00	1.07	0.00	9.00		8.37	8.37	2.05	0.00	0.44	184.03	2.75	6.32	0.00
11/20/2005	2005	2006	11	4.60		0.00	1.25	0.00	1.07	0.00	9.30		8.65	8.65	2.01	0.00	0.43	180.46	2.59	6.64	0.00
11/21/2005	2005	2006	11	5.20		0.00	0.42	0.00	1.07	0.00	9.80		9.11	9.11	2.12	0.00	0.46	190.74	3.08	6.99	0.00
11/22/2005	2005	2006	11	5.10		0.00	0.38	0.00	1.07	0.00	10.00		9.30	9.30	2.11	0.00	0.46	189.11	2.99	7.19	0.00
11/23/2005	2005	2006	11	6.00		0.00	0.00	0.00	0.06	0.00	11.00		10.23	10.23	2.26	0.00	0.49	202.73	3.74	7.97	0.00
11/24/2005	2005	2006	11	6.30		0.00	0.00	0.00	0.06	0.00	11.00		10.23	10.23	2.30	0.00	0.50	206.81	4.00	7.93	0.00
11/25/2005	2005	2006	11	7.10		0.00	0.00	0.00	0.06	0.00	11.00		10.23	10.23	2.41	0.00	0.52	216.83	4.69	7.82	0.00
11/26/2005	2005	2006	11	7.10		0.00	0.00	0.00	0.06	0.00	12.00		11.16	11.16	2.41	0.00	0.52	216.83	4.69	8.75	0.00
11/27/2005	2005	2006	11	7.10		0.00	2.11	0.00	0.06	0.00	9.80		9.11	9.11	2.41	0.00	0.52	216.83	4.69	6.70	0.00
11/28/2005	2005	2006	11	8.20		0.00	0.42	0.00	0.06	0.00	10.00		9.30	9.30	2.55	0.00	0.55	228.90	5.65	6.75	0.00
11/29/2005	2005	2006	11	8.80		0.00	0.31	0.00	0.06	0.00	12.00		11.16	11.16	2.60	0.00	0.56	233.51	6.20	8.56	0.00
11/30/2005	2005	2006	11	8.70		0.00	0.45	0.00	0.06	0.00	13.00		12.09	12.09	2.60	0.00	0.56	233.51	6.10	9.49	0.00
12/1/2005	2005	2006	12	8.60		0.00	0.43	0.00	0.00	0.00	11.00		10.23	10.23	2.59	0.00	0.56	232.89	6.01	7.64	0.00
12/2/2005	2005	2006	12	6.80		0.00	0.00	0.00	0.00	0.00	2.90		2.70	2.70	2.37	0.00	0.51	213.21	4.43	0.32	0.00
12/3/2005	2005	2006	12	6.90	E	0.00	0.00	0.00	0.00	0.00	17.00		15.81	15.81	2.39	0.00	0.52	214.44	4.51	13.42	0.00
12/4/2005	2005	2006	12	5.00	E	0.00	1.28	0.00	0.00	0.00	12.00		11.16	11.16	2.09	0.00	0.45	187.45	2.91	9.07	0.00
12/5/2005	2005	2006	12	4.90	E	0.00	0.41	0.00	0.00	0.00	6.30		5.86	5.86	2.07	0.00	0.45	185.76	2.83	3.79	0.00
12/6/2005	2005	2006	12	5.00	E	0.00	0.39	0.00	0.00	0.00	3.70		3.44	3.44	2.09	0.00	0.45	187.45	2.91	1.35	0.00
12/7/2005	2005	2006	12	5.10	E	0.00	0.43	0.00	0.00	0.00	12.00		11.16	11.16	2.11	0.00	0.46	189.11	2.99	9.05	0.00
12/8/2005	2005	2006	12	5.60	E	0.00	0.43	5.63	9.98	7.88	15.00		11.86	11.86	2.19	0.00	0.47	196.95	3.41	9.66	5.63
12/9/2005	2005	2006	12	8.40	E	0.00	0.00	7.32	9.46	7.25	25.00		23.31		0.00	0.00	0.00	0.00	8.40	23.31	7.32
12/10/2005	2005	2006	12	5.10		0.00	0.00	7.32	9.46	7.25	15.00		14.01	14.01	2.11	0.00	0.46	189.11	2.99	11.90	7.32
12/11/2005	2005	2006	12	4.80		0.00	1.32	7.32	9.46	7.25	11.00		10.29	10.29	2.05	0.00	0.44	184.03	2.75	8.24	7.32
12/12/2005	2005	2006	12	4.70		0.00	0.42	8.38	8.30	6.35	11.00		12.11	12.11	2.03	0.00	0.44	182.26	2.67	10.08	8.38
12/13/2005	2005	2006	12	4.70		0.00	0.43	10.35	2.70	0.00	9.10		18.09	18.09	2.03	0.00	0.44	182.26	2.67	16.06	10.35
12/14/2005	2005	2006	12	5.00		0.00	0.45	6.17	2.26	0.00	3.00		8.52	8.52	2.09	0.00	0.45	187.45	2.91	6.44	6.17
12/15/2005	2005	2006	12	5.60		0.00	0.45	9.43	3.28	0.00	2.20		10.82	10.82	2.19	0.00	0.47	196.95	3.41	8.63	8.63
12/16/2005	2005	2006	12	5.40		0.00	0.00	8.00	2.82	0.00	1.30		8.65	8.65	2.16	0.00	0.47	193.90	3.24	6.49	6.49
12/17/2005	2005	2006	12	5.10		0.00	0.00	8.00	2.82	0.00	0.61		8.01	8.01	2.11	0.00	0.46	189.11	2.99	5.91	5.91
12/18/2005	2005	2006	12	4.60		0.00	1.36	8.00	2.82	0.00	0.58		8.00	8.00	2.01	0.00	0.43	180.46	2.59	6.00	6.00
12/19/2005	2005	2006	12	4.40		0.00	0.45	5.94	2.49	1.60	0.59		5.94	5.94	1.97	0.00	0.43	176.74	2.43	3.97	3.97

									Existing Condition									***With Project Diversion***			
													0.93	*20.00 cfs*		*PROJ. Div*	*39.7 ppb*	*16.5 ppm*			
						Est. Loss,			***San Joaquin Marsh Operations***				***Adjusted*	***Adjusted*		*Est. Loss,*	*39.7 ppb*	*16.5 ppm*		***Adjusted*	*using SDC at Can*
DATE	*Year*	*Water Year*	*Month*	*Peters Canyon Wash (PCW) at Barranca (cfs)*	*QC*	*Peters Canyon Wash (PCW) at Barranca (cfs)*	*MWRP Dewatering Discharge (cfs)*	*SJ Marsh Inflow (from SDC) (cfs)*	*SJ Marsh Outflow (#002A) (cfs)*	*SJ Marsh Outflow (to SDC, #002B) (cfs)*	*San Diego Cr (SDC) at Campus (cfs)*	*QC*	*San Diego Cr (SDC) at Campus (cfs)*	*San Diego Cr (SDC) at Campus, Base (cfs)*	*Est. PROJECT Diversion (cfs)*	*Peters Canyon Wash (PCW) at Barranca (cfs)*	*Daily Se Load, Est. PROJ. Diversion (lbs)*	*Daily NO3 Load, Est. PROJ. Diversion (lbs)*	*Peters Canyon Wash (PCW) at Barranca (cfs)*	*San Diego Cr (SDC) at Campus (cfs)*	*SJ Marsh Inflow (from SDC) (cfs)*
DATE	*Year*	*WY*	*Month*	*PCW Bar*	*PCW*	*PCW Bar (Loss)*	*MWRP Dewtr*	*SJM In*	*SJM Out (2A)*	*SJM Out (SDC)*	*SDC Campus*	*SDC*	*SDC Campus ***	*SDC Campus, Ba*	*Project - Diversio*	*Project - PCW Ba*	*Project - Diversio*	*Project - Diversio*	*Project - PCW Ba*	*Project - SDC Ca*	*Project - SJM In*
12/20/2005	2005	2006	12	4.70		0.00	0.41	5.94	2.49	1.60	1.00		5.94	5.94	2.03	0.00	0.44	182.26	2.67	3.91	3.91
12/21/2005	2005	2006	12	4.80		0.00	0.48	6.31	2.93	0.47	2.10		7.38	7.38	2.05	0.00	0.44	184.03	2.75	5.33	5.33
12/22/2005	2005	2006	12	4.90		0.00	0.00	8.18	3.51	0.00	2.10		9.56	9.56	2.07	0.00	0.45	185.76	2.83	7.49	7.49
12/23/2005	2005	2006	12	4.60		0.00	0.00	8.18	3.51	0.00	2.00		9.47	9.47	2.01	0.00	0.43	180.46	2.59	7.46	7.46
12/24/2005	2005	2006	12	4.30		0.00	0.00	8.18	3.51	0.00	1.90		9.37	9.37	1.95	0.00	0.42	174.81	2.35	7.43	7.43
12/25/2005	2005	2006	12	4.50		0.00	0.00	8.18	3.51	0.00	1.60		9.10	9.10	1.99	0.00	0.43	178.62	2.51	7.11	7.11
12/26/2005	2005	2006	12	5.00		0.00	2.42	8.18	3.51	0.00	1.50		9.00	9.00	2.09	0.00	0.45	187.45	2.91	6.92	6.92
12/27/2005	2005	2006	12	5.10		0.00	0.47	7.57	3.27	0.00	1.70		8.62	8.62	2.11	0.00	0.46	189.11	2.99	6.51	6.51
12/28/2005	2005	2006	12	5.20		0.00	0.47	7.82	3.46	0.00	1.70		8.85	8.85	2.12	0.00	0.46	190.74	3.08	6.73	6.73
12/29/2005	2005	2006	12	4.60		0.00	0.00	4.01	3.35	0.00	1.60		5.22	5.22	2.01	0.00	0.43	180.46	2.59	3.21	3.21
12/30/2005	2005	2006	12	4.40		0.00	0.00	4.01	3.35	0.00	1.50		5.12	5.12	1.97	0.00	0.43	176.74	2.43	3.16	3.16
12/31/2005	2005	2006	12	86.00		0.00	0.00	4.01	3.35	0.00	280.00		264.13		0.00	0.00	0.00	0.00	86.00	264.13	4.01
1/1/2006	2006	2006	1	12.00		0.00	0.00	4.01	3.35	0.00	62.00		61.39		0.00	0.00	0.00	0.00	12.00	61.39	4.01
1/2/2006	2006	2006	1	150.00		0.00	2.24	4.01	3.35	0.00	677.00		633.34		0.00	0.00	0.00	0.00	150.00	633.34	4.01
1/3/2006	2006	2006	1	12.00		0.00	0.36	5.97	2.56	0.00	68.00		68.79		0.00	0.00	0.00	0.00	12.00	68.79	5.97
1/4/2006	2006	2006	1	7.70		0.00	0.49	7.94	3.74	0.73	20.00		25.30		0.00	0.00	0.00	0.00	7.70	25.30	7.94
1/5/2006	2006	2006	1	4.70		0.00	0.52	6.57	9.74	7.26	14.00		12.38	12.38	2.03	0.00	0.44	182.26	2.67	10.35	6.57
1/6/2006	2006	2006	1	4.30		0.00	0.00	1.88	4.00	2.06	15.00		13.78	13.78	1.95	0.00	0.42	174.81	2.35	11.84	1.88
1/7/2006	2006	2006	1	4.60		0.00	0.00	0.00	4.00	0.00	16.00		14.88	14.88	2.01	0.00	0.43	180.46	2.59	12.87	0.00
1/8/2006	2006	2006	1	4.40		0.00	1.54	0.00	4.00	0.00	15.00		13.95	13.95	1.97	0.00	0.43	176.74	2.43	11.98	0.00
1/9/2006	2006	2006	1	4.10		(0.05)	0.49	6.81	8.88	6.51	16.00		15.16	15.16	1.90	(0.02)	0.41	168.66	2.22	13.28	6.81
1/10/2006	2006	2006	1	4.00		(0.09)	0.42	6.73	8.87	6.55	12.00		11.33	11.33	1.88	(0.04)	0.40	165.12	2.16	9.49	6.73
1/11/2006	2006	2006	1	4.00		(0.09)	0.40	5.59	7.42	5.55	11.00		10.26	10.26	1.88	(0.04)	0.40	165.12	2.16	8.43	5.59
1/12/2006	2006	2006	1	4.30		0.00	0.48	8.35	7.46	4.99	10.00		12.42	12.42	1.95	0.00	0.42	174.81	2.35	10.48	8.35
1/13/2006	2006	2006	1	5.30		0.00	0.00	6.82	2.24	0.31	6.20		11.82	11.82	2.14	0.00	0.46	192.33	3.16	9.68	6.82
1/14/2006	2006	2006	1	5.30		0.00	0.00	6.82	2.24	0.31	3.30		9.12	9.12	2.14	0.00	0.46	192.33	3.16	6.98	6.82
1/15/2006	2006	2006	1	6.30		0.00	1.74	6.82	2.24	0.31	5.90		11.54	11.54	2.30	0.00	0.50	206.81	4.00	9.24	6.82
1/16/2006	2006	2006	1	5.00		0.00	0.54	5.28	1.70	1.56	3.50		6.71	6.71	2.09	0.00	0.45	187.45	2.91	4.62	4.62
1/17/2006	2006	2006	1	5.00		0.00	0.50	7.86	3.19	0.00	3.20		10.29	10.29	2.09	0.00	0.45	187.45	2.91	8.20	7.86
1/18/2006	2006	2006	1	5.00		0.00	0.53	7.55	3.01	0.00	1.80		8.69	8.69	2.09	0.00	0.45	187.45	2.91	6.61	6.61
1/19/2006	2006	2006	1	5.00		0.00	0.56	8.28	4.75	1.14	1.80		8.31	8.31	2.09	0.00	0.45	187.45	2.91	6.23	6.23
1/20/2006	2006	2006	1	5.10		0.00	0.00	6.84	7.33	5.09	5.50		6.84	6.84	2.11	0.00	0.46	189.11	2.99	4.73	4.73
1/21/2006	2006	2006	1	5.20		0.00	0.00	6.84	7.33	5.09	11.00		11.86	11.86	2.12	0.00	0.46	190.74	3.08	9.74	6.84
1/22/2006	2006	2006	1	5.10		0.00	1.68	6.84	7.33	5.09	13.00		13.72	13.72	2.11	0.00	0.46	189.11	2.99	11.61	6.84
1/23/2006	2006	2006	1	4.30		0.00	0.54	6.92	3.10	0.00	6.50		12.48	12.48	1.95	0.00	0.42	174.81	2.35	10.53	6.92
1/24/2006	2006	2006	1	4.30		0.00	0.52	6.26	2.50	0.00	2.00		7.68	7.68	1.95	0.00	0.42	174.81	2.35	5.74	5.74
1/25/2006	2006	2006	1	5.10		0.00	0.49	7.63	3.06	0.00	1.70		8.68	8.68	2.11	0.00	0.46	189.11	2.99	6.57	6.57
1/26/2006	2006	2006	1	6.10		0.00	0.57	8.47	3.45	0.00	2.20		9.92	9.92	2.27	0.00	0.49	204.11	3.83	7.65	7.65
1/27/2006	2006	2006	1	6.50		0.00	0.00	8.21	3.27	0.00	3.80		11.17	11.17	2.33	0.00	0.50	209.43	4.17	8.84	8.21
1/28/2006	2006	2006	1	5.40		0.00	0.00	8.21	3.27	0.00	3.00		10.43	10.43	2.16	0.00	0.47	193.90	3.24	8.27	8.21
1/29/2006	2006	2006	1	5.30		0.00	1.78	8.21	3.27	0.00	1.70		9.22	9.22	2.14	0.00	0.46	192.33	3.16	7.07	7.07
1/30/2006	2006	2006	1	5.90		0.00	0.56	6.03	2.46	0.00	1.60		7.10	7.10	2.24	0.00	0.48	201.32	3.66	4.86	4.86
1/31/2006	2006	2006	1	5.50		0.00	0.55	9.06	13.12	10.34	6.20		9.06	9.06	2.18	0.00	0.47	195.44	3.32	6.89	6.89
2/1/2006	2006	2006	2	5.30		0.00	0.58	6.28	9.09	7.53	13.00		10.93	10.93	2.14	0.00	0.46	192.33	3.16	8.79	6.28
2/2/2006	2006	2006	2	4.80		0.00	0.61	7.49	11.99	9.73	11.00		8.15	8.15	2.05	0.00	0.44	184.03	2.75	6.10	6.10
2/3/2006	2006	2006	2	4.70		0.00	0.00	7.73	12.17	9.94	11.00		8.17	8.17	2.03	0.00	0.44	182.26	2.67	6.15	6.15
2/4/2006	2006	2006	2	4.90		0.00	0.00	7.73	12.17	9.94	11.00		8.17	8.17	2.07	0.00	0.45	185.76	2.83	6.11	6.11
2/5/2006	2006	2006	2	4.90		0.00	1.80	7.73	12.17	9.94	11.00		8.17	8.17	2.07	0.00	0.45	185.76	2.83	6.11	6.11
2/6/2006	2006	2006	2	8.20		0.00	0.60	6.30	10.26	8.28	20.00		16.76	16.76	2.55	0.00	0.55	228.90	5.65	14.21	6.30
2/7/2006	2006	2006	2	5.10		0.00	0.53	8.06	10.06	7.84	12.00		11.37	11.37	2.11	0.00	0.46	189.11	2.99	9.26	8.06
2/8/2006	2006	2006	2	5.00		0.00	0.63	7.75	10.99	9.08	9.70		7.79	7.79	2.09	0.00	0.45	187.45	2.91	5.70	5.70
2/9/2006	2006	2006	2	5.00		0.00	0.64	6.81	11.13	8.95	12.00		9.17	9.17	2.09	0.00	0.45	187.45	2.91	7.09	6.81
2/10/2006	2006	2006	2	5.20		0.00	0.00	6.50	11.80	9.89	12.00		8.01	8.01	2.12	0.00	0.46	190.74	3.08	5.88	5.88
2/11/2006	2006	2006	2	4.70		0.00	0.00	6.50	11.80	9.89	14.00		9.87	9.87	2.03	0.00	0.44	182.26	2.67	7.84	6.50
2/12/2006	2006	2006	2	4.30		0.00	1.93	6.50	11.80	9.89	14.00		9.87	9.87	1.95	0.00	0.42	174.81	2.35	7.92	6.50
2/13/2006	2006	2006	2	4.30		0.00	0.64	6.64	12.12	9.89	15.00		10.93	10.93	1.95	0.00	0.42	174.81	2.35	8.98	6.64
2/14/2006	2006	2006	2	5.00		0.00	0.47	5.94	10.87	8.89	15.00		11.21	11.21	2.09	0.00	0.45	187.45	2.91	9.12	5.94
2/15/2006	2006	2006	2	4.70		0.00	0.70	5.76	9.36	7.72	16.00		13.06	13.06	2.03	0.00	0.44	182.26	2.67	11.03	5.76
2/16/2006	2006	2006	2	4.30		0.00	0.65	6.30	10.19	8.35	14.00		11.11	11.11	1.95	0.00	0.42	174.81	2.35	9.17	6.30
2/17/2006	2006	2006	2	7.00		0.00	0.00	6.63	9.79	7.89	14.00		11.85	11.85	2.40	0.00	0.52	215.64	4.60	9.45	6.63
2/18/2006	2006	2006	2	9.80		0.00	0.00	6.63	9.79	7.89	37.00		33.24		0.00	0.00	0.00	0.00	9.80	33.24	6.63
2/19/2006	2006	2006	2	17.00		0.00	0.00	6.63	9.79	7.89	56.00		50.91		0.00	0.00	0.00	0.00	17.00	50.91	6.63
2/20/2006	2006	2006	2	6.00		0.00	2.57	6.63	9.79	7.89	19.00		16.50	16.50	2.26	0.00	0.49	202.73	3.74	14.24	6.63
2/21/2006	2006	2006	2	5.30		0.00	0.60	6.60	9.52	7.68	14.00		12.01	12.01	2.14	0.00	0.46	192.33	3.16	9.87	6.60
2/22/2006	2006	2006	2	5.40		0.00	0.64	6.07	8.26	6.66	12.00		10.61	10.61	2.16	0.00	0.47	193.90	3.24	8.46	6.07
2/23/2006	2006	2006	2	5.50		0.00	0.68	6.20	8.28	6.72	11.00		9.74	9.74	2.18	0.00	0.47	195.44	3.32	7.57	6.20
2/24/2006	2006	2006	2	5.30		0.00	0.00	6.84	9.26	7.41	11.00		9.70	9.70	2.14	0.00	0.46	192.33	3.16	7.55	6.84
2/25/2006	2006	2006	2	5.00		0.00	0.00	6.84	9.26	7.41	10.00		8.77	8.77	2.09	0.00	0.45	187.45	2.91	6.68	6.68
2/26/2006	2006	2006	2	5.10		0.00	1.93	6.84	9.26	7.41	9.70		8.49	8.49	2.11	0.00	0.46	189.11	2.99	6.38	6.38
2/27/2006	2006	2006	2	107.00		0.00	0.67	1.40	9.02	7.23	214.00		193.60		0.00	0.00	0.00	0.00	107.00	193.60	1.40
2/28/2006	2006	2006	2	189.00		0.00	0.58	5.00	9.93	8.02	666.00		616.57		0.00	0.00	0.00	0.00	189.00	616.57	5.00

									Existing Condition								***With Project Diversion***				
													0.93	*20.00 cfs*		*PROJ. Div*	*39.7 ppb*	*16.5 ppm*			
						Est. Loss,		***San Joaquin Marsh Operations***					***Adjusted*	***Adjusted*		*Est. Loss,*	*39.7 ppb*	*16.5 ppm*		***Adjusted*	*using SDC at Can*
DATE	*Year*	*Water Year*	*Month*	*Peters Canyon Wash (PCW) at Barranca (cfs)*	*QC*	*Peters Canyon Wash (PCW) at Barranca (cfs)*	*MWRP Dewatering Discharge (cfs)*	*SJ Marsh Inflow (from SDC) (cfs)*	*SJ Marsh Outflow (#002A) (cfs)*	*SJ Marsh Outflow (to SDC, #002B) (cfs)*	*San Diego Cr (SDC) at Campus (cfs)*	*QC*	*San Diego Cr (SDC) at Campus (cfs)*	*San Diego Cr (SDC) at Campus, Base (cfs)*	*Est. PROJECT Diversion (cfs)*	*Peters Canyon Wash (PCW) at Barranca (cfs)*	*Daily Se Load, Est. PROJ. Diversion (lbs)*	*Daily NO3 Load, Est. PROJ. Diversion (lbs)*	*Peters Canyon Wash (PCW) at Barranca (cfs)*	*San Diego Cr (SDC) at Campus (cfs)*	*SJ Marsh Inflow (from SDC) (cfs)*
DATE	***Year***	***WY***	***Month***	***PCW Bar***	***PCW***	***PCW Bar (Loss)***	***MWRP Dewtr***	***SJM In***	***SJM Out (2A)***	***SJM Out (SDC)***	***SDC Campus***	***SDC***	***SDC Campus *****	***SDC Campus, Ba***	***Project - Diversio***	***Project - PCW Ba***	***Project - Diversio***	***Project - Diversio***	***Project - PCW Ba***	***Project - SDC Ca***	***Project - SJM In***
3/1/2006	2006	2006	3	13.00		0.00	0.64	6.44	10.30	8.30	34.00		29.90		0.00	0.00	0.00	0.00	13.00	29.90	6.44
3/2/2006	2006	2006	3	5.30		0.00	0.67	6.45	9.08	7.21	18.00		16.03	16.03	2.14	0.00	0.46	192.33	3.16	13.89	6.45
3/3/2006	2006	2006	3	39.00		0.00	0.00	5.68	9.44	7.58	155.00		142.38		0.00	0.00	0.00	0.00	39.00	142.38	5.68
3/4/2006	2006	2006	3	6.80		0.00	0.00	5.68	9.44	7.58	30.00		26.13		0.00	0.00	0.00	0.00	6.80	26.13	5.68
3/5/2006	2006	2006	3	4.90		0.00	1.96	5.68	9.44	7.58	14.00		11.25	11.25	2.07	0.00	0.45	185.76	2.83	9.18	5.68
3/6/2006	2006	2006	3	5.10		0.00	0.66	7.03	9.60	7.47	11.00		9.82	9.82	2.11	0.00	0.46	189.11	2.99	7.72	7.03
3/7/2006	2006	2006	3	7.90		0.00	0.57	7.22	8.55	6.73	20.00		19.05		0.00	0.00	0.00	0.00	7.90	19.05	7.22
3/8/2006	2006	2006	3	5.40		0.00	0.63	6.74	7.87	6.43	11.00		10.53	10.53	2.16	0.00	0.47	193.90	3.24	8.37	6.74
3/9/2006	2006	2006	3	5.20		0.00	0.66	6.68	9.23	7.41	8.80		7.50	7.50	2.12	0.00	0.46	190.74	3.08	5.38	5.38
3/10/2006	2006	2006	3	12.00		0.00	0.00	6.68	9.23	7.41	24.00		21.64		0.00	0.00	0.00	0.00	12.00	21.64	6.68
3/11/2006	2006	2006	3	39.00		0.00	0.00	6.68	9.23	7.41	160.00		148.12		0.00	0.00	0.00	0.00	39.00	148.12	6.68
3/12/2006	2006	2006	3	7.10		0.00	1.84	6.68	9.23	7.41	25.00		22.57		0.00	0.00	0.00	0.00	7.10	22.57	6.68
3/13/2006	2006	2006	3	5.10		0.00	0.61	7.17	8.68	6.88	19.00		17.94	17.94	2.11	0.00	0.46	189.11	2.99	15.84	7.17
3/14/2006	2006	2006	3	4.70		0.00	0.58	7.21	8.99	6.32	8.80		9.00	9.00	2.03	0.00	0.44	182.26	2.67	6.98	6.98
3/15/2006	2006	2006	3	4.40		0.00	0.95	6.92	8.51	6.42	6.90		6.92	6.92	1.97	0.00	0.43	176.74	2.43	4.95	4.95
3/16/2006	2006	2006	3	4.40		0.00	0.34	7.16	9.17	6.71	6.80		7.16	7.16	1.97	0.00	0.43	176.74	2.43	5.19	5.19
3/17/2006	2006	2006	3	4.70		0.00	0.00	6.50	10.28	7.79	7.50		6.50	6.50	2.03	0.00	0.44	182.26	2.67	4.47	4.47
3/18/2006	2006	2006	3	5.50		0.00	0.00	6.50	10.28	7.79	24.00		21.12		0.00	0.00	0.00	0.00	5.50	21.12	6.50
3/19/2006	2006	2006	3	22.00		0.00	1.98	6.50	10.28	7.79	137.00		126.21		0.00	0.00	0.00	0.00	22.00	126.21	6.50
3/20/2006	2006	2006	3	5.40		0.00	0.58	4.92	11.02	8.75	15.00		10.39	10.39	2.16	0.00	0.47	193.90	3.24	8.23	4.92
3/21/2006	2006	2006	3	51.00		0.00	0.57	6.40	9.99	7.72	213.00		196.86		0.00	0.00	0.00	0.00	51.00	196.86	6.40
3/22/2006	2006	2006	3	5.20		0.00	0.62	7.29	11.06	9.27	17.00		13.98	13.98	2.12	0.00	0.46	190.74	3.08	11.85	7.29
3/23/2006	2006	2006	3	3.80		(0.16)	0.66	5.77	8.55	7.10	11.00		9.00	9.00	1.83	(0.07)	0.38	157.75	2.04	7.24	5.77
3/24/2006	2006	2006	3	4.10		(0.05)	0.00	7.88	11.26	9.48	11.00		8.74	8.74	1.90	(0.02)	0.41	168.66	2.22	6.86	6.86
3/25/2006	2006	2006	3	4.30		0.00	0.00	7.88	11.26	9.48	13.00		10.60	10.60	1.95	0.00	0.42	174.81	2.35	8.65	7.88
3/26/2006	2006	2006	3	5.60		0.00	1.90	7.88	11.26	9.48	17.00		14.32	14.32	2.19	0.00	0.47	196.95	3.41	12.13	7.88
3/27/2006	2006	2006	3	3.80		(0.16)	0.70	6.13	8.59	6.62	15.00		13.49	13.49	1.83	(0.07)	0.38	157.75	2.04	11.74	6.13
3/28/2006	2006	2006	3	186.00		0.00	0.57	2.64	9.53	7.79	497.00		457.42		0.00	0.00	0.00	0.00	186.00	457.42	2.64
3/29/2006	2006	2006	3	37.00		0.00	0.63	6.81	11.99	9.58	292.00		268.99		0.00	0.00	0.00	0.00	37.00	268.99	6.81
3/30/2006	2006	2006	3	7.90		0.00	0.67	5.30	8.49	6.50	49.00		44.45		0.00	0.00	0.00	0.00	7.90	44.45	5.30
3/31/2006	2006	2006	3	4.40		0.00	0.00	7.38	11.26	8.88	20.00		17.21	17.21	1.97	0.00	0.43	176.74	2.43	15.24	7.38
4/1/2006	2006	2006	4	13.00		0.00	0.00	7.38	11.26	8.88	50.00		45.11		0.00	0.00	0.00	0.00	13.00	45.11	7.38
4/2/2006	2006	2006	4	4.30		0.00	1.93	7.38	11.26	8.88	19.00		16.28	16.28	1.95	0.00	0.42	174.81	2.35	14.33	7.38
4/3/2006	2006	2006	4	3.70		(0.20)	0.72	6.29	9.27	7.34	15.00		12.97	12.97	1.81	(0.09)	0.37	153.91	1.99	11.25	6.29
4/4/2006	2006	2006	4	402.00		0.00	0.55	1.42	12.51	9.85	974.00		897.98		0.00	0.00	0.00	0.00	402.00	897.98	1.42
4/5/2006	2006	2006	4	175.00		0.00	0.64	5.80	10.65	8.14	426.00		394.01		0.00	0.00	0.00	0.00	175.00	394.01	5.80
4/6/2006	2006	2006	4	19.00		0.00	0.65	7.03	11.03	8.69	54.00		48.68		0.00	0.00	0.00	0.00	19.00	48.68	7.03
4/7/2006	2006	2006	4	15.00		0.00	0.00	7.04	10.99	8.59	32.00		28.32		0.00	0.00	0.00	0.00	15.00	28.32	7.04
4/8/2006	2006	2006	4	11.00		0.00	0.00	7.04	10.99	8.59	24.00		20.88		0.00	0.00	0.00	0.00	11.00	20.88	7.04
4/9/2006	2006	2006	4	7.50		0.00	1.99	7.04	10.99	8.59	17.00		14.37	14.37	2.47	0.00	0.53	221.42	5.03	11.91	7.04
4/10/2006	2006	2006	4	6.20		0.00	0.65	6.08	9.01	6.98	16.00		14.04	14.04	2.29	0.00	0.49	205.47	3.91	11.75	6.08
4/11/2006	2006	2006	4	5.80		0.00	0.58	8.62	12.73	9.75	17.00		14.76	14.76	2.23	0.00	0.48	199.89	3.57	12.53	8.62
4/12/2006	2006	2006	4	5.00		0.00	0.66	6.20	8.83	7.08	16.00		14.06	14.06	2.09	0.00	0.45	187.45	2.91	11.97	6.20
4/13/2006	2006	2006	4	4.80		0.00	0.00	6.09	11.33	8.64	13.00		9.72	9.72	2.05	0.00	0.44	184.03	2.75	7.67	6.09
4/14/2006	2006	2006	4	41.00		0.00	0.00	6.09	11.33	8.64	115.00		104.58		0.00	0.00	0.00	0.00	41.00	104.58	6.09
4/15/2006	2006	2006	4	26.00		0.00	0.00	6.09	11.33	8.64	88.00		79.47		0.00	0.00	0.00	0.00	26.00	79.47	6.09
4/16/2006	2006	2006	4	5.30		0.00	2.54	6.09	11.33	8.64	18.00		14.37	14.37	2.14	0.00	0.46	192.33	3.16	12.23	6.09
4/17/2006	2006	2006	4	4.50		0.00	0.59	7.36	10.92	8.20	14.00		12.24	12.24	1.99	0.00	0.43	178.62	2.51	10.25	7.36
4/18/2006	2006	2006	4	4.30		0.00	0.52	6.95	10.06	7.59	12.00		10.57	10.57	1.95	0.00	0.42	174.81	2.35	8.62	6.95
4/19/2006	2006	2006	4	4.10		(0.05)	0.61	7.19	10.22	7.83	12.00		10.56	10.56	1.90	(0.02)	0.41	168.66	2.22	8.68	7.19
4/20/2006	2006	2006	4	4.20		(0.02)	0.62	6.26	9.02	6.69	12.00		10.76	10.76	1.92	(0.01)	0.41	172.10	2.28	8.84	6.26
4/21/2006	2006	2006	4	4.30		0.00	0.00	6.92	10.59	8.04	12.00		10.12	10.12	1.95	0.00	0.42	174.81	2.35	8.18	6.92
4/22/2006	2006	2006	4	6.10		0.00	0.00	6.92	10.59	8.04	12.00		10.12	10.12	2.27	0.00	0.49	204.11	3.83	7.85	6.92
4/23/2006	2006	2006	4	15.00		0.00	1.84	6.92	10.59	8.04	73.00		66.85		0.00	0.00	0.00	0.00	15.00	66.85	6.92
4/24/2006	2006	2006	4	4.60		0.00	0.59	6.34	11.22	8.59	17.00		13.73	13.73	2.01	0.00	0.43	180.46	2.59	11.72	6.34
4/25/2006	2006	2006	4	4.50		0.00	0.56	4.91	8.34	6.47	16.00		13.43	13.43	1.99	0.00	0.43	178.62	2.51	11.44	4.91
4/26/2006	2006	2006	4	4.50		0.00	0.60	6.51	11.18	8.58	16.00		12.95	12.95	1.99	0.00	0.43	178.62	2.51	10.96	6.51
4/27/2006	2006	2006	4	4.30		0.00	0.62	7.43	12.64	9.82	15.00		11.73	11.73	1.95	0.00	0.42	174.81	2.35	9.79	7.43
4/28/2006	2006	2006	4	4.30		0.00	0.00	6.46	11.16	8.84	16.00		12.66	12.66	1.95	0.00	0.42	174.81	2.35	10.71	6.46
4/29/2006	2006	2006	4	4.20		(0.02)	0.00	6.46	11.16	8.84	16.00		12.66	12.66	1.92	(0.01)	0.41	172.10	2.28	10.74	6.46
4/30/2006	2006	2006	4	4.00		(0.09)	1.87	6.46	11.16	8.84	16.00		12.66	12.66	1.88	(0.04)	0.40	165.12	2.16	10.82	6.46
5/1/2006	2006	2006	5	4.20		(0.02)	0.61	6.41	11.10	8.84	16.00		12.62	12.62	1.92	(0.01)	0.41	172.10	2.28	10.70	6.41
5/2/2006	2006	2006	5	4.20		(0.02)	0.46	5.18	8.73	6.80	17.00		14.31	14.31	1.92	(0.01)	0.41	172.10	2.28	12.39	5.18
5/3/2006	2006	2006	5	4.30		0.00	0.68	7.03	10.20	7.97	14.00		12.15	12.15	1.95	0.00	0.42	174.81	2.35	10.20	7.03
5/4/2006	2006	2006	5	4.40		0.00	0.68	6.57	9.60	7.86	16.00		13.68	13.68	1.97	0.00	0.43	176.74	2.43	11.71	6.57
5/5/2006	2006	2006	5	4.40		0.00	0.00	6.53	9.50	8.03	19.00		16.27	16.27	1.97	0.00	0.43	176.74	2.43	14.31	6.53
5/6/2006	2006	2006	5	4.40		0.00	0.00	6.53	9.50	8.03	17.00		14.41	14.41	1.97	0.00	0.43	176.74	2.43	12.45	6.53
5/7/2006	2006	2006	5	4.40		0.00	2.02	6.53	9.50	8.03	16.00		13.48	13.48	1.97	0.00	0.43	176.74	2.43	11.52	6.53
5/8/2006	2006	2006	5	4.40		0.00	0.64	6.68	9.51	7.94	16.00		13.71	13.71	1.97	0.00	0.43	176.74	2.43	11.74	6.68
5/9/2006	2006	2006	5	4.10		(0.05)	0.67	6.38	7.87	5.96	16.00		15.27	15.27	1.90	(0.02)	0.41	168.66	2.22	13.39	6.38
5/10/2006	2006	2006	5	4.00		(0.09)	0.65	5.14	5.67	4.19	13.00		12.97	12.97	1.88	(0.04)	0.40	165.12	2.16	11.13	5.14

								Existing Condition										With Project Diversion			
													0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
								San Joaquin Marsh Operations									39.7 ppb	16.5 ppm			
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
5/11/2006	2006	2006	5	4.30		0.00	0.69	6.27	7.98	6.06	14.00		13.21	13.21	1.95	0.00	0.42	174.81	2.35	11.27	6.27
5/12/2006	2006	2006	5	4.70		0.00	0.00	6.95	9.30	7.57	16.00		14.30	14.30	2.03	0.00	0.44	182.26	2.67	12.28	6.95
5/13/2006	2006	2006	5	4.40		0.00	0.00	6.95	9.30	7.57	14.00		12.44	12.44	1.97	0.00	0.43	176.74	2.43	10.48	6.95
5/14/2006	2006	2006	5	4.20		(0.02)	1.97	6.95	9.30	7.57	13.00		11.51	11.51	1.92	(0.01)	0.41	172.10	2.28	9.60	6.95
5/15/2006	2006	2006	5	4.70		0.00	0.00	6.45	9.03	7.60	14.00		11.95	11.95	2.03	0.00	0.44	182.26	2.67	9.92	6.45
5/16/2006	2006	2006	5	4.70		0.00	0.58	6.57	9.05	7.77	15.00		12.84	12.84	2.03	0.00	0.44	182.26	2.67	10.81	6.57
5/17/2006	2006	2006	5	5.50		0.00	0.66	6.07	8.21	7.00	15.00		13.08	13.08	2.18	0.00	0.47	195.44	3.32	10.91	6.07
5/18/2006	2006	2006	5	6.00		0.00	0.68	6.70	8.59	7.33	15.00		13.36	13.36	2.26	0.00	0.49	202.73	3.74	11.10	6.70
5/19/2006	2006	2006	5	6.70		0.00	0.00	5.55	8.25	7.01	15.00		12.59	12.59	2.36	0.00	0.51	211.97	4.34	10.23	5.55
5/20/2006	2006	2006	5	6.20		0.00	0.00	5.55	8.25	7.01	13.00		10.73	10.73	2.29	0.00	0.49	205.47	3.91	8.44	5.55
5/21/2006	2006	2006	5	6.70		0.00	1.95	5.55	8.25	7.01	13.00		10.73	10.73	2.36	0.00	0.51	211.97	4.34	8.37	5.55
5/22/2006	2006	2006	5	165.00		0.00	0.64	5.42	8.65	6.85	460.00		426.48		0.00	0.00	0.00	0.00	165.00	426.48	5.42
5/23/2006	2006	2006	5	5.90		0.00	0.57	5.54	8.75	6.82	26.00		23.00		0.00	0.00	0.00	0.00	5.90	23.00	5.54
5/24/2006	2006	2006	5	4.40		0.00	0.64	5.95	9.14	7.06	17.00		14.78	14.78	1.97	0.00	0.43	176.74	2.43	12.82	5.95
5/25/2006	2006	2006	5	4.40		0.00	0.61	5.49	7.86	6.38	17.00		14.98	14.98	1.97	0.00	0.43	176.74	2.43	13.01	5.49
5/26/2006	2006	2006	5	4.40		0.00	0.00	6.60	9.15	7.04	16.00		14.47	14.47	1.97	0.00	0.43	176.74	2.43	12.50	6.60
5/27/2006	2006	2006	5	4.60		0.00	0.00	6.60	9.15	7.04	15.00		13.54	13.54	2.01	0.00	0.43	180.46	2.59	11.53	6.60
5/28/2006	2006	2006	5	4.50		0.00	0.00	6.60	9.15	7.04	14.00		12.61	12.61	1.99	0.00	0.43	178.62	2.51	10.62	6.60
5/29/2006	2006	2006	5	4.50		0.00	2.34	6.60	9.15	7.04	14.00		12.61	12.61	1.99	0.00	0.43	178.62	2.51	10.62	6.60
5/30/2006	2006	2006	5	4.40		0.00	0.41	4.96	6.46	5.03	13.00		12.03	12.03	1.97	0.00	0.43	176.74	2.43	10.06	4.96
5/31/2006	2006	2006	5	4.60		0.00	0.50	5.72	7.54	5.79	13.00		12.02	12.02	2.01	0.00	0.43	180.46	2.59	10.01	5.72
6/1/2006	2006	2006	6	4.20		(0.02)	0.47	7.50	10.32	7.94	15.00		13.54	13.54	1.92	(0.01)	0.41	172.10	2.28	11.62	7.50
6/2/2006	2006	2006	6	4.30		0.00	0.00	6.08	8.37	6.45	16.00		14.53	14.53	1.95	0.00	0.42	174.81	2.35	12.58	6.08
6/3/2006	2006	2006	6	4.10		(0.05)	0.00	6.08	8.37	6.45	17.00		15.46	15.46	1.90	(0.02)	0.41	168.66	2.22	13.58	6.08
6/4/2006	2006	2006	6	3.90		(0.12)	1.36	6.08	8.37	6.45	18.00		16.39	16.39	1.86	(0.06)	0.39	161.49	2.10	14.59	6.08
6/5/2006	2006	2006	6	4.10		(0.05)	0.58	4.69	6.76	5.23	17.00		15.31	15.31	1.90	(0.02)	0.41	168.66	2.22	13.43	4.69
6/6/2006	2006	2006	6	4.30		0.00	0.55	3.40	0.95	0.75	20.00		21.06		0.00	0.00	0.00	0.00	4.30	21.06	3.40
6/7/2006	2006	2006	6	4.60		0.00	0.59	0.94	0.00	0.00	10.00		10.17	10.17	2.01	0.00	0.43	180.46	2.59	8.16	0.94
6/8/2006	2006	2006	6	4.30		0.00	0.64	0.00	0.65	0.62	15.00		13.38	13.38	1.95	0.00	0.42	174.81	2.35	11.43	0.00
6/9/2006	2006	2006	6	5.00		0.00	0.00	0.00	3.73	3.71	17.00		12.36	12.36	2.09	0.00	0.45	187.45	2.91	10.27	0.00
6/10/2006	2006	2006	6	4.10		(0.05)	0.00	0.00	3.73	3.71	17.00		12.36	12.36	1.90	(0.02)	0.41	168.66	2.22	10.48	0.00
6/11/2006	2006	2006	6	3.80		(0.16)	1.76	0.00	3.73	3.71	16.00		11.43	11.43	1.83	(0.07)	0.38	157.75	2.04	9.67	0.00
6/12/2006	2006	2006	6	4.10		(0.05)	0.54	0.00	3.83	3.82	17.00		12.26	12.26	1.90	(0.02)	0.41	168.66	2.22	10.38	0.00
6/13/2006	2006	2006	6	3.80		(0.16)	0.48	0.00	3.99	3.18	17.00		12.85	12.85	1.83	(0.07)	0.38	157.75	2.04	11.09	0.00
6/14/2006	2006	2006	6	3.90		(0.12)	0.56	0.00	4.34	0.49	13.00		11.64	11.64	1.86	(0.06)	0.39	161.49	2.10	9.84	0.00
6/15/2006	2006	2006	6	4.20		(0.02)	0.61	0.00	3.66	1.81	14.00		11.34	11.34	1.92	(0.01)	0.41	172.10	2.28	9.42	0.00
6/16/2006	2006	2006	6	4.20		(0.02)	0.00	0.32	3.06	1.61	16.00		13.68	13.68	1.92	(0.01)	0.41	172.10	2.28	11.76	0.32
6/17/2006	2006	2006	6	4.30		0.00	0.00	0.32	3.06	1.61	15.00		12.75	12.75	1.95	0.00	0.42	174.81	2.35	10.80	0.32
6/18/2006	2006	2006	6	4.20		(0.02)	1.80	0.32	3.06	1.61	15.00		12.75	12.75	1.92	(0.01)	0.41	172.10	2.28	10.83	0.32
6/19/2006	2006	2006	6	4.40		0.00	0.54	4.70	3.06	1.06	11.00		13.62	13.62	1.97	0.00	0.43	176.74	2.43	11.65	4.70
6/20/2006	2006	2006	6	4.50		0.00	0.55	4.71	2.91	2.29	9.40		10.99	10.99	1.99	0.00	0.43	178.62	2.51	9.00	4.71
6/21/2006	2006	2006	6	5.10		0.00	0.60	4.74	0.66	0.46	10.00		13.28	13.28	2.11	0.00	0.46	189.11	2.99	11.18	4.74
6/22/2006	2006	2006	6	4.70		0.00	0.48	4.43	2.69	2.02	7.10		8.84	8.84	2.03	0.00	0.44	182.26	2.67	6.82	4.43
6/23/2006	2006	2006	6	4.50		0.00	0.00	6.12	--	3.69	7.70		9.42	9.42	1.99	0.00	0.43	178.62	2.51	7.43	6.12
6/24/2006	2006	2006	6	4.50		0.00	0.00	6.12	--	3.69	6.40		8.21	8.21	1.99	0.00	0.43	178.62	2.51	6.22	6.12
6/25/2006	2006	2006	6	4.20		(0.02)	1.41	6.12	--	3.69	5.80		7.66	7.66	1.92	(0.01)	0.41	172.10	2.28	5.74	5.74
6/26/2006	2006	2006	6	4.50		0.00	0.42	4.75	2.85	1.95	7.80		9.85	9.85	1.99	0.00	0.43	178.62	2.51	7.86	4.75
6/27/2006	2006	2006	6	4.80		0.00	0.39	4.89	2.61	1.67	8.80		11.18	11.18	2.05	0.00	0.44	184.03	2.75	9.13	4.89
6/28/2006	2006	2006	6	4.40		0.00	0.43	5.43	0.68	0.00	7.10		11.65	11.65	1.97	0.00	0.43	176.74	2.43	9.69	5.43
6/29/2006	2006	2006	6	4.40		0.00	0.46	5.41	1.59	0.00	4.50		9.22	9.22	1.97	0.00	0.43	176.74	2.43	7.25	5.41
6/30/2006	2006	2006	6	4.40		0.00	0.00	6.29	6.79	5.35	6.40		6.83	6.83	1.97	0.00	0.43	176.74	2.43	4.86	4.86
7/1/2006	2006	2006	7	4.40		0.00	0.00	6.29	6.79	5.35	10.00		10.18	10.18	1.97	0.00	0.43	176.74	2.43	8.21	6.29
7/2/2006	2006	2006	7	4.40		0.00	0.00	6.29	6.79	5.35	8.70		8.97	8.97	1.97	0.00	0.43	176.74	2.43	7.00	6.29
7/3/2006	2006	2006	7	4.60		0.00	0.00	6.29	6.79	5.35	8.20		8.51	8.51	2.01	0.00	0.43	180.46	2.59	6.50	6.29
7/4/2006	2006	2006	7	4.50		0.00	2.28	6.29	6.79	5.35	8.70		8.97	8.97	1.99	0.00	0.43	178.62	2.51	6.98	6.29
7/5/2006	2006	2006	7	4.30		0.00	0.38	5.45	5.29	4.04	8.20		8.94	8.94	1.95	0.00	0.42	174.81	2.35	6.99	5.45
7/6/2006	2006	2006	7	3.90		(0.12)	0.46	6.56	6.68	5.20	8.00		8.70	8.70	1.86	(0.06)	0.39	161.49	2.10	6.90	6.56
7/7/2006	2006	2006	7	4.30		0.00	0.00	6.56	6.68	5.20	8.40		9.07	9.07	1.95	0.00	0.42	174.81	2.35	7.13	6.56
7/8/2006	2006	2006	7	5.60		0.00	0.00	6.56	6.68	5.20	9.30		9.91	9.91	2.19	0.00	0.47	196.95	3.41	7.72	6.56
7/9/2006	2006	2006	7	5.00		0.00	1.36	6.56	6.68	5.20	7.60		8.33	8.33	2.09	0.00	0.45	187.45	2.91	6.24	6.24
7/10/2006	2006	2006	7	6.40		0.00	0.44	5.43	5.57	4.31	8.50		8.94	8.94	2.32	0.00	0.50	208.13	4.08	6.62	5.43
7/11/2006	2006	2006	7	8.30		0.00	0.41	5.44	5.69	4.43	12.00		12.10	12.10	2.56	0.00	0.55	229.92	5.74	9.54	5.44
7/12/2006	2006	2006	7	7.80		0.00	0.45	5.20	5.46	4.21	11.00		11.15	11.15	2.50	0.00	0.54	224.71	5.30	8.65	5.20
7/13/2006	2006	2006	7	7.80		0.00	0.49	4.53	4.86	3.82	11.00		10.89	10.89	2.50	0.00	0.54	224.71	5.30	8.39	4.53
7/14/2006	2006	2006	7	7.80		0.00	0.00	0.19	0.15	0.10	9.80		9.20	9.20	2.50	0.00	0.54	224.71	5.30	6.69	0.19
7/15/2006	2006	2006	7	7.00		0.00	0.00	0.19	0.15	0.10	11.00		10.31	10.31	2.40	0.00	0.52	215.64	4.60	7.91	0.19
7/16/2006	2006	2006	7	6.80		0.00	1.66	0.19	0.15	0.10	11.00		10.31	10.31	2.37	0.00	0.51	213.21	4.43	7.94	0.19
7/17/2006	2006	2006	7	7.40		0.00	0.52	0.00	0.00	0.00	12.00		11.16	11.16	2.45	0.00	0.53	220.30	4.95	8.71	0.00
7/18/2006	2006	2006	7	7.50		0.00	0.49	0.00	0.00	0.00	15.00		13.95	13.95	2.47	0.00	0.53	221.42	5.03	11.48	0.00
7/19/2006	2006	2006	7	7.20		0.00	0.56	0.00	0.00	0.00	13.00		12.09	12.09	2.43	0.00	0.52	218.00	4.77	9.66	0.00
7/20/2006	2006	2006	7	7.80		0.00	0.41	3.23	3.68	2.66	15.00		14.48	14.48	2.50	0.00	0.54	224.71	5.30	11.98	3.23

									Existing Condition									***With Project Diversion***			
													0.93	*20.00 cfs*		*PROJ. Div*	*39.7 ppb*	*16.5 ppm*			
						Est. Loss,			***San Joaquin Marsh Operations***				***Adjusted*	***Adjusted*		*Est. Loss,*	*39.7 ppb*	*16.5 ppm*		***Adjusted*	*using SDC at Can*
DATE	*Year*	*Water Year*	*Month*	*Peters Canyon Wash (PCW) at Barranca (cfs)*	*QC*	*Peters Canyon Wash (PCW) at Barranca (cfs)*	*MWRP Dewatering Discharge (cfs)*	*SJ Marsh Inflow (from SDC) (cfs)*	*SJ Marsh Outflow (#002A) (cfs)*	*SJ Marsh Outflow (to SDC, #002B) (cfs)*	*San Diego Cr (SDC) at Campus (cfs)*	*QC*	*San Diego Cr (SDC) at Campus (cfs)*	*San Diego Cr (SDC) at Campus, Base (cfs)*	*Est. PROJECT Diversion (cfs)*	*Peters Canyon Wash (PCW) at Barranca (cfs)*	*Daily Se Load, Est. PROJ. Diversion (lbs)*	*Daily NO3 Load, Est. PROJ. Diversion (lbs)*	*Peters Canyon Wash (PCW) at Barranca (cfs)*	*San Diego Cr (SDC) at Campus (cfs)*	*SJ Marsh Inflow (from SDC) (cfs)*
DATE	*Year*	*WY*	*Month*	*PCW Bar*	*PCW*	*PCW Bar (Loss)*	*MWRP Dewtr*	*SJM In*	*SJM Out (2A)*	*SJM Out (SDC)*	*SDC Campus*	*SDC*	*SDC Campus ***	*SDC Campus, Ba*	*Project - Diversi*	*Project - PCW Ba*	*Project - Diversi*	*Project - Diversi*	*Project - PCW Ba*	*Project - SDC Ca*	*Project - SJM In*
7/21/2006	2006	2006	7	8.30		0.00	0.00	6.22	5.65	3.52	13.00		14.61	14.61	2.56	0.00	0.55	229.92	5.74	12.05	6.22
7/22/2006	2006	2006	7	6.90		0.00	0.00	6.22	5.65	3.52	8.90		10.80	10.80	2.39	0.00	0.52	214.44	4.51	8.41	6.22
7/23/2006	2006	2006	7	25.00		0.00	1.30	6.22	5.65	3.52	41.00		40.65		0.00	0.00	0.00	0.00	25.00	40.65	6.22
7/24/2006	2006	2006	7	6.50		0.00	0.48	0.02	4.49	3.32	16.00		11.81	11.81	2.33	0.00	0.50	209.43	4.17	9.48	0.02
7/25/2006	2006	2006	7	5.80		0.00	0.40	4.94	5.96	4.70	15.00		14.18	14.18	2.23	0.00	0.48	199.89	3.57	11.95	4.94
7/26/2006	2006	2006	7	6.10		0.00	0.43	4.24	6.21	4.88	11.00		9.63	9.63	2.27	0.00	0.49	204.11	3.83	7.36	4.24
7/27/2006	2006	2006	7	5.90		0.00	0.37	4.50	5.90	4.66	9.40		8.60	8.60	2.24	0.00	0.48	201.32	3.66	6.35	4.50
7/28/2006	2006	2006	7	6.50		0.00	0.00	4.50	5.90	4.66	8.60		7.85	7.85	2.33	0.00	0.50	209.43	4.17	5.52	4.50
7/29/2006	2006	2006	7	5.60		0.00	0.00	4.50	5.90	4.66	8.20		7.48	7.48	2.19	0.00	0.47	196.95	3.41	5.29	4.50
7/30/2006	2006	2006	7	5.60		0.00	1.16	4.50	5.90	4.66	7.70		7.01	7.01	2.19	0.00	0.47	196.95	3.41	4.82	4.50
7/31/2006	2006	2006	7	6.00		0.00	0.36	4.86	5.93	4.57	8.70		8.36	8.36	2.26	0.00	0.49	202.73	3.74	6.10	4.86
8/1/2006	2006	2006	8	5.90		0.00	0.36	5.34	5.93	4.28	8.60		8.98	8.98	2.24	0.00	0.48	201.32	3.66	6.74	5.34
8/2/2006	2006	2006	8	5.70		0.00	0.39	4.97	0.84	0.40	7.50		11.22	11.22	2.21	0.00	0.48	198.43	3.49	9.01	4.97
8/3/2006	2006	2006	8	5.70		0.00	0.38	4.54	0.38	0.41	4.50		8.03	8.03	2.21	0.00	0.48	198.43	3.49	5.82	4.54
8/4/2006	2006	2006	8	6.70		0.00	0.00	5.72	8.39	6.44	8.50		7.24	7.24	2.36	0.00	0.51	211.97	4.34	4.88	4.88
8/5/2006	2006	2006	8	5.70		0.00	0.00	5.72	8.39	6.44	9.20		7.89	7.89	2.21	0.00	0.48	198.43	3.49	5.68	5.68
8/6/2006	2006	2006	8	5.50		0.00	1.16	5.72	8.39	6.44	8.30		7.05	7.05	2.18	0.00	0.47	195.44	3.32	4.87	4.87
8/7/2006	2006	2006	8	5.70		0.00	0.34	5.13	5.54	3.91	8.60		9.13	9.13	2.21	0.00	0.48	198.43	3.49	6.93	5.13
8/8/2006	2006	2006	8	6.00		0.00	0.00	5.21	5.53	4.33	8.30		8.54	8.54	2.26	0.00	0.49	202.73	3.74	6.28	5.21
8/9/2006	2006	2006	8	6.00		0.00	0.00	5.35	1.07	0.80	7.30		11.02	11.02	2.26	0.00	0.49	202.73	3.74	8.77	5.35
8/10/2006	2006	2006	8	6.10		0.00	0.38	4.81	5.18	4.12	5.70		5.94	5.94	2.27	0.00	0.49	204.11	3.83	3.67	3.67
8/11/2006	2006	2006	8	6.00		0.00	0.00	6.80	7.20	5.97	8.50		8.68	8.68	2.26	0.00	0.49	202.73	3.74	6.43	6.43
8/12/2006	2006	2006	8	5.70		0.00	0.00	6.80	7.20	5.97	8.80		8.96	8.96	2.21	0.00	0.48	198.43	3.49	6.75	6.75
8/13/2006	2006	2006	8	5.50		0.00	1.21	6.80	7.20	5.97	8.10		8.31	8.31	2.18	0.00	0.47	195.44	3.32	6.13	6.13
8/14/2006	2006	2006	8	5.40		0.00	0.39	5.27	5.60	4.54	9.50		9.51	9.51	2.16	0.00	0.47	193.90	3.24	7.35	5.27
8/15/2006	2006	2006	8	5.20		0.00	0.38	5.17	5.54	4.36	9.10		9.22	9.22	2.12	0.00	0.46	190.74	3.08	7.10	5.17
8/16/2006	2006	2006	8	5.40		0.00	0.39	4.16	4.51	3.44	7.50		7.64	7.64	2.16	0.00	0.47	193.90	3.24	5.48	4.16
8/17/2006	2006	2006	8	5.20		0.00	0.37	6.13	6.57	5.10	8.00		8.39	8.39	2.12	0.00	0.46	190.74	3.08	6.27	6.13
8/18/2006	2006	2006	8	5.40		0.00	0.00	6.64	7.06	5.61	8.20		8.58	8.58	2.16	0.00	0.47	193.90	3.24	6.42	6.42
8/19/2006	2006	2006	8	5.30		0.00	0.00	6.64	7.06	5.61	8.20		8.58	8.58	2.14	0.00	0.46	192.33	3.16	6.44	6.44
8/20/2006	2006	2006	8	5.50		0.00	1.20	6.64	7.06	5.61	8.50		8.86	8.86	2.18	0.00	0.47	195.44	3.32	6.69	6.64
8/21/2006	2006	2006	8	5.90		0.00	0.40	5.14	5.54	4.13	8.50		8.84	8.84	2.24	0.00	0.48	201.32	3.66	6.60	5.14
8/22/2006	2006	2006	8	5.90		0.00	0.32	5.17	5.54	2.72	8.80		10.46	10.46	2.24	0.00	0.48	201.32	3.66	8.22	5.17
8/23/2006	2006	2006	8	6.40		0.00	0.38	4.95	5.35	4.56	9.20		8.91	8.91	2.32	0.00	0.50	208.13	4.08	6.59	4.95
8/24/2006	2006	2006	8	6.40		0.00	0.42	4.40	5.07	3.57	9.60		9.70	9.70	2.32	0.00	0.50	208.13	4.08	7.38	4.40
8/25/2006	2006	2006	8	6.50		0.00	0.00	6.85	7.81	5.66	9.60		10.04	10.04	2.33	0.00	0.50	209.43	4.17	7.71	6.85
8/26/2006	2006	2006	8	6.60		0.00	0.00	6.85	7.81	5.66	8.80		9.29	9.29	2.35	0.00	0.51	210.71	4.25	6.95	6.85
8/27/2006	2006	2006	8	6.60		0.00	1.22	6.85	7.81	5.66	8.10		8.64	8.64	2.35	0.00	0.51	210.71	4.25	6.30	6.30
8/28/2006	2006	2006	8	7.40		0.00	0.37	5.09	5.86	4.38	9.00		9.03	9.03	2.45	0.00	0.53	220.30	4.95	6.58	5.09
8/29/2006	2006	2006	8	7.70		0.00	0.39	5.10	6.17	4.44	9.60		9.54	9.54	2.49	0.00	0.54	223.63	5.21	7.05	5.10
8/30/2006	2006	2006	8	7.80		0.00	0.39	5.10	6.17	4.43	9.50		9.46	9.46	2.50	0.00	0.54	224.71	5.30	6.96	5.10
8/31/2006	2006	2006	8	8.10		0.00	0.38	4.37	5.22	3.65	11.00		10.90	10.90	2.54	0.00	0.55	227.87	5.56	8.36	4.37
9/1/2006	2006	2006	9	8.80		0.00	0.00	6.40	6.50	4.70	11.00		11.82	11.82	2.60	0.00	0.56	233.51	6.20	9.22	6.40
9/2/2006	2006	2006	9	8.00		0.00	0.00	6.40	6.50	4.70	11.00		11.82	11.82	2.53	0.00	0.55	226.83	5.47	9.29	6.40
9/3/2006	2006	2006	9	7.60		0.00	0.00	6.40	6.50	4.70	9.30		10.24	10.24	2.48	0.00	0.54	222.53	5.12	7.76	6.40
9/4/2006	2006	2006	9	7.50		0.00	1.46	6.40	6.50	4.70	6.90		8.01	8.01	2.47	0.00	0.53	221.42	5.03	5.54	5.54
9/5/2006	2006	2006	9	7.70		0.00	0.34	5.12	5.94	4.30	9.10		9.23	9.23	2.49	0.00	0.54	223.63	5.21	6.74	5.12
9/6/2006	2006	2006	9	7.30		0.00	0.44	5.11	6.00	4.42	9.40		9.39	9.39	2.44	0.00	0.53	219.16	4.86	6.95	5.11
9/7/2006	2006	2006	9	7.40		0.00	0.52	5.08	6.17	4.69	8.40		8.17	8.17	2.45	0.00	0.53	220.30	4.95	5.72	5.08
9/8/2006	2006	2006	9	7.80		0.00	0.00	6.47	7.89	6.10	7.70		7.51	7.51	2.50	0.00	0.54	224.71	5.30	5.01	5.01
9/9/2006	2006	2006	9	7.90		0.00	0.00	6.47	7.89	6.10	7.40		7.23	7.23	2.51	0.00	0.54	225.78	5.39	4.72	4.72
9/10/2006	2006	2006	9	7.80		0.00	1.42	6.47	7.89	6.10	7.00		6.86	6.86	2.50	0.00	0.54	224.71	5.30	4.36	4.36
9/11/2006	2006	2006	9	8.90		0.00	0.45	4.37	6.71	5.06	8.30		7.08	7.08	2.60	0.00	0.56	233.51	6.30	4.48	4.37
9/12/2006	2006	2006	9	11.00		0.00	0.44	0.00	7.66	5.93	20.00		13.09	13.09	2.60	0.00	0.56	233.51	8.40	10.49	0.00
9/13/2006	2006	2006	9	9.70		0.00	0.49	0.00	7.66	5.93	23.00		15.88	15.88	2.60	0.00	0.56	233.51	7.10	13.28	0.00
9/14/2006	2006	2006	9	5.90		0.00	0.50	0.00	7.29	6.00	20.00		13.02	13.02	2.24	0.00	0.48	201.32	3.66	10.78	0.00
9/15/2006	2006	2006	9	6.00		0.00	0.00	0.00	10.80	10.74	19.00		7.68	7.68	2.26	0.00	0.49	202.73	3.74	5.43	0.00
9/16/2006	2006	2006	9	6.10		0.00	0.00	0.00	10.80	10.74	23.00		11.40	11.40	2.27	0.00	0.49	204.11	3.83	9.13	0.00
9/17/2006	2006	2006	9	5.80		0.00	1.36	0.00	10.80	10.74	23.00		11.40	11.40	2.23	0.00	0.48	199.89	3.57	9.18	0.00
9/18/2006	2006	2006	9	5.90		0.00	0.44	0.00	8.22	8.14	19.00		10.10	10.10	2.24	0.00	0.48	201.32	3.66	7.86	0.00
9/19/2006	2006	2006	9	6.20		0.00	0.43	0.00	1.19	1.15	18.00		15.67	15.67	2.29	0.00	0.49	205.47	3.91	13.38	0.00
9/20/2006	2006	2006	9	6.10		0.00	0.46	0.00	0.00	0.00	9.90		9.21	9.21	2.27	0.00	0.49	204.11	3.83	6.93	0.00
9/21/2006	2006	2006	9	6.30		0.00	0.45	0.00	0.00	0.00	11.00		10.23	10.23	2.30	0.00	0.50	206.81	4.00	7.93	0.00
9/22/2006	2006	2006	9	6.50		0.00	0.00	5.71	7.61	7.02	11.00		9.02	9.02	2.33	0.00	0.50	209.43	4.17	6.69	5.71
9/23/2006	2006	2006	9	6.30		0.00	0.00	5.71	7.61	7.02	12.00		9.95	9.95	2.30	0.00	0.50	206.81	4.00	7.65	5.71
9/24/2006	2006	2006	9	5.70		0.00	1.34	5.71	7.61	7.02	14.00		11.81	11.81	2.21	0.00	0.48	198.43	3.49	9.60	5.71
9/25/2006	2006	2006	9	6.70		0.00	0.45	0.00	0.05	0.04	13.00		12.05	12.05	2.36	0.00	0.51	211.97	4.34	9.69	0.00
9/26/2006	2006	2006	9	6.40		0.00	0.42	0.00	0.02	0.01	14.00		13.01	13.01	2.32	0.00	0.50	208.13	4.08	10.69	0.00
9/27/2006	2006	2006	9	5.90		0.00	0.42	0.00	0.00	0.00	12.00		11.16	11.16	2.24	0.00	0.48	201.32	3.66	8.92	0.00
9/28/2006	2006	2006	9	6.00		0.00	0.46	0.00	0.00	0.00	12.00		11.16	11.16	2.26	0.00	0.49	202.73	3.74	8.90	0.00
9/29/2006	2006	2006	9	6.10		0.00	0.00	0.00	0.00	0.00	14.00		13.02	13.02	2.27	0.00	0.49	204.11	3.83	10.75	0.00

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	Existing Condition San Joaquin Marsh Operations SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	With Project Diversion 16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
9/30/2006	2006	2006	9	5.80		0.00	0.00	0.00	0.00	0.00	13.00		12.09	12.09	2.23	0.00	0.48	199.89	3.57	9.86	0.00
10/1/2006	2006	2007	10	--		--	1.32	0.00	0.00	0.00	12.00		11.16	11.16	--	--	--		--	--	--
10/2/2006	2006	2007	10	--		--	0.39	1.94	0.87	0.00	12.00		12.97	12.97	--	--	--		--	--	--
10/3/2006	2006	2007	10	--		--	0.33	6.27	2.74	0.00	6.70		12.06	12.06	--	--	--		--	--	--
10/4/2006	2006	2007	10	--		--	0.42	6.32	2.69	0.00	2.00		7.74	7.74	--	--	--		--	--	--
10/5/2006	2006	2007	10	--		--	0.46	6.50	2.95	0.00	1.50		7.44	7.44	--	--	--		--	--	--
10/6/2006	2006	2007	10	--		--	0.00	7.19	2.95	0.00	1.10		7.71	7.71	--	--	--		--	--	--
10/7/2006	2006	2007	10	--		--	0.00	7.19	2.95	0.00	0.56		7.21	7.21	--	--	--		--	--	--
10/8/2006	2006	2007	10	--		--	1.27	7.19	2.95	0.00	0.48		7.19	7.19	--	--	--		--	--	--
10/9/2006	2006	2007	10	--		--	0.50	6.21	2.95	0.00	0.80		6.52	6.52	--	--	--		--	--	--
10/10/2006	2006	2007	10	--		--	0.44	6.58	2.92	1.58	3.40		7.81	7.81	--	--	--		--	--	--
10/11/2006	2006	2007	10	--		--	0.43	6.10	5.88	2.86	3.60		6.36	6.36	--	--	--		--	--	--
10/12/2006	2006	2007	10	--		--	0.45	6.73	6.12	3.10	5.20		8.21	8.21	--	--	--		--	--	--
10/13/2006	2006	2007	10	--		--	0.00	5.76	4.58	2.39	25.00		26.39		--	--	--		--	--	--
10/14/2006	2006	2007	10	--		--	0.00	5.76	4.58	2.39	39.00		39.41		--	--	--		--	--	--
10/15/2006	2006	2007	10	--		--	1.32	5.76	4.58	2.39	4.90		7.70	7.70	--	--	--		--	--	--
10/16/2006	2006	2007	10	--		--	0.43	6.08	5.91	3.00	4.70		7.23	7.23	--	--	--		--	--	--
10/17/2006	2006	2007	10	--		--	0.42	5.20	5.02	2.64	4.70		6.75	6.75	--	--	--		--	--	--
10/18/2006	2006	2007	10	--		--	0.44	6.65	6.91	3.88	4.40		6.67	6.67	--	--	--		--	--	--
10/19/2006	2006	2007	10	--		--	0.41	6.66	7.35	4.09	4.90		6.95	6.95	--	--	--		--	--	--
10/20/2006	2006	2007	10	--		--	0.00	7.02	7.64	4.37	4.50		7.02	7.02	--	--	--		--	--	--
10/21/2006	2006	2007	10	--		--	0.00	7.02	7.64	4.37	5.10		7.21	7.21	--	--	--		--	--	--
10/22/2006	2006	2007	10	--		--	1.28	7.02	7.64	4.37	5.30		7.39	7.39	--	--	--		--	--	--
10/23/2006	2006	2007	10	--		--	0.45	5.56	6.09	3.41	4.20		5.91	5.91	--	--	--		--	--	--
10/24/2006	2006	2007	10	--		--	0.41	6.95	7.52	4.50	3.60		6.95	6.95	--	--	--		--	--	--
10/25/2006	2006	2007	10	--		--	0.42	5.45	6.06	3.49	6.70		8.05	8.05	--	--	--		--	--	--
10/26/2006	2006	2007	10	--		--	0.35	7.64	8.67	4.97	6.40		8.44	8.44	--	--	--		--	--	--
10/27/2006	2006	2007	10	--		--	0.00	6.58	8.03	4.97	5.80		6.89	6.89	--	--	--		--	--	--
10/28/2006	2006	2007	10	--		--	0.00	6.58	8.03	4.97	6.00		7.08	7.08	--	--	--		--	--	--
10/29/2006	2006	2007	10	--		--	1.05	6.58	8.03	4.97	5.10		6.58	6.58	--	--	--		--	--	--
10/30/2006	2006	2007	10	--		--	0.35	5.40	6.57	4.04	5.50		6.38	6.38	--	--	--		--	--	--
10/31/2006	2006	2007	10	--		--	0.38	7.49	8.87	5.41	5.90		7.49	7.49	--	--	--		--	--	--
11/1/2006	2006	2007	11	--		--	0.39	6.57	6.95	4.31	9.30		10.75	10.75	--	--	--		--	--	--
11/2/2006	2006	2007	11	--		--	0.39	7.15	5.37	3.25	8.80		11.81	11.81	--	--	--		--	--	--
11/3/2006	2006	2007	11	--		--	0.00	0.90	0.19	0.10	5.80		6.14	6.14	--	--	--		--	--	--
11/4/2006	2006	2007	11	--		--	0.00	0.00	0.00	0.00	11.00		10.23	10.23	--	--	--		--	--	--
11/5/2006	2006	2007	11	--		--	0.76	0.00	0.00	0.00	11.00		10.23	10.23	--	--	--		--	--	--
11/6/2006	2006	2007	11	--		--	0.23	1.51	3.79	2.33	14.00		12.26	12.26	--	--	--		--	--	--
11/7/2006	2006	2007	11	--		--	0.21	4.67	1.55	0.98	11.00		13.66	13.66	--	--	--		--	--	--
11/8/2006	2006	2007	11	--		--	0.37	0.00	0.38	0.22	9.20		8.35	8.35	--	--	--		--	--	--
11/9/2006	2006	2007	11	--		--	0.48	0.00	0.00	0.00	12.00		11.16	11.16	--	--	--		--	--	--
11/10/2006	2006	2007	11	--		--	0.00	0.00	0.00	0.00	9.40		8.74	8.74	--	--	--		--	--	--
11/11/2006	2006	2007	11	--		--	0.00	4.30	8.60	5.62	9.50		7.60	7.60	--	--	--		--	--	--
11/12/2006	2006	2007	11	--		--	1.51	4.30	8.60	5.62	12.00		9.93	9.93	--	--	--		--	--	--
11/13/2006	2006	2007	11	--		--	0.46	6.43	7.94	5.61	8.00		8.20	8.20	--	--	--		--	--	--
11/14/2006	2006	2007	11	--		--	0.48	6.35	5.40	3.30	19.00		20.50		--	--	--		--	--	--
11/15/2006	2006	2007	11	--		--	0.45	5.99	5.30	3.24	8.40		10.37	10.37	--	--	--		--	--	--
11/16/2006	2006	2007	11	--		--	0.44	6.54	6.04	3.33	5.70		8.29	8.29	--	--	--		--	--	--
11/17/2006	2006	2007	11	--		--	0.00	6.70	5.64	2.99	3.80		6.98	6.98	--	--	--		--	--	--
11/18/2006	2006	2007	11	--		--	0.00	6.70	5.64	2.99	3.40		6.70	6.70	--	--	--		--	--	--
11/19/2006	2006	2007	11	--		--	1.49	6.70	5.64	2.99	2.50		6.70	6.70	--	--	--		--	--	--
11/20/2006	2006	2007	11	--		--	0.45	7.30	5.01	2.54	2.30		7.30	7.30	--	--	--		--	--	--
11/21/2006	2006	2007	11	--		--	0.47	5.22	4.84	2.93	4.40		6.22	6.22	--	--	--		--	--	--
11/22/2006	2006	2007	11	--		--	0.00	6.78	6.91	4.14	5.90		7.95	7.95	--	--	--		--	--	--
11/23/2006	2006	2007	11	--		--	0.00	6.78	6.91	4.14	5.80		7.85	7.85	--	--	--		--	--	--
11/24/2006	2006	2007	11	--		--	0.00	6.78	6.91	4.14	4.60		6.78	6.78	--	--	--		--	--	--
11/25/2006	2006	2007	11	--		--	0.00	6.78	6.91	4.14	4.70		6.83	6.83	--	--	--		--	--	--
11/26/2006	2006	2007	11	--		--	2.54	6.78	6.91	4.14	4.40		6.78	6.78	--	--	--		--	--	--
11/27/2006	2006	2007	11	--		--	0.51	6.61	9.28	6.56	11.00		10.27	10.27	--	--	--		--	--	--
11/28/2006	2006	2007	11	--		--	0.43	6.56	10.34	7.32	20.00		17.90	17.90	--	--	--		--	--	--
11/29/2006	2006	2007	11	--		--	0.52	6.08	9.57	6.93	17.00		15.02	15.02	--	--	--		--	--	--
11/30/2006	2006	2007	11	--		--	0.49	6.35	10.25	7.39	17.00		14.84	14.84	--	--	--		--	--	--
12/1/2006	2006	2007	12	--		--	0.00	6.80	10.64	7.79	17.00		14.88	14.88	--	--	--		--	--	--
12/2/2006	2006	2007	12	--		--	0.00	6.80	10.64	7.79	11.00		9.30	9.30	--	--	--		--	--	--
12/3/2006	2006	2007	12	--		--	1.49	6.80	10.64	7.79	7.40		6.80	6.80	--	--	--		--	--	--
12/4/2006	2006	2007	12	--		--	0.45	5.70	10.03	7.41	7.70		5.70	5.70	--	--	--		--	--	--
12/5/2006	2006	2007	12	--		--	0.42	5.73	10.11	7.46	17.00		14.21	14.21	--	--	--		--	--	--
12/6/2006	2006	2007	12	--		--	0.45	6.18	11.07	8.09	14.00		11.24	11.24	--	--	--		--	--	--
12/7/2006	2006	2007	12	--		--	0.39	6.27	9.44	7.18	17.00		14.97	14.97	--	--	--		--	--	--
12/8/2006	2006	2007	12	--		--	0.00	4.87	7.97	5.99	10.00		8.26	8.26	--	--	--		--	--	--
12/9/2006	2006	2007	12	--		--	0.00	4.87	7.97	5.99	9.50		7.79	7.79	--	--	--		--	--	--

									Existing Condition									With Project Diversion			
								San Joaquin Marsh Operations					0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
12/10/2006	2006	2007	12	--		--	1.11	4.87	7.97	5.99	250.00		231.46		--	--	--		--	--	--
12/11/2006	2006	2007	12	--		--	0.35	6.90	8.15	5.99	20.00		19.45		--	--	--		--	--	--
12/12/2006	2006	2007	12	--		--	0.34	6.85	9.39	5.99	11.00		11.03	11.03	--	--	--		--	--	--
12/13/2006	2006	2007	12	--		--	0.35	5.07	6.12	3.97	7.60		8.08	8.08	--	--	--		--	--	--
12/14/2006	2006	2007	12	--		--	0.35	6.51	7.90	5.40	14.00		14.05	14.05	--	--	--		--	--	--
12/15/2006	2006	2007	12	--		--	0.00	6.36	8.06	5.31	7.60		8.04	8.04	--	--	--		--	--	--
12/16/2006	2006	2007	12	--		--	0.00	6.36	8.06	5.31	11.00		11.21	11.21	--	--	--		--	--	--
12/17/2006	2006	2007	12	--		--	1.06	6.36	8.06	5.31	46.00		43.76		--	--	--		--	--	--
12/18/2006	2006	2007	12	--		--	0.34	6.49	8.90	6.07	14.00		13.40	13.40	--	--	--		--	--	--
12/19/2006	2006	2007	12	--		--	0.32	6.18	8.17	6.02	7.60		7.22	7.22	--	--	--		--	--	--
12/20/2006	2006	2007	12	--		--	0.37	6.24	8.31	5.99	8.60		8.23	8.23	--	--	--		--	--	--
12/21/2006	2006	2007	12	--		--	0.36	6.06	7.37	5.45	8.10		8.10	8.10	--	--	--		--	--	--
12/22/2006	2006	2007	12	--		--	0.00	6.63	7.59	5.27	15.00		15.22	15.22	--	--	--		--	--	--
12/23/2006	2006	2007	12	--		--	0.00	6.63	7.59	5.27	11.00		11.50	11.50	--	--	--		--	--	--
12/24/2006	2006	2007	12	--		--	0.00	6.63	7.59	5.27	7.00		7.78	7.78	--	--	--		--	--	--
12/25/2006	2006	2007	12	--		--	0.00	6.63	7.59	5.27	5.90		6.75	6.75	--	--	--		--	--	--
12/26/2006	2006	2007	12	--		--	1.66	6.63	7.59	5.27	6.20		7.03	7.03	--	--	--		--	--	--
12/27/2006	2006	2007	12	--		--	0.30	6.63	7.59	5.27	68.00		64.51		--	--	--		--	--	--
12/28/2006	2006	2007	12	--		--	0.33	6.63	7.59	5.27	14.00		14.29	14.29	--	--	--		--	--	--
12/29/2006	2006	2007	12	--		--	0.00	6.63	2.45	0.00	2.20		8.21	8.21	--	--	--		--	--	--
12/30/2006	2006	2007	12	--		--	0.00	6.63	2.45	0.00	0.86		6.97	6.97	--	--	--		--	--	--
12/31/2006	2006	2007	12	--		--	0.00	6.63	2.45	0.00	0.35		6.63	6.63	--	--	--		--	--	--
1/1/2007	2007	2007	1	--		--	1.97	6.63	2.45	0.00	0.51		6.64	6.64	--	--	--		--	--	--
1/2/2007	2007	2007	1	--		--	0.94	5.81	2.18	0.00	0.88		6.22	6.22	--	--	--		--	--	--
1/3/2007	2007	2007	1	--		--	0.97	5.50	3.09	0.00	1.60		6.60	6.60	--	--	--		--	--	--
1/4/2007	2007	2007	1	--		--	1.00	0.00	7.31	0.00	2.90		2.70	2.70	--	--	--		--	--	--
1/5/2007	2007	2007	1	--		--	0.00	0.00	6.46	0.00	24.00		22.32		--	--	--		--	--	--
1/6/2007	2007	2007	1	--		--	0.00	0.00	6.46	0.00	8.00		7.44	7.44	--	--	--		--	--	--
1/7/2007	2007	2007	1	--		--	2.86	0.00	6.46	0.00	6.40		5.95	5.95	--	--	--		--	--	--
1/8/2007	2007	2007	1	--		--	1.00	0.00	10.60	0.00	7.10		6.60	6.60	--	--	--		--	--	--
1/9/2007	2007	2007	1	--		--	1.05	0.00	6.98	0.00	15.00		13.95	13.95	--	--	--		--	--	--
1/10/2007	2007	2007	1	--		--	0.94	0.00	9.25	0.00	13.00		12.09	12.09	--	--	--		--	--	--
1/11/2007	2007	2007	1	--		--	1.06	0.00	9.29	0.00	10.00		9.30	9.30	--	--	--		--	--	--
1/12/2007	2007	2007	1	--		--	0.00	0.00	9.19	0.00	9.20		8.56	8.56	--	--	--		--	--	--
1/13/2007	2007	2007	1	--		--	0.00	0.00	9.19	0.00	9.50		8.84	8.84	--	--	--		--	--	--
1/14/2007	2007	2007	1	--		--	2.91	0.00	9.19	0.00	9.10		8.46	8.46	--	--	--		--	--	--
1/15/2007	2007	2007	1	--		--	0.98	0.00	7.17	0.00	13.00		12.09	12.09	--	--	--		--	--	--
1/16/2007	2007	2007	1	--		--	0.96	0.00	10.63	0.00	11.00		10.23	10.23	--	--	--		--	--	--
1/17/2007	2007	2007	1	--		--	1.07	0.00	6.75	0.00	12.00		11.16	11.16	--	--	--		--	--	--
1/18/2007	2007	2007	1	--		--	0.96	0.00	4.38	0.00	17.00		15.81	15.81	--	--	--		--	--	--
1/19/2007	2007	2007	1	--		--	0.00	0.00	4.76	0.00	12.00		11.16	11.16	--	--	--		--	--	--
1/20/2007	2007	2007	1	--		--	0.00	0.00	4.76	0.00	9.60		8.93	8.93	--	--	--		--	--	--
1/21/2007	2007	2007	1	--		--	2.92	0.00	4.76	0.00	9.20		8.56	8.56	--	--	--		--	--	--
1/22/2007	2007	2007	1	--		--	1.01	0.00	4.65	0.00	9.80		9.11	9.11	--	--	--		--	--	--
1/23/2007	2007	2007	1	--		--	0.97	0.00	4.74	0.00	12.00		11.16	11.16	--	--	--		--	--	--
1/24/2007	2007	2007	1	--		--	0.98	0.00	6.68	0.00	12.00		11.16	11.16	--	--	--		--	--	--
1/25/2007	2007	2007	1	--		--	1.00	0.00	5.34	0.00	11.00		10.23	10.23	--	--	--		--	--	--
1/26/2007	2007	2007	1	--		--	0.00	0.00	7.19	0.00	18.00		16.74	16.74	--	--	--		--	--	--
1/27/2007	2007	2007	1	--		--	0.00	0.00	7.19	0.00	11.00		10.23	10.23	--	--	--		--	--	--
1/28/2007	2007	2007	1	--		--	3.05	0.00	7.19	0.00	9.80		9.11	9.11	--	--	--		--	--	--
1/29/2007	2007	2007	1	--		--	0.98	0.00	6.63	0.00	18.00		16.74	16.74	--	--	--		--	--	--
1/30/2007	2007	2007	1	--		--	1.02	0.00	5.09	0.00	13.00		12.09	12.09	--	--	--		--	--	--
1/31/2007	2007	2007	1	--		--	1.00	0.00	8.66	0.00	25.00		23.25		--	--	--		--	--	--
2/1/2007	2007	2007	2	--		--	1.00	0.00	8.66	0.00	16.00		14.88	14.88	--	--	--		--	--	--
2/2/2007	2007	2007	2	--		--	0.00	0.00	7.31	0.00	10.00		9.30	9.30	--	--	--		--	--	--
2/3/2007	2007	2007	2	--		--	0.00	0.00	7.31	0.00	9.60		8.93	8.93	--	--	--		--	--	--
2/4/2007	2007	2007	2	--		--	3.13	0.00	7.31	0.00	9.40		8.74	8.74	--	--	--		--	--	--
2/5/2007	2007	2007	2	--		--	1.05	0.00	7.31	0.00	9.60		8.93	8.93	--	--	--		--	--	--
2/6/2007	2007	2007	2	--		--	0.96	0.00	4.30	0.00	12.00		11.16	11.16	--	--	--		--	--	--
2/7/2007	2007	2007	2	--		--	1.07	0.00	5.63	0.00	11.00		10.23	10.23	--	--	--		--	--	--
2/8/2007	2007	2007	2	--		--	1.03	0.00	4.79	0.00	9.00		8.37	8.37	--	--	--		--	--	--
2/9/2007	2007	2007	2	--		--	0.00	0.00	6.16	0.00	9.00		8.37	8.37	--	--	--		--	--	--
2/10/2007	2007	2007	2	--		--	0.00	0.00	6.16	0.00	8.60		8.00	8.00	--	--	--		--	--	--
2/11/2007	2007	2007	2	--		--	3.04	0.00	6.16	0.00	86.00		79.98		--	--	--		--	--	--
2/12/2007	2007	2007	2	--		--	0.34	0.00	6.73	0.00	25.00		23.25		--	--	--		--	--	--
2/13/2007	2007	2007	2	--		--	1.09	0.00	6.85	0.00	13.00		12.09	12.09	--	--	--		--	--	--
2/14/2007	2007	2007	2	--		--	1.08	0.00	7.09	0.00	10.00		9.30	9.30	--	--	--		--	--	--
2/15/2007	2007	2007	2	--		--	0.99	0.00	4.93	0.00	8.80		8.18	8.18	--	--	--		--	--	--
2/16/2007	2007	2007	2	--		--	0.00	0.00	4.93	0.00	6.90		6.42	6.42	--	--	--		--	--	--
2/17/2007	2007	2007	2	--		--	0.00	0.00	4.93	0.00	1.30		1.21	1.21	--	--	--		--	--	--
2/18/2007	2007	2007	2	--		--	0.00	0.00	4.93	0.00	5.20		4.84	4.84	--	--	--		--	--	--

Existing Condition | **With Project Diversion**

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	San Joaquin Marsh Operations: SJ Marsh Inflow (from SDC) (cfs)	San Joaquin Marsh Operations: SJ Marsh Outflow (#002A) (cfs)	San Joaquin Marsh Operations: SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
2/19/2007	2007	2007	2	--		--	4.28	0.00	4.93	0.00	64.00		59.52		--	--	--		--	--	--
2/20/2007	2007	2007	2	--		--	1.04	0.00	3.87	0.00	17.00		15.81	15.81	--	--	--		--	--	--
2/21/2007	2007	2007	2	--		--	1.10	0.00	2.66	0.00	12.00		11.16	11.16	--	--	--		--	--	--
2/22/2007	2007	2007	2	--		--	1.13	0.00	5.71	0.00	21.00		19.53		--	--	--		--	--	--
2/23/2007	2007	2007	2	--		--	0.00	0.00	5.42	0.00	49.00		45.57		--	--	--		--	--	--
2/24/2007	2007	2007	2	--		--	0.00	0.00	5.42	0.00	12.00		11.16	11.16	--	--	--		--	--	--
2/25/2007	2007	2007	2	--		--	3.21	0.00	5.42	0.00	7.80		7.25	7.25	--	--	--		--	--	--
2/26/2007	2007	2007	2	--		--	1.12	6.28	7.26	1.75	5.30		9.14	9.14	--	--	--		--	--	--
2/27/2007	2007	2007	2	--		--	1.05	7.13	7.79	4.27	80.00		77.06		--	--	--		--	--	--
2/28/2007	2007	2007	2	--		--	1.12	7.57	8.99	6.73	33.00		31.47		--	--	--		--	--	--
3/1/2007	2007	2007	3	--		--	1.09	6.49	6.56	3.93	16.00		17.26	17.26	--	--	--		--	--	--
3/2/2007	2007	2007	3	--		--	0.00	8.14	3.80	1.61	6.00		11.65	11.65	--	--	--		--	--	--
3/3/2007	2007	2007	3	--		--	0.00	8.14	3.80	1.61	3.10		8.95	8.95	--	--	--		--	--	--
3/4/2007	2007	2007	3	--		--	1.05	8.14	3.80	1.61	1.70		8.14	8.14	--	--	--		--	--	--
3/5/2007	2007	2007	3	--		--	1.11	7.12	3.24	0.49	1.60		7.65	7.65	--	--	--		--	--	--
3/6/2007	2007	2007	3	--		--	1.05	5.09	4.37	1.37	2.50		5.79	5.79	--	--	--		--	--	--
3/7/2007	2007	2007	3	--		--	0.35	6.28	8.56	5.37	6.70		7.07	7.07	--	--	--		--	--	--
3/8/2007	2007	2007	3	--		--	1.11	6.50	10.05	7.67	8.90		7.19	7.19	--	--	--		--	--	--
3/9/2007	2007	2007	3	--		--	0.00	6.23	9.64	7.26	11.00		9.27	9.27	--	--	--		--	--	--
3/10/2007	2007	2007	3	--		--	0.00	6.23	9.64	7.26	9.90		8.25	8.25	--	--	--		--	--	--
3/11/2007	2007	2007	3	--		--	3.34	6.23	9.64	7.26	9.70		8.06	8.06	--	--	--		--	--	--
3/12/2007	2007	2007	3	--		--	1.09	6.40	11.01	8.44	15.00		12.06	12.06	--	--	--		--	--	--
3/13/2007	2007	2007	3	--		--	1.04	6.28	10.27	7.46	17.00		14.71	14.71	--	--	--		--	--	--
3/14/2007	2007	2007	3	--		--	1.11	6.26	9.52	7.04	13.00		11.37	11.37	--	--	--		--	--	--
3/15/2007	2007	2007	3	--		--	1.04	6.46	9.27	6.46	9.80		9.11	9.11	--	--	--		--	--	--
3/16/2007	2007	2007	3	--		--	0.00	6.29	8.60	5.92	11.00		10.57	10.57	--	--	--		--	--	--
3/17/2007	2007	2007	3	--		--	0.00	6.29	8.60	5.92	9.50		9.17	9.17	--	--	--		--	--	--
3/18/2007	2007	2007	3	--		--	3.35	6.29	8.60	5.92	8.60		8.34	8.34	--	--	--		--	--	--
3/19/2007	2007	2007	3	--		--	1.07	6.41	9.00	6.36	9.10		8.51	8.51	--	--	--		--	--	--
3/20/2007	2007	2007	3	--		--	1.06	6.42	8.99	6.72	11.00		9.96	9.96	--	--	--		--	--	--
3/21/2007	2007	2007	3	--		--	1.10	6.41	9.34	6.78	22.00		20.11		--	--	--		--	--	--
3/22/2007	2007	2007	3	--		--	1.18	5.85	9.42	7.11	17.00		14.63	14.63	--	--	--		--	--	--
3/23/2007	2007	2007	3	--		--	0.00	6.22	10.16	7.78	14.00		11.57	11.57	--	--	--		--	--	--
3/24/2007	2007	2007	3	--		--	0.00	6.22	10.16	7.78	11.00		8.78	8.78	--	--	--		--	--	--
3/25/2007	2007	2007	3	--		--	3.27	6.22	10.16	7.78	10.00		7.85	7.85	--	--	--		--	--	--
3/26/2007	2007	2007	3	--		--	1.02	6.05	9.90	7.59	10.00		7.86	7.86	--	--	--		--	--	--
3/27/2007	2007	2007	3	--		--	0.97	6.44	10.17	7.75	14.00		11.81	11.81	--	--	--		--	--	--
3/28/2007	2007	2007	3	--		--	1.08	6.44	10.37	7.90	14.00		11.65	11.65	--	--	--		--	--	--
3/29/2007	2007	2007	3	--		--	1.10	6.27	9.97	7.35	18.00		15.74	15.74	--	--	--		--	--	--
3/30/2007	2007	2007	3	--		--	0.00	6.11	9.03	6.81	11.00		9.58	9.58	--	--	--		--	--	--
3/31/2007	2007	2007	3	--		--	0.00	6.11	9.03	6.81	9.70		8.37	8.37	--	--	--		--	--	--
4/1/2007	2007	2007	4	--		--	3.35	6.11	9.03	6.81	9.60		8.28	8.28	--	--	--		--	--	--
4/2/2007	2007	2007	4	--		--	1.06	6.37	9.81	7.39	10.00		8.35	8.35	--	--	--		--	--	--
4/3/2007	2007	2007	4	--		--	1.08	6.22	9.26	7.09	11.00		9.42	9.42	--	--	--		--	--	--
4/4/2007	2007	2007	4	--		--	1.09	6.13	9.75	7.33	13.00		10.97	10.97	--	--	--		--	--	--
4/5/2007	2007	2007	4	--		--	0.00	6.20	8.97	6.56	16.00		14.55	14.55	--	--	--		--	--	--
4/6/2007	2007	2007	4	--		--	0.00	6.20	8.97	6.56	11.00		9.90	9.90	--	--	--		--	--	--
4/7/2007	2007	2007	4	--		--	0.00	6.20	8.97	6.56	9.50		8.50	8.50	--	--	--		--	--	--
4/8/2007	2007	2007	4	--		--	4.30	6.20	8.97	6.56	8.70		7.76	7.76	--	--	--		--	--	--
4/9/2007	2007	2007	4	--		--	1.22	6.25	9.05	6.56	8.70		7.80	7.80	--	--	--		--	--	--
4/10/2007	2007	2007	4	--		--	0.96	6.05	8.91	6.39	8.90		7.96	7.96	--	--	--		--	--	--
4/11/2007	2007	2007	4	--		--	0.30	6.41	8.99	6.48	14.00		12.95	12.95	--	--	--		--	--	--
4/12/2007	2007	2007	4	--		--	1.03	5.95	8.56	6.43	9.00		7.93	7.93	--	--	--		--	--	--
4/13/2007	2007	2007	4	--		--	0.00	6.19	8.95	7.15	8.00		6.55	6.55	--	--	--		--	--	--
4/14/2007	2007	2007	4	--		--	0.00	6.19	8.95	7.15	11.00		9.34	9.34	--	--	--		--	--	--
4/15/2007	2007	2007	4	--		--	3.27	6.19	8.95	7.15	15.00		13.06	13.06	--	--	--		--	--	--
4/16/2007	2007	2007	4	--		--	0.98	6.04	9.75	5.82	15.00		14.15	14.15	--	--	--		--	--	--
4/17/2007	2007	2007	4	--		--	0.95	6.13	10.00	7.65	12.00		9.75	9.75	--	--	--		--	--	--
4/18/2007	2007	2007	4	--		--	1.16	7.99	10.25	7.82	9.90		9.37	9.37	--	--	--		--	--	--
4/19/2007	2007	2007	4	--		--	1.06	6.96	8.67	6.52	7.60		7.48	7.48	--	--	--		--	--	--
4/20/2007	2007	2007	4	--		--	0.00	5.94	7.30	5.15	112.00		104.90		--	--	--		--	--	--
4/21/2007	2007	2007	4	--		--	0.00	5.94	7.30	5.15	43.00		40.73		--	--	--		--	--	--
4/22/2007	2007	2007	4	--		--	3.16	5.94	7.30	5.15	8.00		8.18	8.18	--	--	--		--	--	--
4/23/2007	2007	2007	4	--		--	0.98	7.07	6.23	4.13	25.00		25.98		--	--	--		--	--	--
4/24/2007	2007	2007	4	--		--	0.28	6.01	9.05	6.81	14.00		12.28	12.28	--	--	--		--	--	--
4/25/2007	2007	2007	4	--		--	1.07	5.98	8.66	6.48	14.00		12.56	12.56	--	--	--		--	--	--
4/26/2007	2007	2007	4	--		--	1.12	6.22	8.85	6.60	12.00		10.80	10.80	--	--	--		--	--	--
4/27/2007	2007	2007	4	--		--	0.00	6.28	9.08	6.78	10.00		8.83	8.83	--	--	--		--	--	--
4/28/2007	2007	2007	4	--		--	0.00	6.28	9.08	6.78	9.10		7.99	7.99	--	--	--		--	--	--
4/29/2007	2007	2007	4	--		--	2.94	6.28	9.08	6.78	9.30		8.18	8.18	--	--	--		--	--	--
4/30/2007	2007	2007	4	--		--	0.80	6.03	9.17	6.55	9.20		8.08	8.08	--	--	--		--	--	--

									Existing Condition									With Project Diversion			
													0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
									San Joaquin Marsh Operations								39.7 ppb	16.5 ppm			
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
5/1/2007	2007	2007	5	--		--	0.95	6.34	9.80	7.24	11.00		9.39	9.39	--	--	--		--	--	--
5/2/2007	2007	2007	5	--		--	0.78	6.44	9.42	6.87	11.00		9.82	9.82	--	--	--		--	--	--
5/3/2007	2007	2007	5	--		--	1.06	5.75	8.40	6.20	14.00		12.60	12.60	--	--	--		--	--	--
5/4/2007	2007	2007	5	--		--	0.00	6.08	8.98	6.69	17.00		15.24	15.24	--	--	--		--	--	--
5/5/2007	2007	2007	5	--		--	0.00	6.08	8.98	6.69	13.00		11.52	11.52	--	--	--		--	--	--
5/6/2007	2007	2007	5	--		--	3.00	6.08	8.98	6.69	10.00		8.73	8.73	--	--	--		--	--	--
5/7/2007	2007	2007	5	--		--	0.70	5.99	8.73	6.32	9.60		8.62	8.62	--	--	--		--	--	--
5/8/2007	2007	2007	5	--		--	0.98	6.23	9.03	6.63	15.00		13.58	13.58	--	--	--		--	--	--
5/9/2007	2007	2007	5	--		--	1.01	5.96	8.42	6.45	18.00		16.29	16.29	--	--	--		--	--	--
5/10/2007	2007	2007	5	--		--	1.01	6.15	8.58	6.18	12.00		11.13	11.13	--	--	--		--	--	--
5/11/2007	2007	2007	5	--		--	0.00	6.15	8.58	6.18	10.00		9.27	9.27	--	--	--		--	--	--
5/12/2007	2007	2007	5	--		--	0.00	6.15	8.58	6.18	10.00		9.27	9.27	--	--	--		--	--	--
5/13/2007	2007	2007	5	--		--	3.06	6.15	8.58	6.18	10.00		9.27	9.27	--	--	--		--	--	--
5/14/2007	2007	2007	5	--		--	0.97	6.49	8.22	5.67	9.40		9.50	9.50	--	--	--		--	--	--
5/15/2007	2007	2007	5	--		--	1.02	7.07	8.47	6.01	8.10		8.52	8.52	--	--	--		--	--	--
5/16/2007	2007	2007	5	--		--	1.00	7.04	8.46	6.30	8.30		8.41	8.41	--	--	--		--	--	--
5/17/2007	2007	2007	5	--		--	1.11	7.52	9.04	7.01	9.30		9.12	9.12	--	--	--		--	--	--
5/18/2007	2007	2007	5	--		--	0.00	6.90	8.36	6.27	13.00		12.68	12.68	--	--	--		--	--	--
5/19/2007	2007	2007	5	--		--	0.00	6.90	8.36	6.27	8.30		8.31	8.31	--	--	--		--	--	--
5/20/2007	2007	2007	5	--		--	2.98	6.90	8.36	6.27	7.40		7.47	7.47	--	--	--		--	--	--
5/21/2007	2007	2007	5	--		--	0.94	7.02	9.01	6.98	9.70		9.05	9.05	--	--	--		--	--	--
5/22/2007	2007	2007	5	--		--	1.02	7.37	9.03	6.92	14.00		13.44	13.44	--	--	--		--	--	--
5/23/2007	2007	2007	5	--		--	1.11	6.68	9.74	6.65	9.30		8.67	8.67	--	--	--		--	--	--
5/24/2007	2007	2007	5	--		--	0.96	6.90	9.66	6.82	10.00		9.38	9.38	--	--	--		--	--	--
5/25/2007	2007	2007	5	--		--	0.00	7.18	9.93	7.33	9.50		8.69	8.69	--	--	--		--	--	--
5/26/2007	2007	2007	5	--		--	0.00	7.18	9.93	7.33	9.30		8.50	8.50	--	--	--		--	--	--
5/27/2007	2007	2007	5	--		--	0.00	7.18	9.93	7.33	8.40		7.67	7.67	--	--	--		--	--	--
5/28/2007	2007	2007	5	--		--	0.91	7.18	9.93	7.33	8.10		7.39	7.39	--	--	--		--	--	--
5/29/2007	2007	2007	5	--		--	1.03	5.91	9.63	7.65	8.90		6.66	6.66	--	--	--		--	--	--
5/30/2007	2007	2007	5	--		--	1.02	6.36	10.66	7.73	16.00		13.60	13.60	--	--	--		--	--	--
5/31/2007	2007	2007	5	--		--	1.01	5.87	9.90	6.91	11.00		9.26	9.26	--	--	--		--	--	--
6/1/2007	2007	2007	6	--		--	0.00	6.19	10.72	7.18	12.00		10.25	10.25	--	--	--		--	--	--
6/2/2007	2007	2007	6	--		--	0.00	6.19	10.72	7.18	14.00		12.11	12.11	--	--	--		--	--	--
6/3/2007	2007	2007	6	--		--	3.11	6.19	10.72	7.18	14.00		12.11	12.11	--	--	--		--	--	--
6/4/2007	2007	2007	6	--		--	2.06	4.39	7.23	6.01	14.00		11.51	11.51	--	--	--		--	--	--
6/5/2007	2007	2007	6	--		--	1.00	4.44	7.97	6.14	15.00		12.38	12.38	--	--	--		--	--	--
6/6/2007	2007	2007	6	--		--	1.01	4.47	8.12	6.44	18.00		14.91	14.91	--	--	--		--	--	--
6/7/2007	2007	2007	6	--		--	0.00	4.55	8.71	6.59	14.00		11.12	11.12	--	--	--		--	--	--
6/8/2007	2007	2007	6	--		--	0.00	5.70	10.05	7.97	12.00		9.05	9.05	--	--	--		--	--	--
6/9/2007	2007	2007	6	--		--	2.97	5.70	10.05	7.97	12.00		9.05	9.05	--	--	--		--	--	--
6/10/2007	2007	2007	6	--		--	0.00	5.70	10.05	7.97	11.00		8.12	8.12	--	--	--		--	--	--
6/11/2007	2007	2007	6	--		--	0.98	4.58	7.27	5.75	11.00		9.14	9.14	--	--	--		--	--	--
6/12/2007	2007	2007	6	--		--	0.99	4.65	6.38	5.13	10.00		8.85	8.85	--	--	--		--	--	--
6/13/2007	2007	2007	6	--		--	0.92	5.15	6.48	4.61	16.00		15.39	15.39	--	--	--		--	--	--
6/14/2007	2007	2007	6	--		--	1.07	5.22	7.03	5.13	14.00		13.11	13.11	--	--	--		--	--	--
6/15/2007	2007	2007	6	--		--	0.00	5.82	7.91	5.86	10.00		9.26	9.26	--	--	--		--	--	--
6/16/2007	2007	2007	6	--		--	0.00	5.82	7.91	5.86	10.00		9.26	9.26	--	--	--		--	--	--
6/17/2007	2007	2007	6	--		--	2.68	5.82	7.91	5.86	7.80		7.22	7.22	--	--	--		--	--	--
6/18/2007	2007	2007	6	--		--	0.86	5.05	5.63	4.08	6.90		7.32	7.32	--	--	--		--	--	--
6/19/2007	2007	2007	6	--		--	0.90	5.39	5.83	3.93	6.80		7.68	7.68	--	--	--		--	--	--
6/20/2007	2007	2007	6	--		--	0.81	5.32	5.83	3.78	7.40		8.31	8.31	--	--	--		--	--	--
6/21/2007	2007	2007	6	--		--	0.91	5.54	5.98	4.06	9.70		10.40	10.40	--	--	--		--	--	--
6/22/2007	2007	2007	6	--		--	0.00	5.77	7.32	5.41	10.00		9.64	9.64	--	--	--		--	--	--
6/23/2007	2007	2007	6	--		--	0.00	5.77	7.32	5.41	12.00		11.50	11.50	--	--	--		--	--	--
6/24/2007	2007	2007	6	--		--	2.56	5.77	7.32	5.41	11.00		10.57	10.57	--	--	--		--	--	--
6/25/2007	2007	2007	6	--		--	0.87	5.38	6.08	4.26	15.00		14.99	14.99	--	--	--		--	--	--
6/26/2007	2007	2007	6	--		--	0.77	5.13	5.65	3.91	13.00		13.23	13.23	--	--	--		--	--	--
6/27/2007	2007	2007	6	--		--	0.85	5.48	6.37	4.25	14.00		14.16	14.16	--	--	--		--	--	--
6/28/2007	2007	2007	6	--		--	0.14	5.02	5.84	3.91	15.00		14.98	14.98	--	--	--		--	--	--
6/29/2007	2007	2007	6	--		--	0.00	5.82	7.45	5.40	11.00		10.61	10.61	--	--	--		--	--	--
6/30/2007	2007	2007	6	--		--	0.00	5.82	7.45	5.40	12.00		11.54	11.54	--	--	--		--	--	--
7/1/2007	2007	2007	7	--		--	2.51	5.82	7.45	5.40	10.00		9.68	9.68	--	--	--		--	--	--
7/2/2007	2007	2007	7	--		--	0.86	5.08	6.74	4.21	8.60		8.80	8.80	--	--	--		--	--	--
7/3/2007	2007	2007	7	--		--	0.00	5.25	6.35	4.89	7.90		7.69	7.69	--	--	--		--	--	--
7/4/2007	2007	2007	7	--		--	1.63	5.25	6.35	4.89	8.40		8.15	8.15	--	--	--		--	--	--
7/5/2007	2007	2007	7	--		--	0.74	5.13	6.90	4.91	8.20		7.84	7.84	--	--	--		--	--	--
7/6/2007	2007	2007	7	--		--	0.00	5.71	8.84	6.77	8.40		6.83	6.83	--	--	--		--	--	--
7/7/2007	2007	2007	7	--		--	0.00	5.71	8.84	6.77	9.60		7.95	7.95	--	--	--		--	--	--
7/8/2007	2007	2007	7	--		--	2.37	5.71	8.84	6.77	9.30		7.67	7.67	--	--	--		--	--	--
7/9/2007	2007	2007	7	--		--	0.80	4.85	7.27	4.60	8.40		8.05	8.05	--	--	--		--	--	--
7/10/2007	2007	2007	7	--		--	0.76	5.43	5.77	4.90	7.60		7.56	7.56	--	--	--		--	--	--

Existing Condition

0.93 | 20.00 cfs

San Joaquin Marsh Operations

With Project Diversion

PROJ. Div | 39.7 ppb | 16.5 ppm

39.7 ppb | 16.5 ppm

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
7/11/2007	2007	2007	7	--		--	0.80	5.52	6.92	4.79	7.70		7.84	7.84	--	--	--		--	--	--
7/12/2007	2007	2007	7	--		--	0.79	5.41	6.61	4.63	7.70		7.89	7.89	--	--	--		--	--	--
7/13/2007	2007	2007	7	--		--	0.00	5.67	8.11	6.11	8.30		7.31	7.31	--	--	--		--	--	--
7/14/2007	2007	2007	7	--		--	0.00	5.67	8.11	6.11	9.60		8.52	8.52	--	--	--		--	--	--
7/15/2007	2007	2007	7	--		--	2.47	5.67	8.11	6.11	12.00		10.75	10.75	--	--	--		--	--	--
7/16/2007	2007	2007	7	--		--	0.69	4.99	6.33	4.41	9.20		9.10	9.10	--	--	--		--	--	--
7/17/2007	2007	2007	7	--		--	0.76	5.26	6.55	4.43	7.90		8.12	8.12	--	--	--		--	--	--
7/18/2007	2007	2007	7	--		--	0.77	5.05	6.19	4.43	8.10		8.12	8.12	--	--	--		--	--	--
7/19/2007	2007	2007	7	--		--	0.78	5.30	6.47	6.10	9.40		8.00	8.00	--	--	--		--	--	--
7/20/2007	2007	2007	7	--		--	0.00	5.82	7.86	5.00	9.60		9.69	9.69	--	--	--		--	--	--
7/21/2007	2007	2007	7	--		--	0.00	5.82	7.86	5.00	8.40		8.57	8.57	--	--	--		--	--	--
7/22/2007	2007	2007	7	--		--	3.72	5.82	7.86	5.00	7.60		7.83	7.83	--	--	--		--	--	--
7/23/2007	2007	2007	7	--		--	0.15	4.88	5.92	3.90	8.00		8.35	8.35	--	--	--		--	--	--
7/24/2007	2007	2007	7	--		--	0.77	5.74	7.14	4.61	8.10		8.58	8.58	--	--	--		--	--	--
7/25/2007	2007	2007	7	--		--	0.80	5.05	6.21	4.05	8.20		8.55	8.55	--	--	--		--	--	--
7/26/2007	2007	2007	7	--		--	0.78	5.48	6.87	4.37	7.60		8.10	8.10	--	--	--		--	--	--
7/27/2007	2007	2007	7	--		--	0.00	5.84	8.05	5.97	7.30		6.66	6.66	--	--	--		--	--	--
7/28/2007	2007	2007	7	--		--	0.00	5.84	8.05	5.97	8.70		7.97	7.97	--	--	--		--	--	--
7/29/2007	2007	2007	7	--		--	2.06	5.84	8.05	5.97	9.00		8.24	8.24	--	--	--		--	--	--
7/30/2007	2007	2007	7	--		--	0.18	5.06	6.26	4.47	8.40		8.37	8.37	--	--	--		--	--	--
7/31/2007	2007	2007	7	--		--	0.16	4.94	6.58	4.33	8.30		8.29	8.29	--	--	--		--	--	--
8/1/2007	2007	2007	8	--		--	0.18	5.08	6.21	4.62	7.60		7.50	7.50	--	--	--		--	--	--
8/2/2007	2007	2007	8	--		--	0.43	4.95	5.86	4.45	7.00		6.97	6.97	--	--	--		--	--	--
8/3/2007	2007	2007	8	--		--	0.00	5.83	7.87	5.31	7.40		7.36	7.36	--	--	--		--	--	--
8/4/2007	2007	2007	8	--		--	0.00	5.83	7.87	5.31	7.40		7.36	7.36	--	--	--		--	--	--
8/5/2007	2007	2007	8	--		--	0.53	5.83	7.87	5.31	8.20		8.10	8.10	--	--	--		--	--	--
8/6/2007	2007	2007	8	--		--	1.48	5.40	6.69	4.85	12.00		11.67	11.67	--	--	--		--	--	--
8/7/2007	2007	2007	8	--		--	0.53	5.49	7.12	4.97	13.00		12.57	12.57	--	--	--		--	--	--
8/8/2007	2007	2007	8	--		--	0.52	5.02	6.01	4.55	9.50		9.27	9.27	--	--	--		--	--	--
8/9/2007	2007	2007	8	--		--	0.27	5.20	6.42	4.65	8.60		8.51	8.51	--	--	--		--	--	--
8/10/2007	2007	2007	8	--		--	0.00	5.77	8.18	5.75	8.50		7.93	7.93	--	--	--		--	--	--
8/11/2007	2007	2007	8	--		--	0.00	5.77	8.18	5.75	9.00		8.39	8.39	--	--	--		--	--	--
8/12/2007	2007	2007	8	--		--	1.72	5.77	8.18	5.75	8.40		7.83	7.83	--	--	--		--	--	--
8/13/2007	2007	2007	8	--		--	0.47	5.43	7.32	5.42	8.40		7.82	7.82	--	--	--		--	--	--
8/14/2007	2007	2007	8	--		--	0.45	4.93	6.80	4.76	8.00		7.60	7.60	--	--	--		--	--	--
8/15/2007	2007	2007	8	--		--	0.84	4.70	6.43	4.29	7.00		6.90	6.90	--	--	--		--	--	--
8/16/2007	2007	2007	8	--		--	0.88	5.09	7.28	4.98	6.90		6.52	6.52	--	--	--		--	--	--
8/17/2007	2007	2007	8	--		--	0.00	5.71	9.26	7.02	7.50		5.76	5.76	--	--	--		--	--	--
8/18/2007	2007	2007	8	--		--	0.00	5.71	9.26	7.02	9.20		7.34	7.34	--	--	--		--	--	--
8/19/2007	2007	2007	8	--		--	2.38	5.71	9.26	7.02	8.60		6.79	6.79	--	--	--		--	--	--
8/20/2007	2007	2007	8	--		--	0.97	4.66	6.55	4.75	8.60		7.91	7.91	--	--	--		--	--	--
8/21/2007	2007	2007	8	--		--	0.90	5.19	6.85	4.81	7.80		7.61	7.61	--	--	--		--	--	--
8/22/2007	2007	2007	8	--		--	0.72	5.14	6.76	4.67	8.70		8.53	8.53	--	--	--		--	--	--
8/23/2007	2007	2007	8	--		--	0.54	5.08	6.73	4.62	8.50		8.34	8.34	--	--	--		--	--	--
8/24/2007	2007	2007	8	--		--	0.00	5.71	8.42	6.24	9.20		8.06	8.06	--	--	--		--	--	--
8/25/2007	2007	2007	8	--		--	0.00	5.71	8.42	6.24	10.00		8.80	8.80	--	--	--		--	--	--
8/26/2007	2007	2007	8	--		--	2.19	5.71	8.42	6.24	11.00		9.73	9.73	--	--	--		--	--	--
8/27/2007	2007	2007	8	--		--	0.72	4.83	6.85	4.91	18.00		16.67	16.67	--	--	--		--	--	--
8/28/2007	2007	2007	8	--		--	0.69	5.61	7.79	5.43	12.00		11.33	11.33	--	--	--		--	--	--
8/29/2007	2007	2007	8	--		--	0.68	5.21	7.22	5.02	11.00		10.40	10.40	--	--	--		--	--	--
8/30/2007	2007	2007	8	--		--	0.46	4.50	6.28	4.72	10.00		9.10	9.10	--	--	--		--	--	--
8/31/2007	2007	2007	8	--		--	0.00	5.07	7.54	5.54	11.00		9.79	9.79	--	--	--		--	--	--
9/1/2007	2007	2007	9	--		--	0.00	5.07	7.54	5.54	14.00		12.58	12.58	--	--	--		--	--	--
9/2/2007	2007	2007	9	--		--	0.00	5.07	7.54	5.54	12.00		10.72	10.72	--	--	--		--	--	--
9/3/2007	2007	2007	9	--		--	1.85	5.07	7.54	5.54	9.60		8.49	8.49	--	--	--		--	--	--
9/4/2007	2007	2007	9	--		--	0.43	5.95	5.61	3.77	12.00		13.19	13.19	--	--	--		--	--	--
9/5/2007	2007	2007	9	--		--	0.44	5.29	5.50	3.64	9.10		10.00	10.00	--	--	--		--	--	--
9/6/2007	2007	2007	9	--		--	0.32	5.15	5.39	3.63	9.60		10.35	10.35	--	--	--		--	--	--
9/7/2007	2007	2007	9	--		--	0.00	6.03	7.09	4.53	11.00		11.62	11.62	--	--	--		--	--	--
9/8/2007	2007	2007	9	--		--	0.00	6.03	7.09	4.53	10.00		10.69	10.69	--	--	--		--	--	--
9/9/2007	2007	2007	9	--		--	1.23	6.03	7.09	4.53	8.80		9.58	9.58	--	--	--		--	--	--
9/10/2007	2007	2007	9	--		--	0.14	5.68	5.89	3.75	8.80		9.98	9.98	--	--	--		--	--	--
9/11/2007	2007	2007	9	--		--	0.56	5.52	5.58	3.35	8.20		9.64	9.64	--	--	--		--	--	--
9/12/2007	2007	2007	9	--		--	0.57	5.03	5.05	2.93	6.90		8.36	8.36	--	--	--		--	--	--
9/13/2007	2007	2007	9	--		--	0.63	5.56	5.04	2.87	7.40		9.38	9.38	--	--	--		--	--	--
9/14/2007	2007	2007	9	--		--	0.00	7.00	5.26	2.93	6.20		9.55	9.55	--	--	--		--	--	--
9/15/2007	2007	2007	9	--		--	0.00	7.00	5.26	2.93	7.00		10.29	10.29	--	--	--		--	--	--
9/16/2007	2007	2007	9	--		--	1.36	7.00	5.26	2.93	7.80		11.03	11.03	--	--	--		--	--	--
9/17/2007	2007	2007	9	--		--	0.43	5.74	5.69	2.64	9.00		11.25	11.25	--	--	--		--	--	--
9/18/2007	2007	2007	9	--		--	0.58	5.19	4.65	2.53	11.00		12.71	12.71	--	--	--		--	--	--
9/19/2007	2007	2007	9	--		--	0.50	5.32	5.40	2.88	14.00		15.28	15.28	--	--	--		--	--	--

										Existing Condition								With Project Diversion				
														0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
						Est. Loss,			San Joaquin Marsh Operations					**Adjusted	**Adjusted		Est. Loss,	39.7 ppb	16.5 ppm		**Adjusted	using SDC at Can
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	San Diego Cr (SDC) at Campus (cfs)	San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	San Diego Cr (SDC) at Campus (cfs)	SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW Ba	Project - Diversi	Project - Diversi	Project - PCW Ba	Project - SDC Ca	Project - SJM In
9/20/2007	2007	2007	9	--		--	0.60	5.43	5.93	3.24	22.00		22.50		--	--	--		--	--	--
9/21/2007	2007	2007	9	--		--	0.00	4.60	9.00	6.16	19.00		16.23	16.23	--	--	--		--	--	--
9/22/2007	2007	2007	9	--		--	0.00	4.60	9.00	6.16	339.00		313.83		--	--	--		--	--	--
9/23/2007	2007	2007	9	--		--	1.73	4.60	9.00	6.16	39.00		34.83		--	--	--		--	--	--
9/24/2007	2007	2007	9	--		--	0.54	4.63	6.91	4.60	21.00		19.56		--	--	--		--	--	--
9/25/2007	2007	2007	9	--		--	0.60	5.22	7.50	4.83	17.00		16.17	16.17	--	--	--		--	--	--
9/26/2007	2007	2007	9	--		--	0.54	5.27	7.98	5.17	15.00		14.04	14.04	--	--	--		--	--	--
9/27/2007	2007	2007	9	--		--	2.12	0.31	6.73	0.00	16.00		15.17	15.17	--	--	--		--	--	--
9/28/2007	2007	2007	9	--		--	0.00	0.00	9.47	0.00	6.30		5.86	5.86	--	--	--		--	--	--
9/29/2007	2007	2007	9	--		--	0.00	0.00	9.47	0.00	5.70		5.30	5.30	--	--	--		--	--	--
9/30/2007	2007	2007	9	--		--	0.36	0.00	9.47	0.00	5.80		5.39	5.39	--	--	--		--	--	--
10/1/2007	2007	2008	10	--		--	0.59	0.00	5.86	0.00	5.50		5.12	5.12	--	--	--		--	--	--
10/2/2007	2007	2008	10	--		--	0.56	0.00	5.77	0.00	5.20		4.84	4.84	--	--	--		--	--	--
10/3/2007	2007	2008	10	--		--	0.12	0.00	7.25	0.00	5.30		4.93	4.93	--	--	--		--	--	--
10/4/2007	2007	2008	10	--		--	0.54	0.00	5.99	0.00	5.00		4.65	4.65	--	--	--		--	--	--
10/5/2007	2007	2008	10	--		--	0.00	0.00	7.35	0.00	4.80		4.46	4.46	--	--	--		--	--	--
10/6/2007	2007	2008	10	--		--	0.00	0.00	7.35	0.00	5.00		4.65	4.65	--	--	--		--	--	--
10/7/2007	2007	2008	10	--		--	0.34	0.00	7.35	0.00	5.00		4.65	4.65	--	--	--		--	--	--
10/8/2007	2007	2008	10	--		--	0.11	0.00	8.12	0.00	4.90		4.56	4.56	--	--	--		--	--	--
10/9/2007	2007	2008	10	--		--	0.47	0.00	6.67	0.00	5.00		4.65	4.65	--	--	--		--	--	--
10/10/2007	2007	2008	10	--		--	0.11	0.00	6.84	0.00	5.60		5.21	5.21	--	--	--		--	--	--
10/11/2007	2007	2008	10	--		--	0.57	0.00	6.56	0.00	6.00		5.58	5.58	--	--	--		--	--	--
10/12/2007	2007	2008	10	--		--	0.00	0.00	6.56	0.00	7.50		6.98	6.98	--	--	--		--	--	--
10/13/2007	2007	2008	10	--		--	0.00	0.00	6.56	0.00	71.00		66.03		--	--	--		--	--	--
10/14/2007	2007	2008	10	--		--	1.64	0.00	6.56	0.00	15.00		13.95	13.95	--	--	--		--	--	--
10/15/2007	2007	2008	10	--		--	0.54	0.00	7.05	0.00	8.90		8.28	8.28	--	--	--		--	--	--
10/16/2007	2007	2008	10	--		--	0.54	0.00	6.69	0.00	9.00		8.37	8.37	--	--	--		--	--	--
10/17/2007	2007	2008	10	--		--	0.49	0.00	7.03	0.00	8.80		8.18	8.18	--	--	--		--	--	--
10/18/2007	2007	2008	10	--		--	0.54	0.00	4.72	0.00	8.40		7.81	7.81	--	--	--		--	--	--
10/19/2007	2007	2008	10	--		--	0.00	0.00	4.68	0.00	7.70		7.16	7.16	--	--	--		--	--	--
10/20/2007	2007	2008	10	--		--	0.00	0.00	4.68	0.00	9.30		8.65	8.65	--	--	--		--	--	--
10/21/2007	2007	2008	10	--		--	1.14	0.00	4.68	0.00	11.00		10.23	10.23	--	--	--		--	--	--
10/22/2007	2007	2008	10	--		--	0.95	0.00	6.38	0.00	18.00		16.74	16.74	--	--	--		--	--	--
10/23/2007	2007	2008	10	--		--	0.53	0.00	6.38	0.00	19.00		17.67	17.67	--	--	--		--	--	--
10/24/2007	2007	2008	10	--		--	0.53	0.00	5.32	0.00	19.00		17.67	17.67	--	--	--		--	--	--
10/25/2007	2007	2008	10	--		--	0.53	0.00	5.43	0.00	17.00		15.81	15.81	--	--	--		--	--	--
10/26/2007	2007	2008	10	--		--	0.00	0.00	5.64	0.00	13.00		12.09	12.09	--	--	--		--	--	--
10/27/2007	2007	2008	10	--		--	0.00	0.00	5.64	0.00	9.50		8.84	8.84	--	--	--		--	--	--
10/28/2007	2007	2008	10	--		--	1.67	0.00	5.64	0.00	9.40		8.74	8.74	--	--	--		--	--	--
10/29/2007	2007	2008	10	--		--	0.44	0.00	5.68	0.00	8.20		7.63	7.63	--	--	--		--	--	--
10/30/2007	2007	2008	10	--		--	0.60	0.00	5.55	0.00	7.90		7.35	7.35	--	--	--		--	--	--
10/31/2007	2007	2008	10	--		--	0.56	0.00	5.48	0.00	12.00		11.16	11.16	--	--	--		--	--	--
11/1/2007	2007	2008	11	--		--	0.46	0.00	4.79	0.00	11.00		10.23	10.23	--	--	--		--	--	--
11/2/2007	2007	2008	11	--		--	0.00	0.00	5.33	0.00	9.00		8.37	8.37	--	--	--		--	--	--
11/3/2007	2007	2008	11	--		--	0.00	0.00	5.33	0.00	8.30		7.72	7.72	--	--	--		--	--	--
11/4/2007	2007	2008	11	--		--	1.20	0.00	5.33	0.00	10.00		9.30	9.30	--	--	--		--	--	--
11/5/2007	2007	2008	11	--		--	0.94	0.00	4.76	0.00	9.60		8.93	8.93	--	--	--		--	--	--
11/6/2007	2007	2008	11	--		--	0.41	0.00	5.15	0.00	10.00		9.30	9.30	--	--	--		--	--	--
11/7/2007	2007	2008	11	--		--	0.39	0.00	4.61	0.00	10.00		9.30	9.30	--	--	--		--	--	--
11/8/2007	2007	2008	11	--		--	0.50	0.00	5.22	0.00	9.10		8.46	8.46	--	--	--		--	--	--
11/9/2007	2007	2008	11	--		--	0.00	0.00	4.87	0.00	9.50		8.84	8.84	--	--	--		--	--	--
11/10/2007	2007	2008	11	--		--	0.00	0.00	4.87	0.00	9.50		8.84	8.84	--	--	--		--	--	--
11/11/2007	2007	2008	11	--		--	1.36	0.00	4.87	0.00	10.00		9.30	9.30	--	--	--		--	--	--
11/12/2007	2007	2008	11	--		--	0.22	0.00	4.20	0.00	10.00		9.30	9.30	--	--	--		--	--	--
11/13/2007	2007	2008	11	--		--	0.24	0.00	5.15	0.00	11.00		10.23	10.23	--	--	--		--	--	--
11/14/2007	2007	2008	11	--		--	0.11	0.00	4.28	0.00	14.00		13.02	13.02	--	--	--		--	--	--
11/15/2007	2007	2008	11	--		--	0.26	0.00	5.03	0.00	13.00		12.09	12.09	--	--	--		--	--	--
11/16/2007	2007	2008	11	--		--	0.00	0.00	4.75	0.00	11.00		10.23	10.23	--	--	--		--	--	--
11/17/2007	2007	2008	11	--		--	0.00	0.00	4.75	0.00	13.00		12.09	12.09	--	--	--		--	--	--
11/18/2007	2007	2008	11	--		--	1.42	0.00	4.75	0.00	9.40		8.74	8.74	--	--	--		--	--	--
11/19/2007	2007	2008	11	--		--	0.44	0.00	4.99	0.00	9.30		8.65	8.65	--	--	--		--	--	--
11/20/2007	2007	2008	11	--		--	0.45	0.00	4.92	0.00	10.00		9.30	9.30	--	--	--		--	--	--
11/21/2007	2007	2008	11	--		--	0.00	0.00	5.05	0.00	10.00		9.30	9.30	--	--	--		--	--	--
11/22/2007	2007	2008	11	--		--	0.00	0.00	5.05	0.00	9.20		8.56	8.56	--	--	--		--	--	--
11/23/2007	2007	2008	11	--		--	0.00	0.00	5.05	0.00	9.80		9.11	9.11	--	--	--		--	--	--
11/24/2007	2007	2008	11	--		--	0.00	0.00	5.05	0.00	7.80		7.25	7.25	--	--	--		--	--	--
11/25/2007	2007	2008	11	--		--	2.51	0.00	5.05	0.00	8.60		8.00	8.00	--	--	--		--	--	--
11/26/2007	2007	2008	11	--		--	0.33	0.00	5.27	0.00	9.60		8.93	8.93	--	--	--		--	--	--
11/27/2007	2007	2008	11	--		--	0.47	0.00	5.09	0.00	11.00		10.23	10.23	--	--	--		--	--	--
11/28/2007	2007	2008	11	--		--	0.43	0.00	5.01	0.00	12.00		11.16	11.16	--	--	--		--	--	--
11/29/2007	2007	2008	11	--		--	0.35	0.00	5.08	0.00	12.00		11.16	11.16	--	--	--		--	--	--

Existing Condition

San Joaquin Marsh Operations

With Project Diversion

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
11/30/2007	2007	2008	11	--		--	0.12	0.00	5.51	0.00	928.00		863.04		--	--	--		--	--	--
12/1/2007	2007	2008	12	--		--	0.00	0.00	5.51	0.00	395.00		367.35		--	--	--		--	--	--
12/2/2007	2007	2008	12	--		--	0.99	0.00	5.51	0.00	40.00		37.20		--	--	--		--	--	--
12/3/2007	2007	2008	12	--		--	0.43	0.00	5.13	0.00	19.00		17.67	17.67	--	--	--		--	--	--
12/4/2007	2007	2008	12	--		--	0.39	0.00	5.05	0.00	15.00		13.95	13.95	--	--	--		--	--	--
12/5/2007	2007	2008	12	--		--	0.36	0.00	4.95	0.00	9.30		8.65	8.65	--	--	--		--	--	--
12/6/2007	2007	2008	12	--		--	0.39	0.00	4.21	0.00	3.40		3.16	3.16	--	--	--		--	--	--
12/7/2007	2007	2008	12	--		--	0.00	0.00	5.45	3.17	175.00		159.81		--	--	--		--	--	--
12/8/2007	2007	2008	12	--		--	0.00	0.00	5.45	3.17	55.00		48.21		--	--	--		--	--	--
12/9/2007	2007	2008	12	--		--	0.33	0.00	5.45	3.17	37.00		31.47		--	--	--		--	--	--
12/10/2007	2007	2008	12	--		--	0.31	0.00	4.80	3.24	18.00		13.73	13.73	--	--	--		--	--	--
12/11/2007	2007	2008	12	--		--	0.33	8.61	3.93	2.29	9.40		14.63	14.63	--	--	--		--	--	--
12/12/2007	2007	2008	12	--		--	0.64	7.97	3.95	2.02	4.80		9.99	9.99	--	--	--		--	--	--
12/13/2007	2007	2008	12	--		--	0.94	6.84	4.50	1.86	2.60		7.05	7.05	--	--	--		--	--	--
12/14/2007	2007	2008	12	--		--	0.00	6.86	5.35	2.05	2.40		6.86	6.86	--	--	--		--	--	--
12/15/2007	2007	2008	12	--		--	0.00	6.86	5.35	2.05	2.20		6.86	6.86	--	--	--		--	--	--
12/16/2007	2007	2008	12	--		--	1.54	6.86	5.35	2.05	2.50		6.86	6.86	--	--	--		--	--	--
12/17/2007	2007	2008	12	--		--	0.00	5.99	6.93	3.15	3.80		6.18	6.18	--	--	--		--	--	--
12/18/2007	2007	2008	12	--		--	0.77	3.99	7.13	3.88	18.00		16.85	16.85	--	--	--		--	--	--
12/19/2007	2007	2008	12	--		--	0.71	5.48	5.92	4.29	168.00		157.34		--	--	--		--	--	--
12/20/2007	2007	2008	12	--		--	0.75	6.44	4.46	2.57	26.00		27.78		--	--	--		--	--	--
12/21/2007	2007	2008	12	--		--	0.00	6.68	4.15	2.17	16.00		19.07		--	--	--		--	--	--
12/22/2007	2007	2008	12	--		--	0.00	6.68	4.15	2.17	9.90		13.40	13.40	--	--	--		--	--	--
12/23/2007	2007	2008	12	--		--	0.00	6.68	4.15	2.17	6.00		9.77	9.77	--	--	--		--	--	--
12/24/2007	2007	2008	12	--		--	0.00	7.08	5.37	1.73	4.90		9.53	9.53	--	--	--		--	--	--
12/25/2007	2007	2008	12	--		--	2.67	7.08	5.37	1.73	3.80		8.51	8.51	--	--	--		--	--	--
12/26/2007	2007	2008	12	--		--	0.53	6.90	6.24	4.07	4.40		6.90	6.90	--	--	--		--	--	--
12/27/2007	2007	2008	12	--		--	0.51	7.02	5.98	4.07	6.40		8.70	8.70	--	--	--		--	--	--
12/28/2007	2007	2008	12	--		--	0.00	6.96	5.94	3.94	6.40		8.76	8.76	--	--	--		--	--	--
12/29/2007	2007	2008	12	--		--	0.00	6.96	5.94	3.94	5.30		7.74	7.74	--	--	--		--	--	--
12/30/2007	2007	2008	12	--		--	0.00	6.96	5.94	3.94	6.30		8.67	8.67	--	--	--		--	--	--
12/31/2007	2007	2008	12	--		--	0.17	6.96	5.94	3.94	7.10		9.41	9.41	--	--	--		--	--	--
1/1/2008	2008	2008	1	--		--	0.17	6.96	5.94	3.94	7.40		9.69	9.69	--	--	--		--	--	--
1/2/2008	2008	2008	1	--		--	0.17	6.63	5.90	3.75	7.20		9.37	9.37	--	--	--		--	--	--
1/3/2008	2008	2008	1	--		--	0.17	6.75	6.12	3.95	6.20		8.37	8.37	--	--	--		--	--	--
1/4/2008	2008	2008	1	--		--	0.17	3.50	6.64	4.99	6.10		4.29	4.29	--	--	--		--	--	--
1/5/2008	2008	2008	1	--		--	0.17	3.50	6.64	4.99	1540.00		1430.82		--	--	--		--	--	--
1/6/2008	2008	2008	1	--		--	0.17	3.50	6.64	4.99	323.00		299.01		--	--	--		--	--	--
1/7/2008	2008	2008	1	--		--	0.17	7.44	7.76	5.45	329.00		307.82		--	--	--		--	--	--
1/8/2008	2008	2008	1	--		--	0.17	6.93	7.88	3.68	30.00		30.92		--	--	--		--	--	--
1/9/2008	2008	2008	1	--		--	0.17	7.67	7.22	2.70	19.00		22.29		--	--	--		--	--	--
1/10/2008	2008	2008	1	--		--	0.17	7.29	6.68	2.41	12.00		15.70	15.70	--	--	--		--	--	--
1/11/2008	2008	2008	1	--		--	0.17	6.97	7.84	2.82	9.50		12.70	12.70	--	--	--		--	--	--
1/12/2008	2008	2008	1	--		--	0.17	6.97	7.84	2.82	12.00		15.03	15.03	--	--	--		--	--	--
1/13/2008	2008	2008	1	--		--	0.17	6.97	7.84	2.82	9.30		12.52	12.52	--	--	--		--	--	--
1/14/2008	2008	2008	1	--		--	0.17	6.66	9.41	4.25	9.00		10.61	10.61	--	--	--		--	--	--
1/15/2008	2008	2008	1	--		--	0.17	6.47	8.28	4.42	10.00		11.21	11.21	--	--	--		--	--	--
1/16/2008	2008	2008	1	--		--	0.17	6.60	7.78	3.76	12.00		13.80	13.80	--	--	--		--	--	--
1/17/2008	2008	2008	1	--		--	0.17	6.60	7.19	3.32	9.00		11.43	11.43	--	--	--		--	--	--
1/18/2008	2008	2008	1	--		--	0.17	6.89	7.06	2.85	6.80		10.08	10.08	--	--	--		--	--	--
1/19/2008	2008	2008	1	--		--	0.17	6.89	7.06	2.85	6.00		9.33	9.33	--	--	--		--	--	--
1/20/2008	2008	2008	1	--		--	0.17	6.89	7.06	2.85	5.30		8.68	8.68	--	--	--		--	--	--
1/21/2008	2008	2008	1	--		--	0.17	7.03	7.03	3.08	6.60		9.81	9.81	--	--	--		--	--	--
1/22/2008	2008	2008	1	--		--	0.17	6.43	6.49	2.81	20.00		21.96		--	--	--		--	--	--
1/23/2008	2008	2008	1	--		--	0.17	3.94	7.27	2.84	325.00		303.27		--	--	--		--	--	--
1/24/2008	2008	2008	1	--		--	0.17	4.32	7.26	3.65	146.00		136.41		--	--	--		--	--	--
1/25/2008	2008	2008	1	--		--	0.17	3.18	8.15	3.60	192.00		178.17		--	--	--		--	--	--
1/26/2008	2008	2008	1	--		--	0.17	3.18	8.15	3.60	17.00		15.42	15.42	--	--	--		--	--	--
1/27/2008	2008	2008	1	--		--	0.17	3.18	8.15	3.60	658.00		611.55		--	--	--		--	--	--
1/28/2008	2008	2008	1	--		--	0.17	4.60	9.30	6.18	598.00		554.67		--	--	--		--	--	--
1/29/2008	2008	2008	1	--		--	0.17	7.27	9.15	5.99	58.00		55.14		--	--	--		--	--	--
1/30/2008	2008	2008	1	--		--	0.17	6.90	8.55	5.70	25.00		24.37		--	--	--		--	--	--
1/31/2008	2008	2008	1	--		--	0.17	6.36	7.92	5.46	19.00		18.51	18.51	--	--	--		--	--	--
2/1/2008	2008	2008	2	--		--	0.00	6.27	5.12	5.12	17.00		16.89	16.89	--	--	--		--	--	--
2/2/2008	2008	2008	2	--		--	0.00	6.27	5.12	5.12	13.00		13.17	13.17	--	--	--		--	--	--
2/3/2008	2008	2008	2	--		--	1.83	6.27	5.12	5.12	435.00		405.63		--	--	--		--	--	--
2/4/2008	2008	2008	2	--		--	0.55	6.74	8.47	5.47	42.00		40.24		--	--	--		--	--	--
2/5/2008	2008	2008	2	--		--	0.56	6.31	7.34	4.78	18.00		18.17	18.17	--	--	--		--	--	--
2/6/2008	2008	2008	2	--		--	4.72	6.59	7.36	4.79	12.00		12.83	12.83	--	--	--		--	--	--
2/7/2008	2008	2008	2	--		--	0.28	6.99	5.97	3.88	10.00		12.19	12.19	--	--	--		--	--	--
2/8/2008	2008	2008	2	--		--	0.00	6.93	7.07	4.28	8.40		10.27	10.27	--	--	--		--	--	--

								Existing Condition									***With Project Diversion***				
													0.93	*20.00 cfs*		*PROJ. Div*	*39.7 ppb*	*16.5 ppm*			
								San Joaquin Marsh Operations													
DATE	*Year*	*Water Year*	*Month*	*Peters Canyon Wash (PCW) at Barranca (cfs)*	*QC*	*Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)*	*MWRP Dewatering Discharge (cfs)*	*SJ Marsh Inflow (from SDC) (cfs)*	*SJ Marsh Outflow (#002A) (cfs)*	*SJ Marsh Outflow (to SDC, #002B) (cfs)*	*San Diego Cr (SDC) at Campus (cfs)*	*QC*	***Adjusted San Diego Cr (SDC) at Campus (cfs)*	***Adjusted San Diego Cr (SDC) at Campus, Base (cfs)*	*Est. PROJECT Diversion (cfs)*	*Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)*	*39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)*	*16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)*	*Peters Canyon Wash (PCW) at Barranca (cfs)*	***Adjusted San Diego Cr (SDC) at Campus (cfs)*	*using SDC at Can SJ Marsh Inflow (from SDC) (cfs)*
DATE	*Year*	*WY*	*Month*	*PCW Bar*	*PCW*	*PCW Bar (Loss)*	*MWRP Dewtr*	*SJM In*	*SJM Out (2A)*	*SJM Out (SDC)*	*SDC Campus*	*SDC*	*SDC Campus ***	*SDC Campus, Ba*	*Project - Diversio*	*Project - PCW Bo*	*Project - Diversio*	*Project - Diversio*	*Project - PCW Bo*	*Project - SDC Ca*	*Project - SJM In*
2/9/2008	2008	2008	2	--		--	0.00	6.93	7.07	4.28	7.50		9.44	9.44	--	--	--		--	--	--
2/10/2008	2008	2008	2	--		--	0.87	6.93	7.07	4.28	7.30		9.25	9.25	--	--	--		--	--	--
2/11/2008	2008	2008	2	--		--	0.27	6.26	7.18	4.27	8.30		9.57	9.57	--	--	--		--	--	--
2/12/2008	2008	2008	2	--		--	0.27	7.14	8.72	5.18	14.00		14.84	14.84	--	--	--		--	--	--
2/13/2008	2008	2008	2	--		--	0.32	6.74	7.49	4.55	9.20		10.59	10.59	--	--	--		--	--	--
2/14/2008	2008	2008	2	--		--	0.25	5.82	7.69	4.64	63.00		59.68		--	--	--		--	--	--
2/15/2008	2008	2008	2	--		--	0.00	6.69	8.16	5.19	18.00		18.14	18.14	--	--	--		--	--	--
2/16/2008	2008	2008	2	--		--	0.00	6.69	8.16	5.19	9.10		9.86	9.86	--	--	--		--	--	--
2/17/2008	2008	2008	2	--		--	0.00	6.69	8.16	5.19	8.00		8.84	8.84	--	--	--		--	--	--
2/18/2008	2008	2008	2	--		--	1.15	6.69	8.16	5.19	8.10		8.93	8.93	--	--	--		--	--	--
2/19/2008	2008	2008	2	--		--	0.26	6.97	8.16	5.17	8.80		9.86	9.86	--	--	--		--	--	--
2/20/2008	2008	2008	2	--		--	0.29	6.64	7.75	5.01	27.00		26.62		--	--	--		--	--	--
2/21/2008	2008	2008	2	--		--	0.30	4.58	7.35	4.47	16.00		14.98	14.98	--	--	--		--	--	--
2/22/2008	2008	2008	2	--		--	0.00	4.66	7.93	4.90	567.00		527.09		--	--	--		--	--	--
2/23/2008	2008	2008	2	--		--	0.00	4.66	7.93	4.90	24.00		22.10		--	--	--		--	--	--
2/24/2008	2008	2008	2	--		--	0.33	4.66	7.93	4.90	244.00		226.70		--	--	--		--	--	--
2/25/2008	2008	2008	2	--		--	0.27	6.05	7.50	4.59	31.00		30.18		--	--	--		--	--	--
2/26/2008	2008	2008	2	--		--	0.26	6.81	9.14	5.78	13.00		13.05	13.05	--	--	--		--	--	--
2/27/2008	2008	2008	2	--		--	0.28	5.46	8.41	5.36	12.00		11.25	11.25	--	--	--		--	--	--
2/28/2008	2008	2008	2	--		--	0.64	6.51	8.18	5.28	9.10		9.60	9.60	--	--	--		--	--	--
2/29/2008	2008	2008	2	--		--	0.00	6.40	7.63	4.49	8.10		9.31	9.31	--	--	--		--	--	--
3/1/2008	2008	2008	3	--		--	0.00	6.40	7.63	4.49	6.60		7.91	7.91	--	--	--		--	--	--
3/2/2008	2008	2008	3	--		--	1.02	6.40	7.63	4.49	8.40		9.59	9.59	--	--	--		--	--	--
3/3/2008	2008	2008	3	--		--	0.17	7.03	6.78	4.72	4.80		7.03	7.03	--	--	--		--	--	--
3/4/2008	2008	2008	3	--		--	0.36	6.73	6.89	4.55	5.60		7.24	7.24	--	--	--		--	--	--
3/5/2008	2008	2008	3	--		--	0.32	6.57	7.53	5.18	6.80		7.62	7.62	--	--	--		--	--	--
3/6/2008	2008	2008	3	--		--	0.36	6.75	7.96	5.67	8.20		8.63	8.63	--	--	--		--	--	--
3/7/2008	2008	2008	3	--		--	0.00	6.75	8.46	6.14	8.40		8.38	8.38	--	--	--		--	--	--
3/8/2008	2008	2008	3	--		--	0.00	6.75	8.46	6.14	10.00		9.87	9.87	--	--	--		--	--	--
3/9/2008	2008	2008	3	--		--	1.06	6.75	8.46	6.14	15.00		14.52	14.52	--	--	--		--	--	--
3/10/2008	2008	2008	3	--		--	0.36	6.24	8.70	6.51	15.00		13.70	13.70	--	--	--		--	--	--
3/11/2008	2008	2008	3	--		--	0.34	0.86	9.35	1.01	14.00		12.88	12.88	--	--	--		--	--	--
3/12/2008	2008	2008	3	--		--	0.36	0.00	9.11	0.00	15.00		13.95	13.95	--	--	--		--	--	--
3/13/2008	2008	2008	3	--		--	0.35	4.51	9.39	4.82	17.00		15.52	15.52	--	--	--		--	--	--
3/14/2008	2008	2008	3	--		--	0.00	6.97	9.31	6.86	15.00		14.05	14.05	--	--	--		--	--	--
3/15/2008	2008	2008	3	--		--	0.00	6.97	9.31	6.86	12.00		11.26	11.26	--	--	--		--	--	--
3/16/2008	2008	2008	3	--		--	1.04	6.97	9.31	6.86	12.00		11.26	11.26	--	--	--		--	--	--
3/17/2008	2008	2008	3	--		--	0.32	5.84	7.76	5.67	9.70		9.17	9.17	--	--	--		--	--	--
3/18/2008	2008	2008	3	--		--	0.12	7.26	9.52	6.98	8.80		8.44	8.44	--	--	--		--	--	--
3/19/2008	2008	2008	3	--		--	0.12	6.36	8.36	6.07	8.70		8.36	8.36	--	--	--		--	--	--
3/20/2008	2008	2008	3	--		--	0.00	6.74	8.30	6.16	8.90		8.82	8.82	--	--	--		--	--	--
3/21/2008	2008	2008	3	--		--	0.00	6.74	8.30	6.16	9.00		8.92	8.92	--	--	--		--	--	--
3/22/2008	2008	2008	3	--		--	0.00	6.74	8.30	6.16	14.00		13.57	13.57	--	--	--		--	--	--
3/23/2008	2008	2008	3	--		--	0.70	6.74	8.30	6.16	13.00		12.64	12.64	--	--	--		--	--	--
3/24/2008	2008	2008	3	--		--	0.17	6.46	8.99	5.53	9.80		9.97	9.97	--	--	--		--	--	--
3/25/2008	2008	2008	3	--		--	0.17	6.92	8.64	5.90	9.90		10.15	10.15	--	--	--		--	--	--
3/26/2008	2008	2008	3	--		--	0.39	6.78	8.39	5.91	9.80		9.92	9.92	--	--	--		--	--	--
3/27/2008	2008	2008	3	--		--	0.24	6.30	8.08	5.55	9.30		9.34	9.34	--	--	--		--	--	--
3/28/2008	2008	2008	3	--		--	0.00	6.63	9.02	6.32	9.30		8.93	8.93	--	--	--		--	--	--
3/29/2008	2008	2008	3	--		--	0.00	6.63	9.02	6.32	10.00		9.58	9.58	--	--	--		--	--	--
3/30/2008	2008	2008	3	--		--	0.16	6.63	9.02	6.32	17.00		16.09	16.09	--	--	--		--	--	--
3/31/2008	2008	2008	3	--		--	0.41	5.99	8.56	6.06	14.00		12.96	12.96	--	--	--		--	--	--
4/1/2008	2008	2008	4	--		--	0.49	6.47	9.36	6.78	9.50		8.55	8.55	--	--	--		--	--	--
4/2/2008	2008	2008	4	--		--	0.25	6.91	10.28	7.52	9.30		8.08	8.08	--	--	--		--	--	--
4/3/2008	2008	2008	4	--		--	0.41	5.46	8.49	6.17	25.00		22.59		--	--	--		--	--	--
4/4/2008	2008	2008	4	--		--	0.00	6.26	9.17	6.66	20.00		18.23	18.23	--	--	--		--	--	--
4/5/2008	2008	2008	4	--		--	0.00	6.26	9.17	6.66	11.00		9.86	9.86	--	--	--		--	--	--
4/6/2008	2008	2008	4	--		--	1.29	6.26	9.17	6.66	9.50		8.47	8.47	--	--	--		--	--	--
4/7/2008	2008	2008	4	--		--	0.40	6.43	9.03	6.54	9.00		8.27	8.27	--	--	--		--	--	--
4/8/2008	2008	2008	4	--		--	0.34	6.54	9.15	6.54	9.20		8.56	8.56	--	--	--		--	--	--
4/9/2008	2008	2008	4	--		--	0.39	6.21	8.80	6.55	9.50		8.52	8.52	--	--	--		--	--	--
4/10/2008	2008	2008	4	--		--	0.44	6.75	9.34	6.71	9.30		8.69	8.69	--	--	--		--	--	--
4/11/2008	2008	2008	4	--		--	0.00	6.75	9.34	6.71	8.30		7.76	7.76	--	--	--		--	--	--
4/12/2008	2008	2008	4	--		--	0.00	6.75	9.34	6.71	8.60		8.04	8.04	--	--	--		--	--	--
4/13/2008	2008	2008	4	--		--	1.27	6.75	9.34	6.71	8.20		7.67	7.67	--	--	--		--	--	--
4/14/2008	2008	2008	4	--		--	0.39	5.89	7.98	5.85	8.40		7.85	7.85	--	--	--		--	--	--
4/15/2008	2008	2008	4	--		--	0.40	7.08	9.32	6.29	8.40		8.55	8.55	--	--	--		--	--	--
4/16/2008	2008	2008	4	--		--	0.71	6.03	8.06	5.65	8.00		7.79	7.79	--	--	--		--	--	--
4/17/2008	2008	2008	4	--		--	0.44	6.77	8.74	5.65	7.30		7.82	7.82	--	--	--		--	--	--
4/18/2008	2008	2008	4	--		--	0.00	6.52	8.41	6.03	6.80		6.78	6.78	--	--	--		--	--	--
4/19/2008	2008	2008	4	--		--	0.00	6.52	8.41	6.03	6.90		6.88	6.88	--	--	--		--	--	--

									Existing Condition									With Project Diversion			
													0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
						Est. Loss,			San Joaquin Marsh Operations				**Adjusted	**Adjusted		Est. Loss,	39.7 ppb	16.5 ppm		**Adjusted	using SDC at Can
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	San Diego Cr (SDC) at Campus (cfs)	San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	San Diego Cr (SDC) at Campus (cfs)	SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW Ba	Project - Diversi	Project - Diversi	Project - PCW Ba	Project - SDC Ca	Project - SJM In
4/20/2008	2008	2008	4	--		--	1.31	6.52	8.41	6.03	6.60		6.60	6.60	--	--	--		--	--	--
4/21/2008	2008	2008	4	--		--	0.21	6.51	8.14	5.35	6.30		6.94	6.94	--	--	--		--	--	--
4/22/2008	2008	2008	4	--		--	0.38	7.20	9.00	5.95	6.20		7.20	7.20	--	--	--		--	--	--
4/23/2008	2008	2008	4	--		--	0.42	5.63	7.88	5.13	8.40		8.27	8.27	--	--	--		--	--	--
4/24/2008	2008	2008	4	--		--	0.42	6.10	8.13	5.84	9.10		8.70	8.70	--	--	--		--	--	--
4/25/2008	2008	2008	4	--		--	0.00	6.91	8.80	6.18	8.30		8.40	8.40	--	--	--		--	--	--
4/26/2008	2008	2008	4	--		--	0.00	6.91	8.80	6.18	7.50		7.66	7.66	--	--	--		--	--	--
4/27/2008	2008	2008	4	--		--	1.23	6.91	8.80	6.18	7.40		7.56	7.56	--	--	--		--	--	--
4/28/2008	2008	2008	4	--		--	0.37	6.69	8.45	5.47	6.10		6.81	6.81	--	--	--		--	--	--
4/29/2008	2008	2008	4	--		--	0.36	6.52	4.72	3.37	5.50		8.05	8.05	--	--	--		--	--	--
4/30/2008	2008	2008	4	--		--	1.93	6.12	10.14	6.98	4.90		6.12	6.12	--	--	--		--	--	--
5/1/2008	2008	2008	5	--		--	0.40	7.19	10.15	7.20	8.90		8.27	8.27	--	--	--		--	--	--
5/2/2008	2008	2008	5	--		--	0.00	6.59	9.23	6.85	9.40		8.50	8.50	--	--	--		--	--	--
5/3/2008	2008	2008	5	--		--	0.00	6.59	9.23	6.85	9.50		8.59	8.59	--	--	--		--	--	--
5/4/2008	2008	2008	5	--		--	0.56	6.59	9.23	6.85	8.90		8.03	8.03	--	--	--		--	--	--
5/5/2008	2008	2008	5	--		--	0.19	6.91	8.53	6.08	8.20		8.40	8.40	--	--	--		--	--	--
5/6/2008	2008	2008	5	--		--	0.58	7.35	9.09	6.36	7.80		8.17	8.17	--	--	--		--	--	--
5/7/2008	2008	2008	5	--		--	0.43	5.80	8.32	5.41	7.10		6.96	6.96	--	--	--		--	--	--
5/8/2008	2008	2008	5	--		--	0.42	6.26	7.77	5.69	7.30		7.32	7.32	--	--	--		--	--	--
5/9/2008	2008	2008	5	--		--	0.00	6.82	8.97	6.30	7.70		7.64	7.64	--	--	--		--	--	--
5/10/2008	2008	2008	5	--		--	0.00	6.82	8.97	6.30	7.60		7.55	7.55	--	--	--		--	--	--
5/11/2008	2008	2008	5	--		--	1.21	6.82	8.97	6.30	9.20		9.04	9.04	--	--	--		--	--	--
5/12/2008	2008	2008	5	--		--	0.32	6.59	7.94	5.45	8.70		9.15	9.15	--	--	--		--	--	--
5/13/2008	2008	2008	5	--		--	0.36	7.30	9.73	6.04	9.10		9.63	9.63	--	--	--		--	--	--
5/14/2008	2008	2008	5	--		--	0.39	5.66	8.19	5.28	8.40		8.16	8.16	--	--	--		--	--	--
5/15/2008	2008	2008	5	--		--	0.37	5.85	9.27	6.07	12.00		10.96	10.96	--	--	--		--	--	--
5/16/2008	2008	2008	5	--		--	0.00	6.98	8.92	6.52	10.00		9.73	9.73	--	--	--		--	--	--
5/17/2008	2008	2008	5	--		--	0.00	6.98	8.92	6.52	9.50		9.26	9.26	--	--	--		--	--	--
5/18/2008	2008	2008	5	--		--	1.11	6.98	8.92	6.52	9.30		9.08	9.08	--	--	--		--	--	--
5/19/2008	2008	2008	5	--		--	0.46	7.08	9.40	6.41	9.20		9.17	9.17	--	--	--		--	--	--
5/20/2008	2008	2008	5	--		--	0.33	6.56	8.52	5.66	8.90		9.12	9.12	--	--	--		--	--	--
5/21/2008	2008	2008	5	--		--	0.37	6.88	9.68	6.48	8.50		8.28	8.28	--	--	--		--	--	--
5/22/2008	2008	2008	5	--		--	0.38	3.79	7.87	5.80	121.00		110.66		--	--	--		--	--	--
5/23/2008	2008	2008	5	--		--	0.00	6.22	9.21	6.87	28.00		25.44		--	--	--		--	--	--
5/24/2008	2008	2008	5	--		--	0.00	6.22	9.21	6.87	9.00		7.77	7.77	--	--	--		--	--	--
5/25/2008	2008	2008	5	--		--	0.00	6.22	9.21	6.87	5.40		6.22	6.22	--	--	--		--	--	--
5/26/2008	2008	2008	5	--		--	1.47	6.22	9.21	6.87	5.10		6.22	6.22	--	--	--		--	--	--
5/27/2008	2008	2008	5	--		--	0.34	5.56	7.61	5.78	5.70		5.56	5.56	--	--	--		--	--	--
5/28/2008	2008	2008	5	--		--	0.37	7.07	9.05	6.37	6.30		7.07	7.07	--	--	--		--	--	--
5/29/2008	2008	2008	5	--		--	0.35	7.10	9.16	6.50	6.30		7.10	7.10	--	--	--		--	--	--
5/30/2008	2008	2008	5	--		--	0.00	6.63	9.40	6.35	6.80		6.63	6.63	--	--	--		--	--	--
5/31/2008	2008	2008	5	--		--	0.00	6.63	9.40	6.35	7.20		6.96	6.96	--	--	--		--	--	--
6/1/2008	2008	2008	6	--		--	1.10	6.63	9.40	6.35	6.90		6.68	6.68	--	--	--		--	--	--
6/2/2008	2008	2008	6	--		--	0.41	5.44	7.15	5.00	6.50		6.46	6.46	--	--	--		--	--	--
6/3/2008	2008	2008	6	--		--	0.31	4.42	6.09	4.41	6.70		6.24	6.24	--	--	--		--	--	--
6/4/2008	2008	2008	6	--		--	0.37	5.44	7.57	5.59	7.00		6.37	6.37	--	--	--		--	--	--
6/5/2008	2008	2008	6	--		--	0.37	4.96	6.96	5.02	7.40		6.83	6.83	--	--	--		--	--	--
6/6/2008	2008	2008	6	--		--	0.00	6.19	9.40	7.11	7.40		6.19	6.19	--	--	--		--	--	--
6/7/2008	2008	2008	6	--		--	0.00	6.19	9.40	7.11	8.60		7.14	7.14	--	--	--		--	--	--
6/8/2008	2008	2008	6	--		--	1.09	6.19	9.40	7.11	8.50		7.05	7.05	--	--	--		--	--	--
6/9/2008	2008	2008	6	--		--	0.37	5.62	7.75	5.73	7.60		6.96	6.96	--	--	--		--	--	--
6/10/2008	2008	2008	6	--		--	0.33	4.67	6.63	4.76	7.10		6.52	6.52	--	--	--		--	--	--
6/11/2008	2008	2008	6	--		--	0.37	5.17	7.36	5.34	6.80		6.17	6.17	--	--	--		--	--	--
6/12/2008	2008	2008	6	--		--	0.37	5.59	7.98	5.58	6.40		5.96	5.96	--	--	--		--	--	--
6/13/2008	2008	2008	6	--		--	0.00	6.15	9.07	6.85	6.70		6.15	6.15	--	--	--		--	--	--
6/14/2008	2008	2008	6	--		--	0.00	6.15	9.07	6.85	7.50		6.32	6.32	--	--	--		--	--	--
6/15/2008	2008	2008	6	--		--	1.09	6.15	9.07	6.85	8.10		6.88	6.88	--	--	--		--	--	--
6/16/2008	2008	2008	6	--		--	0.36	4.99	5.61	3.80	7.10		7.71	7.71	--	--	--		--	--	--
6/17/2008	2008	2008	6	--		--	0.27	5.79	6.58	4.38	6.80		7.64	7.64	--	--	--		--	--	--
6/18/2008	2008	2008	6	--		--	0.32	5.24	5.90	3.87	7.00		7.78	7.78	--	--	--		--	--	--
6/19/2008	2008	2008	6	--		--	0.31	4.93	5.53	3.69	7.10		7.76	7.76	--	--	--		--	--	--
6/20/2008	2008	2008	6	--		--	0.00	6.20	7.82	5.59	6.70		6.79	6.79	--	--	--		--	--	--
6/21/2008	2008	2008	6	--		--	0.00	6.20	7.82	5.59	6.60		6.70	6.70	--	--	--		--	--	--
6/22/2008	2008	2008	6	--		--	1.06	6.20	7.82	5.59	6.70		6.79	6.79	--	--	--		--	--	--
6/23/2008	2008	2008	6	--		--	0.29	5.52	6.49	4.40	6.60		7.17	7.17	--	--	--		--	--	--
6/24/2008	2008	2008	6	--		--	0.27	5.16	6.10	4.16	6.10		6.60	6.60	--	--	--		--	--	--
6/25/2008	2008	2008	6	--		--	0.31	4.93	6.11	4.12	5.80		6.15	6.15	--	--	--		--	--	--
6/26/2008	2008	2008	6	--		--	0.33	5.31	6.75	5.33	5.70		5.31	5.31	--	--	--		--	--	--
6/27/2008	2008	2008	6	--		--	0.00	6.23	9.86	7.48	6.20		6.23	6.23	--	--	--		--	--	--
6/28/2008	2008	2008	6	--		--	0.00	6.23	9.86	7.48	7.40		6.23	6.23	--	--	--		--	--	--
6/29/2008	2008	2008	6	--		--	0.99	6.23	9.86	7.48	9.90		8.04	8.04	--	--	--		--	--	--

										Existing Condition				0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm	With Project Diversion		
										San Joaquin Marsh Operations								39.7 ppb	16.5 ppm			
	DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
	DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW Ba	Project - Diversi	Project - Diversi	Project - PCW Ba	Project - SDC Ca	Project - SJM In
	6/30/2008	2008	2008	6	--		--	0.29	4.69	7.41	5.24	8.80		7.67	7.67	--	--	--		--	--	--
	7/1/2008	2008	2008	7	--		--	0.32	5.09	7.82	5.75	7.50		6.36	6.36	--	--	--		--	--	--
	7/2/2008	2008	2008	7	--		--	0.19	5.29	7.97	5.77	7.50		6.53	6.53	--	--	--		--	--	--
	7/3/2008	2008	2008	7	--		--	0.00	6.09	5.66	3.35	7.50		9.52	9.52	--	--	--		--	--	--
	7/4/2008	2008	2008	7	--		--	0.00	6.09	5.66	3.35	6.80		8.87	8.87	--	--	--		--	--	--
	7/5/2008	2008	2008	7	--		--	0.00	6.09	5.66	3.35	5.50		7.66	7.66	--	--	--		--	--	--
	7/6/2008	2008	2008	7	--		--	1.22	6.09	5.66	3.35	4.80		7.01	7.01	--	--	--		--	--	--
	7/7/2008	2008	2008	7	--		--	0.18	4.81	4.52	2.70	4.70		6.34	6.34	--	--	--		--	--	--
	7/8/2008	2008	2008	7	--		--	0.28	5.43	5.14	3.02	4.30		6.24	6.24	--	--	--		--	--	--
	7/9/2008	2008	2008	7	--		--	0.28	5.93	5.89	3.23	4.00		6.23	6.23	--	--	--		--	--	--
	7/10/2008	2008	2008	7	--		--	0.33	5.18	5.35	3.18	3.90		5.49	5.49	--	--	--		--	--	--
	7/11/2008	2008	2008	7	--		--	0.00	6.16	7.78	5.29	4.00		6.16	6.16	--	--	--		--	--	--
	7/12/2008	2008	2008	7	--		--	0.00	6.16	7.78	5.29	4.50		6.16	6.16	--	--	--		--	--	--
	7/13/2008	2008	2008	7	--		--	0.87	6.16	7.78	5.29	5.20		6.16	6.16	--	--	--		--	--	--
	7/14/2008	2008	2008	7	--		--	0.28	4.49	5.39	3.68	5.40		5.78	5.78	--	--	--		--	--	--
	7/15/2008	2008	2008	7	--		--	0.17	5.29	6.39	4.23	5.10		5.73	5.73	--	--	--		--	--	--
	7/16/2008	2008	2008	7	--		--	0.30	5.10	6.43	4.11	5.10		5.67	5.67	--	--	--		--	--	--
	7/17/2008	2008	2008	7	--		--	0.32	5.73	8.10	5.65	5.10		5.73	5.73	--	--	--		--	--	--
	7/18/2008	2008	2008	7	--		--	0.00	5.73	8.10	5.65	5.40		5.73	5.73	--	--	--		--	--	--
	7/19/2008	2008	2008	7	--		--	0.00	5.73	8.10	5.65	5.80		5.73	5.73	--	--	--		--	--	--
	7/20/2008	2008	2008	7	--		--	0.81	5.73	8.10	5.65	6.60		6.21	6.21	--	--	--		--	--	--
	7/21/2008	2008	2008	7	--		--	0.27	4.50	5.81	4.04	6.40		6.38	6.38	--	--	--		--	--	--
	7/22/2008	2008	2008	7	--		--	0.25	1.05	1.26	0.75	7.60		7.34	7.34	--	--	--		--	--	--
	7/23/2008	2008	2008	7	--		--	0.27	0.00	0.39	0.01	8.00		7.43	7.43	--	--	--		--	--	--
	7/24/2008	2008	2008	7	--		--	0.28	0.00	0.61	0.00	5.50		5.12	5.12	--	--	--		--	--	--
	7/25/2008	2008	2008	7	--		--	0.00	6.73	8.75	5.65	6.60		7.14	7.14	--	--	--		--	--	--
	7/26/2008	2008	2008	7	--		--	0.00	6.73	8.75	5.65	7.90		8.35	8.35	--	--	--		--	--	--
	7/27/2008	2008	2008	7	--		--	0.82	6.73	8.75	5.65	7.60		8.07	8.07	--	--	--		--	--	--
	7/28/2008	2008	2008	7	--		--	0.27	4.24	4.64	2.58	6.40		7.50	7.50	--	--	--		--	--	--
	7/29/2008	2008	2008	7	--		--	0.27	4.25	4.63	2.56	5.10		6.32	6.32	--	--	--		--	--	--
	7/30/2008	2008	2008	7	--		--	0.27	4.25	4.54	2.37	4.30		5.75	5.75	--	--	--		--	--	--
	7/31/2008	2008	2008	7	--		--	0.30	4.20	4.72	2.41	3.60		5.02	5.02	--	--	--		--	--	--
	8/1/2008	2008	2008	8	--		--	0.00	6.01	7.13	4.29	3.10		6.01	6.01	--	--	--		--	--	--
	8/2/2008	2008	2008	8	--		--	0.00	6.01	7.13	4.29	3.40		6.01	6.01	--	--	--		--	--	--
	8/3/2008	2008	2008	8	--		--	0.79	6.01	7.13	4.29	4.10		6.01	6.01	--	--	--		--	--	--
	8/4/2008	2008	2008	8	--		--	0.29	4.98	6.19	4.16	4.40		4.98	4.98	--	--	--		--	--	--
	8/5/2008	2008	2008	8	--		--	0.26	5.11	5.99	3.83	4.30		5.19	5.19	--	--	--		--	--	--
	8/6/2008	2008	2008	8	--		--	0.27	5.80	6.84	4.42	4.20		5.80	5.80	--	--	--		--	--	--
	8/7/2008	2008	2008	8	--		--	0.32	4.92	5.82	3.67	4.40		5.25	5.25	--	--	--		--	--	--
	8/8/2008	2008	2008	8	--		--	0.00	6.02	8.08	5.10	4.50		6.02	6.02	--	--	--		--	--	--
	8/9/2008	2008	2008	8	--		--	0.00	6.02	8.08	5.10	5.00		6.02	6.02	--	--	--		--	--	--
	8/10/2008	2008	2008	8	--		--	0.81	6.02	8.08	5.10	5.50		6.02	6.02	--	--	--		--	--	--
	8/11/2008	2008	2008	8	--		--	0.28	4.88	5.74	3.91	5.50		6.01	6.01	--	--	--		--	--	--
	8/12/2008	2008	2008	8	--		--	0.25	5.97	6.97	4.76	5.10		5.97	5.97	--	--	--		--	--	--
	8/13/2008	2008	2008	8	--		--	0.27	4.49	5.50	3.77	5.40		5.69	5.69	--	--	--		--	--	--
	8/14/2008	2008	2008	8	--		--	0.29	5.84	8.36	5.92	5.50		5.84	5.84	--	--	--		--	--	--
	8/15/2008	2008	2008	8	--		--	0.00	5.84	8.36	5.92	6.00		5.84	5.84	--	--	--		--	--	--
	8/16/2008	2008	2008	8	--		--	0.00	5.84	8.36	5.92	6.80		6.25	6.25	--	--	--		--	--	--
	8/17/2008	2008	2008	8	--		--	0.80	5.84	8.36	5.92	7.50		6.90	6.90	--	--	--		--	--	--
	8/18/2008	2008	2008	8	--		--	0.26	4.98	6.68	4.53	7.40		7.30	7.30	--	--	--		--	--	--
	8/19/2008	2008	2008	8	--		--	0.34	5.70	7.60	5.07	6.90		7.00	7.00	--	--	--		--	--	--
	8/20/2008	2008	2008	8	--		--	0.24	4.92	6.44	4.35	6.80		6.85	6.85	--	--	--		--	--	--
	8/21/2008	2008	2008	8	--		--	0.12	5.17	6.86	4.64	7.00		7.00	7.00	--	--	--		--	--	--
	8/22/2008	2008	2008	8	--		--	0.00	5.41	8.61	6.06	7.20		6.09	6.09	--	--	--		--	--	--
	8/23/2008	2008	2008	8	--		--	0.00	5.41	8.61	6.06	7.30		6.18	6.18	--	--	--		--	--	--
	8/24/2008	2008	2008	8	--		--	0.37	5.41	8.61	6.06	7.50		6.37	6.37	--	--	--		--	--	--
	8/25/2008	2008	2008	8	--		--	0.20	5.08	6.37	4.28	7.40		7.63	7.63	--	--	--		--	--	--
	8/26/2008	2008	2008	8	--		--	0.21	5.94	7.67	4.98	7.00		7.40	7.40	--	--	--		--	--	--
	8/27/2008	2008	2008	8	--		--	0.18	4.84	5.92	3.96	6.60		6.95	6.95	--	--	--		--	--	--
	8/28/2008	2008	2008	8	--		--	0.21	4.99	6.38	4.04	5.90		6.37	6.37	--	--	--		--	--	--
	8/29/2008	2008	2008	8	--		--	0.00	5.79	7.14	4.77	5.80		6.34	6.34	--	--	--		--	--	--
	8/30/2008	2008	2008	8	--		--	0.00	5.79	7.14	4.77	6.20		6.71	6.71	--	--	--		--	--	--
	8/31/2008	2008	2008	8	--		--	0.00	5.79	7.14	4.77	6.30		6.80	6.80	--	--	--		--	--	--
	9/1/2008	2008	2008	9	--		--	0.73	5.79	7.14	4.77	5.80		6.34	6.34	--	--	--		--	--	--
	9/2/2008	2008	2008	9	--		--	0.07	5.53	5.62	3.27	5.20		6.93	6.93	--	--	--		--	--	--
	9/3/2008	2008	2008	9	--		--	0.08	5.64	5.88	3.35	4.70		6.50	6.50	--	--	--		--	--	--
	9/4/2008	2008	2008	9	--		--	0.16	5.10	5.12	3.07	4.60		6.17	6.17	--	--	--		--	--	--
	9/5/2008	2008	2008	9	--		--	0.00	6.15	7.29	4.19	4.30		6.15	6.15	--	--	--		--	--	--
	9/6/2008	2008	2008	9	--		--	0.00	6.15	7.29	4.19	4.60		6.15	6.15	--	--	--		--	--	--
	9/7/2008	2008	2008	9	--		--	0.43	6.15	7.29	4.19	4.80		6.29	6.29	--	--	--		--	--	--
	9/8/2008	2008	2008	9	--		--	0.15	4.85	6.03	3.72	5.00		5.70	5.70	--	--	--		--	--	--

				Existing Condition				San Joaquin Marsh Operations					0.93	20.00 cfs	With Project Diversion	PROJ. Div	39.7 ppb	16.5 ppm			
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Bo	Project - Diversio	Project - Diversio	Project - PCW Bo	Project - SDC Ca	Project - SJM In
9/9/2008	2008	2008	9	--		--	0.06	5.25	6.49	4.23	4.80		5.41	5.41	--	--	--		--	--	--
9/10/2008	2008	2008	9	--		--	0.42	5.04	6.25	4.10	4.80		5.34	5.34	--	--	--		--	--	--
9/11/2008	2008	2008	9	--		--	0.27	5.05	6.34	4.37	5.00		5.28	5.28	--	--	--		--	--	--
9/12/2008	2008	2008	9	--		--	0.00	5.97	8.49	5.91	5.50		5.97	5.97	--	--	--		--	--	--
9/13/2008	2008	2008	9	--		--	0.00	5.97	8.49	5.91	5.60		5.97	5.97	--	--	--		--	--	--
9/14/2008	2008	2008	9	--		--	0.79	5.97	8.49	5.91	5.70		5.97	5.97	--	--	--		--	--	--
9/15/2008	2008	2008	9	--		--	0.25	4.66	4.92	3.16	5.50		6.51	6.51	--	--	--		--	--	--
9/16/2008	2008	2008	9	--		--	0.22	5.65	7.14	4.65	4.80		5.65	5.65	--	--	--		--	--	--
9/17/2008	2008	2008	9	--		--	0.27	5.63	7.21	4.74	4.50		5.63	5.63	--	--	--		--	--	--
9/18/2008	2008	2008	9	--		--	0.24	4.91	6.32	4.14	4.50		4.91	4.91	--	--	--		--	--	--
9/19/2008	2008	2008	9	--		--	0.00	6.23	8.59	6.00	4.70		6.23	6.23	--	--	--		--	--	--
9/20/2008	2008	2008	9	--		--	0.00	6.23	8.59	6.00	5.40		6.23	6.23	--	--	--		--	--	--
9/21/2008	2008	2008	9	--		--	0.67	6.23	8.59	6.00	6.00		6.23	6.23	--	--	--		--	--	--
9/22/2008	2008	2008	9	--		--	0.18	4.76	5.88	3.80	6.00		6.48	6.48	--	--	--		--	--	--
9/23/2008	2008	2008	9	--		--	0.19	5.81	7.09	4.59	5.40		6.16	6.16	--	--	--		--	--	--
9/24/2008	2008	2008	9	--		--	0.12	4.77	5.93	3.86	5.10		5.59	5.59	--	--	--		--	--	--
9/25/2008	2008	2008	9	--		--	0.16	5.32	6.67	4.43	5.10		5.57	5.57	--	--	--		--	--	--
9/26/2008	2008	2008	9	--		--	0.00	5.91	8.58	5.98	5.30		5.91	5.91	--	--	--		--	--	--
9/27/2008	2008	2008	9	--		--	0.00	5.91	8.58	5.98	6.30		5.91	5.91	--	--	--		--	--	--
9/28/2008	2008	2008	9	--		--	0.99	5.91	8.58	5.98	6.80		6.26	6.26	--	--	--		--	--	--
9/29/2008	2008	2008	9	--		--	0.29	4.61	5.78	3.81	6.50		6.79	6.79	--	--	--		--	--	--
9/30/2008	2008	2008	9	--		--	0.30	5.68	7.11	4.68	7.40		7.81	7.81	--	--	--		--	--	--
10/1/2008	2008	2009	10	6.80		0.00	0.28	5.44	6.88	4.58	7.70		7.96	7.96	2.37	0.00	0.51	213.21	4.43	5.58	5.44
10/2/2008	2008	2009	10	6.80		0.00	0.32	4.91	6.12	4.18	7.40		7.56	7.56	2.37	0.00	0.51	213.21	4.43	5.19	4.91
10/3/2008	2008	2009	10	5.90		0.00	0.00	6.01	8.07	5.53	7.20		7.14	7.14	2.24	0.00	0.48	201.32	3.66	4.90	4.90
10/4/2008	2008	2009	10	7.50		0.00	0.00	6.01	8.07	5.53	7.10		7.05	7.05	2.47	0.00	0.53	221.42	5.03	4.58	4.58
10/5/2008	2008	2009	10	8.10		0.00	0.89	6.01	8.07	5.53	7.80		7.70	7.70	2.54	0.00	0.55	227.87	5.56	5.16	5.16
10/6/2008	2008	2009	10	5.50		0.00	0.27	6.14	7.60	5.31	8.00		8.21	8.21	2.18	0.00	0.47	195.44	3.32	6.04	6.04
10/7/2008	2008	2009	10	6.10		0.00	0.24	6.42	8.07	5.28	7.90		8.41	8.41	2.27	0.00	0.49	204.11	3.83	6.14	6.14
10/8/2008	2008	2009	10	5.60		0.00	0.31	6.06	7.39	4.89	8.50		8.99	8.99	2.19	0.00	0.47	196.95	3.41	6.80	6.06
10/9/2008	2008	2009	10	5.30		0.00	0.31	6.52	7.98	4.76	7.40		8.51	8.51	2.14	0.00	0.46	192.33	3.16	6.37	6.37
10/10/2008	2008	2009	10	5.10		0.00	0.00	6.27	7.31	4.70	6.90		7.87	7.87	2.11	0.00	0.46	189.11	2.99	5.76	5.76
10/11/2008	2008	2009	10	5.00		0.00	0.00	6.27	7.31	4.70	6.30		7.31	7.31	2.09	0.00	0.45	187.45	2.91	5.22	5.22
10/12/2008	2008	2009	10	4.90		0.00	0.83	6.27	7.31	4.70	6.00		7.03	7.03	2.07	0.00	0.45	185.76	2.83	4.96	4.96
10/13/2008	2008	2009	10	4.80		0.00	0.32	6.72	7.77	5.32	5.60		6.72	6.72	2.05	0.00	0.44	184.03	2.75	4.67	4.67
10/14/2008	2008	2009	10	4.70		0.00	0.18	6.16	7.43	5.11	5.50		6.16	6.16	2.03	0.00	0.44	182.26	2.67	4.13	4.13
10/15/2008	2008	2009	10	4.60		0.00	0.30	6.01	6.71	4.91	6.80		7.35	7.35	2.01	0.00	0.43	180.46	2.59	5.34	5.34
10/16/2008	2008	2009	10	4.50		0.00	0.30	6.33	7.26	3.77	6.90		8.80	8.80	1.99	0.00	0.43	178.62	2.51	6.81	6.33
10/17/2008	2008	2009	10	4.70		0.00	0.00	6.45	8.18	6.17	6.00		6.45	6.45	2.03	0.00	0.44	182.26	2.67	4.42	4.42
10/18/2008	2008	2009	10	4.90		0.00	0.00	6.45	8.18	6.17	6.10		6.45	6.45	2.07	0.00	0.45	185.76	2.83	4.38	4.38
10/19/2008	2008	2009	10	5.10		0.00	0.76	6.45	8.18	6.17	5.90		6.45	6.45	2.11	0.00	0.46	189.11	2.99	4.34	4.34
10/20/2008	2008	2009	10	5.30		0.00	0.29	6.22	8.32	6.16	6.30		6.22	6.22	2.14	0.00	0.46	192.33	3.16	4.08	4.08
10/21/2008	2008	2009	10	5.40		0.00	0.29	6.28	8.38	6.58	6.30		6.28	6.28	2.16	0.00	0.47	193.90	3.24	4.12	4.12
10/22/2008	2008	2009	10	5.20		0.00	0.29	6.61	8.77	5.74	6.50		6.85	6.85	2.12	0.00	0.46	190.74	3.08	4.73	4.73
10/23/2008	2008	2009	10	4.90		0.00	0.27	5.73	7.66	5.34	6.10		6.04	6.04	2.07	0.00	0.45	185.76	2.83	3.97	3.97
10/24/2008	2008	2009	10	5.00		0.00	0.00	5.88	8.98	6.62	7.50		6.29	6.29	2.09	0.00	0.45	187.45	2.91	4.20	4.20
10/25/2008	2008	2009	10	5.00		0.00	0.00	5.88	8.98	6.62	8.00		6.75	6.75	2.09	0.00	0.45	187.45	2.91	4.67	4.67
10/26/2008	2008	2009	10	5.10		0.00	0.86	5.88	8.98	6.62	5.50		5.88	5.88	2.11	0.00	0.46	189.11	2.99	3.78	3.78
10/27/2008	2008	2009	10	5.20		0.00	0.28	5.58	8.38	5.68	5.80		5.58	5.58	2.12	0.00	0.46	190.74	3.08	3.45	3.45
10/28/2008	2008	2009	10	5.20		0.00	0.28	5.79	8.34	5.99	6.70		6.04	6.04	2.12	0.00	0.46	190.74	3.08	3.92	3.92
10/29/2008	2008	2009	10	5.30		0.00	0.26	6.27	9.03	6.60	7.00		6.27	6.27	2.14	0.00	0.46	192.33	3.16	4.13	4.13
10/30/2008	2008	2009	10	5.30		0.00	0.28	5.64	8.35	6.11	7.10		6.17	6.17	2.14	0.00	0.46	192.33	3.16	4.03	4.03
10/31/2008	2008	2009	10	5.20		0.00	0.00	6.04	8.85	6.20	8.10		7.39	7.39	2.12	0.00	0.46	190.74	3.08	5.26	5.26
11/1/2008	2008	2009	11	5.00		0.00	0.00	6.04	8.85	6.20	9.10		8.32	8.32	2.09	0.00	0.45	187.45	2.91	6.23	6.04
11/2/2008	2008	2009	11	4.80		0.00	0.85	6.04	8.85	6.20	9.40		8.60	8.60	2.05	0.00	0.44	184.03	2.75	6.55	6.04
11/3/2008	2008	2009	11	4.70		0.00	0.26	5.78	8.18	5.65	10.00		9.42	9.42	2.03	0.00	0.44	182.26	2.67	7.39	5.78
11/4/2008	2008	2009	11	38.00		0.00	0.23	6.36	9.32	6.58	54.00		50.02		0.00	0.00	0.00	0.00	38.00	50.02	6.36
11/5/2008	2008	2009	11	4.50		0.00	0.25	5.96	8.85	6.45	20.00		18.14	18.14	1.99	0.00	0.43	178.62	2.51	16.15	5.96
11/6/2008	2008	2009	11	4.40		0.00	0.27	5.69	8.44	6.30	8.60		7.43	7.43	1.97	0.00	0.43	176.74	2.43	5.46	5.46
11/7/2008	2008	2009	11	4.30		0.00	0.00	6.43	8.94	6.88	7.70		6.75	6.75	1.95	0.00	0.42	174.81	2.35	4.80	4.80
11/8/2008	2008	2009	11	4.50		0.00	0.00	6.43	8.94	6.88	7.20		6.43	6.43	1.99	0.00	0.43	178.62	2.51	4.44	4.44
11/9/2008	2008	2009	11	6.10		0.00	0.82	6.43	8.94	6.88	6.70		6.43	6.43	2.27	0.00	0.49	204.11	3.83	4.16	4.16
11/10/2008	2008	2009	11	4.80		0.00	0.23	5.66	7.78	4.36	6.40		7.17	7.17	2.05	0.00	0.44	184.03	2.75	5.12	5.12
11/11/2008	2008	2009	11	6.60		0.00	0.26	6.42	8.18	4.78	5.70		6.83	6.83	2.35	0.00	0.51	210.71	4.25	4.48	4.48
11/12/2008	2008	2009	11	6.30		0.00	0.23	6.42	8.68	5.19	5.40		6.42	6.42	2.30	0.00	0.50	206.81	4.00	4.12	4.12
11/13/2008	2008	2009	11	4.90		0.00	0.09	6.05	8.42	5.95	5.60		6.05	6.05	2.07	0.00	0.45	185.76	2.83	3.98	3.98
11/14/2008	2008	2009	11	4.80		0.00	0.00	6.29	9.91	7.37	6.70		6.29	6.29	2.05	0.00	0.44	184.03	2.75	4.25	4.25
11/15/2008	2008	2009	11	4.90		0.00	0.00	6.29	9.91	7.37	7.90		6.35	6.35	2.07	0.00	0.45	185.76	2.83	4.28	4.28
11/16/2008	2008	2009	11	5.00		0.00	0.81	6.29	9.91	7.37	8.30		6.72	6.72	2.09	0.00	0.45	187.45	2.91	4.63	4.63
11/17/2008	2008	2009	11	5.10		0.00	0.24	5.74	10.03	7.16	8.20		6.30	6.30	2.11	0.00	0.46	189.11	2.99	4.20	4.20
11/18/2008	2008	2009	11	5.20		0.00	0.21	4.43	9.89	7.60	8.40		4.86	4.86	2.12	0.00	0.46	190.74	3.08	2.74	2.74

									Existing Condition									***With Project Diversion***			
													0.93	*20.00 cfs*		*PROJ. Div*	*39.7 ppb*	*16.5 ppm*			
								San Joaquin Marsh Operations									*39.7 ppb*	*16.5 ppm*			
DATE	*Year*	*Water Year*	*Month*	*Peters Canyon Wash (PCW) at Barranca (cfs)*	*QC*	*Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)*	*MWRP Dewatering Discharge (cfs)*	*SJ Marsh Inflow (from SDC) (cfs)*	*SJ Marsh Outflow (#002A) (cfs)*	*SJ Marsh Outflow (to SDC, #002B) (cfs)*	*San Diego Cr (SDC) at Campus (cfs)*	*QC*	***Adjusted San Diego Cr (SDC) at Campus (cfs)*	***Adjusted San Diego Cr (SDC) at Campus, Base (cfs)*	*Est. PROJECT Diversion (cfs)*	*Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)*	*Daily Se Load, Est. PROJ. Diversion (lbs)*	*Daily NO3 Load, Est. PROJ. Diversion (lbs)*	*Peters Canyon Wash (PCW) at Barranca (cfs)*	***Adjusted San Diego Cr (SDC) at Campus (cfs)*	*using SDC at Can SJ Marsh Inflow (from SDC) (cfs)*
DATE	*Year*	*WY*	*Month*	*PCW Bar*	*PCW*	*PCW Bar (Loss)*	*MWRP Dewtr*	*SJM In*	*SJM Out (2A)*	*SJM Out (SDC)*	*SDC Campus*	*SDC*	*SDC Campus ***	*SDC Campus, Ba*	*Project - Diversi*	*Project - PCW B*	*Project - Diversi*	*Project - Diversi*	*Project - PCW B*	*Project - SDC Ca*	*Project - SJM In*
11/19/2008	2008	2009	11	5.30		0.00	0.28	5.53	8.90	6.40	7.90		6.54	6.54	2.14	0.00	0.46	192.33	3.16	4.39	4.39
11/20/2008	2008	2009	11	6.10		0.00	0.33	6.05	9.79	7.40	8.10		6.28	6.28	2.27	0.00	0.49	204.11	3.83	4.01	4.01
11/21/2008	2008	2009	11	6.20		0.00	0.00	5.96	9.16	6.60	7.20		6.10	6.10	2.29	0.00	0.49	205.47	3.91	3.81	3.81
11/22/2008	2008	2009	11	5.50		0.00	0.00	5.96	9.16	6.60	7.20		6.10	6.10	2.18	0.00	0.47	195.44	3.32	3.92	3.92
11/23/2008	2008	2009	11	5.40		0.00	0.74	5.96	9.16	6.60	7.00		5.96	5.96	2.16	0.00	0.47	193.90	3.24	3.80	3.80
11/24/2008	2008	2009	11	5.10		0.00	0.25	5.22	8.79	6.27	6.50		5.22	5.22	2.11	0.00	0.46	189.11	2.99	3.11	3.11
11/25/2008	2008	2009	11	6.80		0.00	0.24	3.22	8.83	6.21	7.10		3.82	3.82	2.37	0.00	0.51	213.21	4.43	1.44	1.44
11/26/2008	2008	2009	11	626.00		0.00	0.00	5.05	8.00	5.56	1240.00		1152.72		0.00	0.00	0.00	0.00	626.00	1152.72	5.05
11/27/2008	2008	2009	11	59.00		0.00	0.00	5.05	8.00	5.56	121.00		112.05		0.00	0.00	0.00	0.00	59.00	112.05	5.05
11/28/2008	2008	2009	11	8.30		0.00	0.00	5.05	8.00	5.56	16.00		14.40	14.40	2.56	0.00	0.55	229.92	5.74	11.84	5.05
11/29/2008	2008	2009	11	7.60		0.00	0.00	5.05	8.00	5.56	5.10		5.05	5.05	2.48	0.00	0.54	222.53	5.12	2.57	2.57
11/30/2008	2008	2009	11	7.30		0.00	1.31	5.05	8.00	5.56	4.00		5.05	5.05	2.44	0.00	0.53	219.16	4.86	2.61	2.61
12/1/2008	2008	2009	12	7.20		0.00	0.23	5.92	6.52	4.61	4.70		5.92	5.92	2.43	0.00	0.52	218.00	4.77	3.49	3.49
12/2/2008	2008	2009	12	7.30		0.00	0.26	6.48	6.97	2.84	3.30		6.48	6.48	2.44	0.00	0.53	219.16	4.86	4.04	4.04
12/3/2008	2008	2009	12	7.30		0.00	0.23	5.67	5.05	1.32	1.80		5.72	5.72	2.44	0.00	0.53	219.16	4.86	3.28	3.28
12/4/2008	2008	2009	12	7.30		0.00	0.26	5.96	5.18	2.57	1.30		5.96	5.96	2.44	0.00	0.53	219.16	4.86	3.52	3.52
12/5/2008	2008	2009	12	8.00		0.00	0.00	5.70	5.47	3.00	1.90		5.70	5.70	2.53	0.00	0.55	226.83	5.47	3.18	3.18
12/6/2008	2008	2009	12	8.10		0.00	0.00	5.70	5.47	3.00	2.10		5.70	5.70	2.54	0.00	0.55	227.87	5.56	3.17	3.17
12/7/2008	2008	2009	12	7.50		0.00	0.69	5.70	5.47	3.00	2.50		5.70	5.70	2.47	0.00	0.53	221.42	5.03	3.24	3.24
12/8/2008	2008	2009	12	7.80		0.00	0.25	5.91	5.08	2.84	3.30		5.93	5.93	2.50	0.00	0.54	224.71	5.30	3.43	3.43
12/9/2008	2008	2009	12	8.30		0.00	0.25	7.12	5.50	2.53	2.40		7.12	7.12	2.56	0.00	0.55	229.92	5.74	4.56	4.56
12/10/2008	2008	2009	12	7.70		0.00	0.23	5.27	4.30	1.42	1.70		5.27	5.27	2.49	0.00	0.54	223.63	5.21	2.78	2.78
12/11/2008	2008	2009	12	7.80		0.00	0.24	6.35	4.97	1.80	1.20		6.35	6.35	2.50	0.00	0.54	224.71	5.30	3.85	3.85
12/12/2008	2008	2009	12	7.90		0.00	0.00	6.12	5.86	2.48	1.50		6.12	6.12	2.51	0.00	0.54	225.78	5.39	3.61	3.61
12/13/2008	2008	2009	12	7.90		0.00	0.00	6.12	5.86	2.48	1.90		6.12	6.12	2.51	0.00	0.54	225.78	5.39	3.61	3.61
12/14/2008	2008	2009	12	8.00		0.00	0.79	6.12	5.86	2.48	2.30		6.12	6.12	2.53	0.00	0.55	226.83	5.47	3.59	3.59
12/15/2008	2008	2009	12	655.00		0.00	0.16	0.03	7.26	3.88	1550.00		1437.92		0.00	0.00	0.00	0.00	655.00	1437.92	0.03
12/16/2008	2008	2009	12	24.00		0.00	0.24	5.82	8.24	5.20	157.00		146.59		0.00	0.00	0.00	0.00	24.00	146.59	5.82
12/17/2008	2008	2009	12	317.00		0.00	0.23	0.01	8.10	4.68	857.00		792.66		0.00	0.00	0.00	0.00	317.00	792.66	0.01
12/18/2008	2008	2009	12	30.00		0.00	0.28	6.11	8.59	4.53	244.00		228.39		0.00	0.00	0.00	0.00	30.00	228.39	6.11
12/19/2008	2008	2009	12	7.70		0.00	0.00	6.42	8.84	4.51	37.00		36.19		0.00	0.00	0.00	0.00	7.70	36.19	6.42
12/20/2008	2008	2009	12	8.90		0.00	0.00	6.42	8.84	4.51	19.00		19.45		0.00	0.00	0.00	0.00	8.90	19.45	6.42
12/21/2008	2008	2009	12	7.70		0.00	0.64	6.42	8.84	4.51	13.00		13.87	13.87	2.49	0.00	0.54	223.63	5.21	11.38	6.42
12/22/2008	2008	2009	12	71.00		0.00	0.19	5.10	8.69	4.27	98.00		91.92		0.00	0.00	0.00	0.00	71.00	91.92	5.10
12/23/2008	2008	2009	12	11.00		0.00	0.00	6.54	7.53	4.04	30.00		30.23		0.00	0.00	0.00	0.00	11.00	30.23	6.54
12/24/2008	2008	2009	12	5.40		0.00	0.00	6.54	7.53	4.04	12.00		13.49	13.49	2.16	0.00	0.47	193.90	3.24	11.33	6.54
12/25/2008	2008	2009	12	57.00		0.00	0.00	6.54	7.53	4.04	90.00		86.03		0.00	0.00	0.00	0.00	57.00	86.03	6.54
12/26/2008	2008	2009	12	13.00		0.00	0.00	6.25	6.82	3.43	49.00		48.19		0.00	0.00	0.00	0.00	13.00	48.19	6.25
12/27/2008	2008	2009	12	5.70		0.00	0.00	6.25	6.82	3.43	10.00		11.92	11.92	2.21	0.00	0.48	198.43	3.49	9.71	6.25
12/28/2008	2008	2009	12	5.80		0.00	1.18	6.25	6.82	3.43	6.00		8.20	8.20	2.23	0.00	0.48	199.89	3.57	5.97	5.97
12/29/2008	2008	2009	12	5.90		0.00	0.20	6.27	6.90	3.46	5.20		7.44	7.44	2.24	0.00	0.48	201.32	3.66	5.20	5.20
12/30/2008	2008	2009	12	6.00		0.00	0.12	6.27	6.90	3.46	5.40		7.63	7.63	2.26	0.00	0.49	202.73	3.74	5.37	5.37
12/31/2008	2008	2009	12	6.10		0.00	0.00	6.27	6.90	3.46	6.20		8.37	8.37	2.27	0.00	0.49	204.11	3.83	6.10	6.10
1/1/2009	2009	2009	1	6.30		0.00	0.50	6.27	6.90	3.46	6.10		8.28	8.28	2.30	0.00	0.50	206.81	4.00	5.98	5.98
1/2/2009	2009	2009	1	6.40		0.00	0.00	6.44	8.22	4.93	5.30		6.44	6.44	2.32	0.00	0.50	208.13	4.08	4.12	4.12
1/3/2009	2009	2009	1	13.00		0.00	0.00	6.44	8.22	4.93	6.90		7.82	7.82	2.60	0.00	0.56	233.51	10.40	5.22	5.22
1/4/2009	2009	2009	1	8.90		0.00	0.74	6.44	8.22	4.93	15.00		15.35	15.35	2.60	0.00	0.56	233.51	6.30	12.75	6.44
1/5/2009	2009	2009	1	6.30		0.00	0.26	6.26	8.03	4.55	6.60		7.73	7.73	2.30	0.00	0.50	206.81	4.00	5.42	5.42
1/6/2009	2009	2009	1	6.20		0.00	0.20	6.17	7.08	3.55	5.90		7.93	7.93	2.29	0.00	0.49	205.47	3.91	5.64	5.64
1/7/2009	2009	2009	1	6.20		0.00	0.17	6.09	7.13	4.19	7.30		8.56	8.56	2.29	0.00	0.49	205.47	3.91	6.27	6.09
1/8/2009	2009	2009	1	6.30		0.00	0.27	6.43	7.46	4.98	7.60		8.41	8.41	2.30	0.00	0.50	206.81	4.00	6.11	6.11
1/9/2009	2009	2009	1	6.90		0.00	0.00	6.84	7.25	4.27	7.80		9.64	9.64	2.39	0.00	0.52	214.44	4.51	7.25	6.84
1/10/2009	2009	2009	1	7.20		0.00	0.00	6.84	7.25	4.27	10.00		11.68	11.68	2.43	0.00	0.52	218.00	4.77	9.26	6.84
1/11/2009	2009	2009	1	7.70		0.00	0.78	6.84	7.25	4.27	8.40		10.20	10.20	2.49	0.00	0.54	223.63	5.21	7.71	6.84
1/12/2009	2009	2009	1	8.70		0.00	0.24	7.80	7.53	4.37	8.10		10.72	10.72	2.60	0.00	0.56	233.51	6.10	8.12	7.80
1/13/2009	2009	2009	1	7.00		0.00	0.25	7.20	7.46	4.27	8.10		10.25	10.25	2.40	0.00	0.52	215.64	4.60	7.85	7.20
1/14/2009	2009	2009	1	7.60		0.00	0.24	6.39	8.19	4.66	7.10		8.21	8.21	2.48	0.00	0.54	222.53	5.12	5.73	5.73
1/15/2009	2009	2009	1	6.90		0.00	0.26	6.72	7.90	4.59	7.40		8.86	8.86	2.39	0.00	0.52	214.44	4.51	6.47	6.47
1/16/2009	2009	2009	1	7.20		0.00	0.00	6.78	8.74	5.05	7.50		8.58	8.58	2.43	0.00	0.52	218.00	4.77	6.15	6.15
1/17/2009	2009	2009	1	8.50		0.00	0.00	6.78	8.74	5.05	7.70		8.76	8.76	2.58	0.00	0.56	231.91	5.92	6.18	6.18
1/18/2009	2009	2009	1	8.60		0.00	0.77	6.78	8.74	5.05	7.80		8.86	8.86	2.59	0.00	0.56	232.89	6.01	6.26	6.26
1/19/2009	2009	2009	1	6.50		0.00	0.23	6.75	8.75	5.08	6.90		7.97	7.97	2.33	0.00	0.50	209.43	4.17	5.64	5.64
1/20/2009	2009	2009	1	8.30		0.00	0.23	6.17	8.02	4.48	5.30		6.50	6.50	2.56	0.00	0.55	229.92	5.74	3.94	3.94
1/21/2009	2009	2009	1	8.40		0.00	0.24	6.97	8.09	4.04	3.70		6.97	6.97	2.57	0.00	0.56	230.92	5.83	4.40	4.40
1/22/2009	2009	2009	1	8.70		0.00	0.27	6.67	7.72	4.21	3.40		6.67	6.67	2.60	0.00	0.56	233.51	6.10	4.07	4.07
1/23/2009	2009	2009	1	67.00		0.00	0.00	5.61	7.82	4.18	92.00		86.89		0.00	0.00	0.00	0.00	67.00	86.89	5.61
1/24/2009	2009	2009	1	47.00		0.00	0.00	5.61	7.82	4.18	93.00		87.82		0.00	0.00	0.00	0.00	47.00	87.82	5.61
1/25/2009	2009	2009	1	6.70		0.00	0.66	5.61	7.82	4.18	19.00		19.00		0.00	0.00	0.00	0.00	6.70	19.00	5.61
1/26/2009	2009	2009	1	6.30		0.00	0.23	6.50	7.82	4.44	5.30		6.84	6.84	2.30	0.00	0.50	206.81	4.00	4.54	4.54
1/27/2009	2009	2009	1	6.60		0.00	0.19	7.06	8.40	4.32	3.10		7.06	7.06	2.35	0.00	0.51	210.71	4.25	4.71	4.71
1/28/2009	2009	2009	1	5.60		0.00	0.23	6.30	7.55	4.04	3.20		6.30	6.30	2.19	0.00	0.47	196.95	3.41	4.11	4.11

Existing Condition — San Joaquin Marsh Operations — With Project Diversion

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversic	Project - PCW Ba	Project - Diversic	Project - Diversic	Project - PCW Ba	Project - SDC Ca	Project - SJM In
1/29/2009	2009	2009	1	6.10		0.00	0.22	6.10	7.20	3.81	2.80		6.10	6.10	2.27	0.00	0.49	204.11	3.83	3.82	3.82
1/30/2009	2009	2009	1	5.30		0.00	0.00	6.88	7.80	4.28	2.70		6.88	6.88	2.14	0.00	0.46	192.33	3.16	4.74	4.74
1/31/2009	2009	2009	1	5.20		0.00	0.00	6.88	7.80	4.28	2.60		6.88	6.88	2.12	0.00	0.46	190.74	3.08	4.75	4.75
2/1/2009	2009	2009	2	6.60		0.00	0.67	6.88	7.80	4.28	2.60		6.88	6.88	2.35	0.00	0.51	210.71	4.25	4.53	4.53
2/2/2009	2009	2009	2	6.00		0.00	0.20	6.40	7.26	3.90	2.60		6.40	6.40	2.26	0.00	0.49	202.73	3.74	4.15	4.15
2/3/2009	2009	2009	2	5.60		0.00	0.18	7.06	8.25	4.43	2.70		7.06	7.06	2.19	0.00	0.47	196.95	3.41	4.86	4.86
2/4/2009	2009	2009	2	5.50		0.00	0.22	6.53	7.84	4.20	2.70		6.53	6.53	2.18	0.00	0.47	195.44	3.32	4.36	4.36
2/5/2009	2009	2009	2	44.00		0.00	0.20	4.53	7.54	4.03	34.00		32.08		0.00	0.00	0.00	0.00	44.00	32.08	4.53
2/6/2009	2009	2009	2	401.00		0.00	0.00	2.88	8.96	5.40	517.00		478.46		0.00	0.00	0.00	0.00	401.00	478.46	2.88
2/7/2009	2009	2009	2	300.00		0.00	0.00	2.88	8.96	5.40	837.00		776.06		0.00	0.00	0.00	0.00	300.00	776.06	2.88
2/8/2009	2009	2009	2	49.00		0.00	0.64	2.88	8.96	5.40	77.00		69.26		0.00	0.00	0.00	0.00	49.00	69.26	2.88
2/9/2009	2009	2009	2	173.00		0.00	0.22	3.03	9.45	5.64	223.00		204.97		0.00	0.00	0.00	0.00	173.00	204.97	3.03
2/10/2009	2009	2009	2	18.00		0.00	0.20	6.05	8.36	5.30	39.00		36.96		0.00	0.00	0.00	0.00	18.00	36.96	6.05
2/11/2009	2009	2009	2	9.10		0.00	0.20	6.78	8.77	5.09	14.00		14.59	14.59	2.60	0.00	0.56	233.51	6.50	11.99	6.78
2/12/2009	2009	2009	2	7.30		0.00	0.26	6.10	7.00	4.05	16.00		16.78	16.78	2.44	0.00	0.53	219.16	4.86	14.34	6.10
2/13/2009	2009	2009	2	45.00		0.00	0.00	4.95	7.02	3.59	57.00		54.27		0.00	0.00	0.00	0.00	45.00	54.27	4.95
2/14/2009	2009	2009	2	12.00		0.00	0.00	4.95	7.02	3.59	49.00		46.83		0.00	0.00	0.00	0.00	12.00	46.83	4.95
2/15/2009	2009	2009	2	5.40		0.00	0.00	4.95	7.02	3.59	7.50		8.24	8.24	2.16	0.00	0.47	193.90	3.24	6.08	4.95
2/16/2009	2009	2009	2	112.00		0.00	0.96	4.95	7.02	3.59	381.00		355.59		0.00	0.00	0.00	0.00	112.00	355.59	4.95
2/17/2009	2009	2009	2	125.00		0.00	0.20	3.86	7.04	3.61	310.00		288.53		0.00	0.00	0.00	0.00	125.00	288.53	3.86
2/18/2009	2009	2009	2	10.00		0.00	0.24	6.15	6.82	3.40	39.00		38.83		0.00	0.00	0.00	0.00	10.00	38.83	6.15
2/19/2009	2009	2009	2	5.70		0.00	0.26	6.71	7.18	3.67	15.00		16.78	16.78	2.21	0.00	0.48	198.43	3.49	14.57	6.71
2/20/2009	2009	2009	2	5.70		0.00	0.00	6.88	7.22	3.52	8.20		10.75	10.75	2.21	0.00	0.48	198.43	3.49	8.54	6.88
2/21/2009	2009	2009	2	5.80		0.00	0.00	6.88	7.22	3.52	5.60		8.33	8.33	2.23	0.00	0.48	199.89	3.57	6.11	6.11
2/22/2009	2009	2009	2	5.60		0.00	0.79	6.88	7.22	3.52	4.10		6.94	6.94	2.19	0.00	0.47	196.95	3.41	4.74	4.74
2/23/2009	2009	2009	2	5.80		0.00	0.26	5.91	6.25	2.99	4.00		6.44	6.44	2.23	0.00	0.48	199.89	3.57	4.22	4.22
2/24/2009	2009	2009	2	5.70		0.00	0.24	6.90	7.16	3.17	5.30		8.40	8.40	2.21	0.00	0.48	198.43	3.49	6.19	6.19
2/25/2009	2009	2009	2	5.90		0.00	0.27	6.84	7.02	3.13	4.70		7.82	7.82	2.24	0.00	0.48	201.32	3.66	5.58	5.58
2/26/2009	2009	2009	2	5.80		0.00	0.28	6.88	7.50	3.84	4.20		6.88	6.88	2.23	0.00	0.48	199.89	3.57	4.66	4.66
2/27/2009	2009	2009	2	5.90		0.00	0.00	6.62	7.42	3.74	4.40		6.77	6.77	2.24	0.00	0.48	201.32	3.66	4.53	4.53
2/28/2009	2009	2009	2	5.80		0.00	0.00	6.62	7.42	3.74	4.40		6.77	6.77	2.23	0.00	0.48	199.89	3.57	4.54	4.54
3/1/2009	2009	2009	3	5.70		0.00	0.38	6.62	7.42	3.74	3.90		6.62	6.62	2.21	0.00	0.48	198.43	3.49	4.41	4.41
3/2/2009	2009	2009	3	6.10		0.00	0.25	6.43	7.12	3.72	4.00		6.43	6.43	2.27	0.00	0.49	204.11	3.83	4.15	4.15
3/3/2009	2009	2009	3	6.00		0.00	0.23	6.36	7.16	3.87	5.40		7.34	7.34	2.26	0.00	0.49	202.73	3.74	5.08	5.08
3/4/2009	2009	2009	3	10.00		0.00	0.28	6.92	7.75	4.38	5.30		7.29	7.29	2.60	0.00	0.56	233.51	7.40	4.69	4.69
3/5/2009	2009	2009	3	12.00		0.00	0.31	6.39	7.15	4.13	8.60		10.10	10.10	2.60	0.00	0.56	233.51	9.40	7.50	6.39
3/6/2009	2009	2009	3	6.20		0.00	0.00	6.47	8.51	5.59	5.70		6.47	6.47	2.29	0.00	0.49	205.47	3.91	4.18	4.18
3/7/2009	2009	2009	3	6.20		0.00	0.00	6.47	8.51	5.59	6.20		6.58	6.58	2.29	0.00	0.49	205.47	3.91	4.29	4.29
3/8/2009	2009	2009	3	6.20		0.00	0.79	6.47	8.51	5.59	6.50		6.86	6.86	2.29	0.00	0.49	205.47	3.91	4.57	4.57
3/9/2009	2009	2009	3	6.20		0.00	0.28	6.05	8.66	5.93	7.20		6.80	6.80	2.29	0.00	0.49	205.47	3.91	4.51	4.51
3/10/2009	2009	2009	3	6.20		0.00	0.21	6.42	8.95	6.01	7.60		7.45	7.45	2.29	0.00	0.49	205.47	3.91	5.17	5.17
3/11/2009	2009	2009	3	6.20		0.00	0.27	6.48	8.78	6.03	9.00		8.79	8.79	2.29	0.00	0.49	205.47	3.91	6.50	6.48
3/12/2009	2009	2009	3	6.50		0.00	0.30	6.73	9.26	6.39	8.80		8.51	8.51	2.33	0.00	0.50	209.43	4.17	6.18	6.18
3/13/2009	2009	2009	3	6.70		0.00	0.00	6.59	9.30	6.50	8.40		7.90	7.90	2.36	0.00	0.51	211.97	4.34	5.54	5.54
3/14/2009	2009	2009	3	6.50		0.00	0.00	6.59	9.30	6.50	8.20		7.71	7.71	2.33	0.00	0.50	209.43	4.17	5.38	5.38
3/15/2009	2009	2009	3	6.30		0.00	0.84	6.59	9.30	6.50	8.00		7.53	7.53	2.30	0.00	0.50	206.81	4.00	5.22	5.22
3/16/2009	2009	2009	3	6.20		0.00	0.27	6.14	8.67	5.99	7.70		7.30	7.30	2.29	0.00	0.49	205.47	3.91	5.02	5.02
3/17/2009	2009	2009	3	6.00		0.00	0.26	6.56	9.31	6.48	7.70		7.24	7.24	2.26	0.00	0.49	202.73	3.74	4.98	4.98
3/18/2009	2009	2009	3	5.80		0.00	0.28	6.32	9.18	6.38	8.30		7.67	7.67	2.23	0.00	0.48	199.89	3.57	5.44	5.44
3/19/2009	2009	2009	3	5.70		0.00	1.64	6.39	9.37	6.47	8.00		7.37	7.37	2.21	0.00	0.48	198.43	3.49	5.16	5.16
3/20/2009	2009	2009	3	5.60		0.00	0.00	6.43	9.40	6.80	8.80		7.84	7.84	2.19	0.00	0.47	196.95	3.41	5.64	5.64
3/21/2009	2009	2009	3	5.70		0.00	0.00	6.43	9.40	6.80	9.00		8.02	8.02	2.21	0.00	0.48	198.43	3.49	5.81	5.81
3/22/2009	2009	2009	3	25.00		0.00	0.84	6.43	9.40	6.80	31.00		28.48		0.00	0.00	0.00	0.00	25.00	28.48	6.43
3/23/2009	2009	2009	3	5.50		0.00	0.14	6.61	9.95	7.15	18.00		16.23	16.23	2.18	0.00	0.47	195.44	3.32	14.05	6.61
3/24/2009	2009	2009	3	5.00		0.00	0.23	6.33	9.37	6.79	9.20		8.13	8.13	2.09	0.00	0.45	187.45	2.91	6.04	6.04
3/25/2009	2009	2009	3	4.90		0.00	0.28	6.57	9.44	6.67	7.90		7.25	7.25	2.07	0.00	0.45	185.76	2.83	5.18	5.18
3/26/2009	2009	2009	3	4.90		0.00	0.28	5.82	8.28	5.88	7.40		6.83	6.83	2.07	0.00	0.45	185.76	2.83	4.76	4.76
3/27/2009	2009	2009	3	5.00		0.00	0.00	6.61	9.47	6.81	7.90		7.16	7.16	2.09	0.00	0.45	187.45	2.91	5.07	5.07
3/28/2009	2009	2009	3	5.20		0.00	0.00	6.61	9.47	6.81	8.10		7.35	7.35	2.12	0.00	0.46	190.74	3.08	5.22	5.22
3/29/2009	2009	2009	3	5.30		0.00	0.81	6.61	9.47	6.81	8.50		7.72	7.72	2.14	0.00	0.46	192.33	3.16	5.58	5.58
3/30/2009	2009	2009	3	5.50		0.00	0.28	5.98	8.62	6.13	8.70		7.95	7.95	2.18	0.00	0.47	195.44	3.32	5.78	5.78
3/31/2009	2009	2009	3	5.70		0.00	0.24	6.71	9.76	7.25	8.90		7.77	7.77	2.21	0.00	0.48	198.43	3.49	5.56	5.56
4/1/2009	2009	2009	4	6.00		0.00	0.30	5.76	8.53	6.10	9.40		8.43	8.43	2.26	0.00	0.49	202.73	3.74	6.17	5.76
4/2/2009	2009	2009	4	6.10		0.00	0.29	6.56	9.23	6.91	8.70		7.76	7.76	2.27	0.00	0.49	204.11	3.83	5.49	5.49
4/3/2009	2009	2009	4	8.40		0.00	0.00	6.32	9.09	6.61	11.00		9.96	9.96	2.57	0.00	0.56	230.92	5.83	7.39	6.32
4/4/2009	2009	2009	4	6.40		0.00	0.00	6.32	9.09	6.61	9.20		8.28	8.28	2.32	0.00	0.50	208.13	4.08	5.97	5.97
4/5/2009	2009	2009	4	6.20		0.00	0.87	6.32	9.09	6.61	7.50		6.70	6.70	2.29	0.00	0.49	205.47	3.91	4.42	4.42
4/6/2009	2009	2009	4	6.30		0.00	0.29	6.07	8.53	6.40	7.30		6.48	6.48	2.30	0.00	0.50	206.81	4.00	4.18	4.18
4/7/2009	2009	2009	4	6.30		0.00	0.24	6.09	8.67	6.50	7.40		6.51	6.51	2.30	0.00	0.50	206.81	4.00	4.20	4.20
4/8/2009	2009	2009	4	14.00		0.00	0.28	6.98	10.02	7.44	15.00		13.52	13.52	2.60	0.00	0.56	233.51	11.40	10.92	6.98
4/9/2009	2009	2009	4	6.40		0.00	0.00	6.15	8.83	6.39	12.00		10.93	10.93	2.32	0.00	0.50	208.13	4.08	8.61	6.15

									Existing Condition				0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm	With Project Diversion		
						Est. Loss,			San Joaquin Marsh Operations				**Adjusted	**Adjusted		Est. Loss,	39.7 ppb	16.5 ppm		**Adjusted	using SDC at Can
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	San Diego Cr (SDC) at Campus (cfs)	San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	San Diego Cr (SDC) at Campus (cfs)	SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
4/10/2009	2009	2009	4	6.40		0.00	0.00	6.15	8.83	6.39	8.90		8.05	8.05	2.32	0.00	0.50	208.13	4.08	5.73	5.73
4/11/2009	2009	2009	4	6.50		0.00	0.00	6.15	8.83	6.39	7.50		6.75	6.75	2.33	0.00	0.50	209.43	4.17	4.42	4.42
4/12/2009	2009	2009	4	6.50		0.00	1.17	6.15	8.83	6.39	6.90		6.19	6.19	2.33	0.00	0.50	209.43	4.17	3.86	3.86
4/13/2009	2009	2009	4	6.60		0.00	0.28	4.58	6.66	4.74	4.70		4.58	4.58	2.35	0.00	0.51	210.71	4.25	2.23	2.23
4/14/2009	2009	2009	4	6.60		0.00	0.28	4.58	6.66	4.74	5.50		4.96	4.96	2.35	0.00	0.51	210.71	4.25	2.62	2.62
4/15/2009	2009	2009	4	6.60		0.00	0.28	6.40	8.87	6.11	6.30		6.40	6.40	2.35	0.00	0.51	210.71	4.25	4.05	4.05
4/16/2009	2009	2009	4	6.50		0.00	0.31	6.45	8.95	6.25	6.20		6.45	6.45	2.33	0.00	0.50	209.43	4.17	4.12	4.12
4/17/2009	2009	2009	4	6.00		0.00	0.00	6.43	9.89	7.15	6.60		6.43	6.43	2.26	0.00	0.49	202.73	3.74	4.17	4.17
4/18/2009	2009	2009	4	5.60		0.00	0.00	6.43	9.89	7.15	7.50		6.43	6.43	2.19	0.00	0.47	196.95	3.41	4.24	4.24
4/19/2009	2009	2009	4	5.20		0.00	0.79	6.43	9.89	7.15	8.60		7.33	7.33	2.12	0.00	0.46	190.74	3.08	5.20	5.20
4/20/2009	2009	2009	4	4.90		0.00	0.34	5.93	8.60	6.20	8.50		7.65	7.65	2.07	0.00	0.45	185.76	2.83	5.58	5.58
4/21/2009	2009	2009	4	4.60		0.00	0.18	6.55	9.51	6.16	7.30		7.15	7.15	2.01	0.00	0.43	180.46	2.59	5.14	5.14
4/22/2009	2009	2009	4	4.80		0.00	0.32	5.47	6.25	4.92	6.40		6.45	6.45	2.05	0.00	0.44	184.03	2.75	4.41	4.41
4/23/2009	2009	2009	4	7.30		0.00	0.61	6.19	9.28	4.98	6.00		6.70	6.70	2.44	0.00	0.53	219.16	4.86	4.26	4.26
4/24/2009	2009	2009	4	7.50		0.00	0.00	6.54	8.37	5.84	5.90		6.54	6.54	2.47	0.00	0.53	221.42	5.03	4.07	4.07
4/25/2009	2009	2009	4	6.90		0.00	0.00	6.54	8.37	5.84	6.00		6.54	6.54	2.39	0.00	0.52	214.44	4.51	4.15	4.15
4/26/2009	2009	2009	4	6.20		0.00	0.48	6.54	8.37	5.84	5.90		6.54	6.54	2.29	0.00	0.49	205.47	3.91	4.25	4.25
4/27/2009	2009	2009	4	5.80		0.00	0.36	5.63	7.12	4.54	5.60		6.23	6.23	2.23	0.00	0.48	199.89	3.57	4.00	4.00
4/28/2009	2009	2009	4	5.10		0.00	0.27	6.56	7.41	4.20	4.80		6.66	6.66	2.11	0.00	0.46	189.11	2.99	4.56	4.56
4/29/2009	2009	2009	4	4.90		0.00	0.31	6.28	6.76	4.19	4.70		6.31	6.31	2.07	0.00	0.45	185.76	2.83	4.24	4.24
4/30/2009	2009	2009	4	4.90		0.00	0.30	5.34	7.23	4.65	4.70		5.34	5.34	2.07	0.00	0.45	185.76	2.83	3.27	3.27
5/1/2009	2009	2009	5	4.70		0.00	0.00	5.05	7.24	4.69	4.80		5.05	5.05	2.03	0.00	0.44	182.26	2.67	3.02	3.02
5/2/2009	2009	2009	5	4.50		0.00	0.00	5.05	7.24	4.69	4.60		5.05	5.05	1.99	0.00	0.43	178.62	2.51	3.06	3.06
5/3/2009	2009	2009	5	4.30		0.00	0.83	5.05	7.24	4.69	4.60		5.05	5.05	1.95	0.00	0.42	174.81	2.35	3.10	3.10
5/4/2009	2009	2009	5	4.10		(0.05)	0.24	5.87	7.78	4.89	4.60		5.87	5.87	1.90	(0.02)	0.41	168.66	2.22	4.00	4.00
5/5/2009	2009	2009	5	4.00		(0.09)	0.21	5.10	6.60	4.31	4.50		5.10	5.10	1.88	(0.04)	0.40	165.12	2.16	3.26	3.26
5/6/2009	2009	2009	5	3.80		(0.16)	0.26	5.01	7.00	4.27	4.30		5.01	5.01	1.83	(0.07)	0.38	157.75	2.04	3.25	3.25
5/7/2009	2009	2009	5	3.90		(0.12)	0.23	5.17	6.96	4.35	4.40		5.17	5.17	1.86	(0.06)	0.39	161.49	2.10	3.37	3.37
5/8/2009	2009	2009	5	4.00		(0.09)	0.00	5.10	7.50	5.21	4.30		5.10	5.10	1.88	(0.04)	0.40	165.12	2.16	3.27	3.27
5/9/2009	2009	2009	5	4.10		(0.05)	0.00	5.10	7.50	5.21	4.00		5.10	5.10	1.90	(0.02)	0.41	168.66	2.22	3.23	3.23
5/10/2009	2009	2009	5	4.20		(0.02)	0.64	5.10	7.50	5.21	4.50		5.10	5.10	1.92	(0.01)	0.41	172.10	2.28	3.19	3.19
5/11/2009	2009	2009	5	4.40		0.00	0.21	5.17	8.34	5.03	5.10		5.17	5.17	1.97	0.00	0.43	176.74	2.43	3.21	3.21
5/12/2009	2009	2009	5	4.50		0.00	0.16	5.33	8.71	5.23	5.20		5.33	5.33	1.99	0.00	0.43	178.62	2.51	3.34	3.34
5/14/2009	2009	2009	5	4.60		0.00	0.20	0.00	8.82	5.64	9.90		3.96	3.96	2.01	0.00	0.43	180.46	2.59	1.95	0.00
5/15/2009	2009	2009	5	4.50		0.00	0.00	5.90	8.21	5.01	9.90		10.04	10.04	1.99	0.00	0.43	178.62	2.51	8.05	5.90
5/16/2009	2009	2009	5	4.50		0.00	0.00	5.90	8.21	5.01	6.40		6.79	6.79	1.99	0.00	0.43	178.62	2.51	4.80	4.80
5/17/2009	2009	2009	5	4.40		0.00	0.67	5.90	8.21	5.01	5.40		5.90	5.90	1.97	0.00	0.43	176.74	2.43	3.93	3.93
5/18/2009	2009	2009	5	4.30		0.00	0.21	5.34	3.88	1.95	5.10		7.90	7.90	1.95	0.00	0.42	174.81	2.35	5.96	5.34
5/19/2009	2009	2009	5	4.30		0.00	0.20	5.64	2.39	0.74	4.30		8.56	8.56	1.95	0.00	0.42	174.81	2.35	6.61	5.64
5/20/2009	2009	2009	5	4.50		0.00	0.21	6.60	4.46	1.19	3.10		7.92	7.92	1.99	0.00	0.43	178.62	2.51	5.93	5.93
5/21/2009	2009	2009	5	5.60		0.00	0.22	6.17	4.51	1.40	2.30		6.58	6.58	2.19	0.00	0.47	196.95	3.41	4.39	4.39
5/22/2009	2009	2009	5	5.70		0.00	0.00	6.03	5.68	3.03	2.00		6.03	6.03	2.21	0.00	0.48	198.43	3.49	3.82	3.82
5/23/2009	2009	2009	5	5.40		0.00	0.00	6.03	5.68	3.03	2.20		6.03	6.03	2.16	0.00	0.47	193.90	3.24	3.87	3.87
5/24/2009	2009	2009	5	5.10		0.00	0.00	6.03	5.68	3.03	2.40		6.03	6.03	2.11	0.00	0.46	189.11	2.99	3.92	3.92
5/25/2009	2009	2009	5	4.90		0.00	0.88	6.03	5.68	3.03	2.80		6.03	6.03	2.07	0.00	0.45	185.76	2.83	3.96	3.96
5/26/2009	2009	2009	5	4.70		0.00	0.15	6.17	7.89	4.45	3.10		6.17	6.17	2.03	0.00	0.44	182.26	2.67	4.14	4.14
5/27/2009	2009	2009	5	4.50		0.00	0.22	5.07	7.38	4.23	3.40		5.07	5.07	1.99	0.00	0.43	178.62	2.51	3.09	3.09
5/28/2009	2009	2009	5	4.60		0.00	0.22	5.29	8.30	4.95	3.90		5.29	5.29	2.01	0.00	0.43	180.46	2.59	3.28	3.28
5/29/2009	2009	2009	5	4.70		0.00	0.00	4.37	9.16	6.37	4.50		4.37	4.37	2.03	0.00	0.44	182.26	2.67	2.34	2.34
5/30/2009	2009	2009	5	4.70		0.00	0.00	4.37	9.16	6.37	5.00		4.37	4.37	2.03	0.00	0.44	182.26	2.67	2.34	2.34
5/31/2009	2009	2009	5	4.80		0.00	0.66	4.37	9.16	6.37	5.60		4.37	4.37	2.05	0.00	0.44	184.03	2.75	2.32	2.32
6/1/2009	2009	2009	6	4.90		0.00	0.22	4.96	8.15	5.47	6.60		5.66	5.66	2.07	0.00	0.45	185.76	2.83	3.59	3.59
6/2/2009	2009	2009	6	5.00		0.00	0.09	5.65	9.40	6.03	6.70		5.88	5.88	2.09	0.00	0.45	187.45	2.91	3.79	3.79
6/3/2009	2009	2009	6	5.10		0.00	0.23	4.89	8.17	5.45	7.20		6.17	6.17	2.11	0.00	0.46	189.11	2.99	4.07	4.07
6/4/2009	2009	2009	6	5.10		0.00	0.23	5.62	8.93	5.65	7.10		6.57	6.57	2.11	0.00	0.46	189.11	2.99	4.47	4.47
6/5/2009	2009	2009	6	5.20		0.00	0.00	5.60	7.68	5.02	7.20		7.23	7.23	2.12	0.00	0.46	190.74	3.08	5.11	5.11
6/6/2009	2009	2009	6	5.20		0.00	0.00	5.60	7.68	5.02	6.30		6.39	6.39	2.12	0.00	0.46	190.74	3.08	4.27	4.27
6/7/2009	2009	2009	6	5.30		0.00	0.64	5.60	7.68	5.02	6.10		6.21	6.21	2.14	0.00	0.46	192.33	3.16	4.07	4.07
6/8/2009	2009	2009	6	5.30		0.00	0.22	4.72	5.53	3.23	5.80		6.77	6.77	2.14	0.00	0.46	192.33	3.16	4.63	4.63
6/9/2009	2009	2009	6	5.40		0.00	0.18	4.89	5.13	3.18	5.20		6.43	6.43	2.16	0.00	0.47	193.90	3.24	4.27	4.27
6/10/2009	2009	2009	6	5.40		0.00	0.22	5.90	7.02	4.26	4.80		5.99	5.99	2.16	0.00	0.47	193.90	3.24	3.83	3.83
6/11/2009	2009	2009	6	5.20		0.00	0.22	4.64	5.42	3.50	4.70		5.43	5.43	2.12	0.00	0.46	190.74	3.08	3.31	3.31
6/12/2009	2009	2009	6	5.10		0.00	0.00	6.11	7.68	5.08	4.70		6.11	6.11	2.11	0.00	0.46	189.11	2.99	4.00	4.00
6/13/2009	2009	2009	6	4.90		0.00	0.00	6.11	7.68	5.08	4.90		6.11	6.11	2.07	0.00	0.45	185.76	2.83	4.04	4.04
6/14/2009	2009	2009	6	4.80		0.00	0.55	6.11	7.68	5.08	5.40		6.11	6.11	2.05	0.00	0.44	184.03	2.75	4.06	4.06
6/15/2009	2009	2009	6	4.60		0.00	0.27	5.08	5.89	3.58	5.40		6.43	6.43	2.01	0.00	0.43	180.46	2.59	4.42	4.42
6/16/2009	2009	2009	6	4.60		0.00	0.19	5.89	6.68	4.17	5.00		6.25	6.25	2.01	0.00	0.43	180.46	2.59	4.24	4.24
6/17/2009	2009	2009	6	5.00		0.00	0.21	4.81	5.72	3.39	4.50		5.50	5.50	2.09	0.00	0.45	187.45	2.91	3.42	3.42
6/18/2009	2009	2009	6	5.30		0.00	0.22	5.07	5.85	3.60	4.20		5.28	5.28	2.14	0.00	0.46	192.33	3.16	3.14	3.14
6/19/2009	2009	2009	6	5.40		0.00	0.00	6.07	8.01	5.43	4.10		6.07	6.07	2.16	0.00	0.47	193.90	3.24	3.91	3.91
6/20/2009	2009	2009	6	5.40		0.00	0.00	6.07	8.01	5.43	4.40		6.07	6.07	2.16	0.00	0.47	193.90	3.24	3.91	3.91

Existing Condition / **San Joaquin Marsh Operations** / **With Project Diversion**

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
6/21/2009	2009	2009	6	5.40		0.00	0.62	6.07	8.01	5.43	4.90		6.07	6.07	2.16	0.00	0.47	193.90	3.24	3.91	3.91
6/22/2009	2009	2009	6	5.40		0.00	0.19	4.81	6.65	4.01	5.10		5.49	5.49	2.16	0.00	0.47	193.90	3.24	3.33	3.33
6/23/2009	2009	2009	6	5.40		0.00	0.15	5.04	6.42	3.83	5.00		5.77	5.77	2.16	0.00	0.47	193.90	3.24	3.61	3.61
6/24/2009	2009	2009	6	5.40		0.00	0.23	5.35	6.48	4.19	4.80		5.54	5.54	2.16	0.00	0.47	193.90	3.24	3.38	3.38
6/25/2009	2009	2009	6	5.50		0.00	0.24	5.16	7.00	4.81	4.60		5.16	5.16	2.18	0.00	0.47	195.44	3.32	2.98	2.98
6/26/2009	2009	2009	6	5.50		0.00	0.00	5.85	8.92	6.35	4.90		5.85	5.85	2.18	0.00	0.47	195.44	3.32	3.67	3.67
6/27/2009	2009	2009	6	5.50		0.00	0.00	5.85	8.92	6.35	5.30		5.85	5.85	2.18	0.00	0.47	195.44	3.32	3.67	3.67
6/28/2009	2009	2009	6	5.50		0.00	0.56	5.85	8.92	6.35	6.20		5.85	5.85	2.18	0.00	0.47	195.44	3.32	3.67	3.67
6/29/2009	2009	2009	6	5.50		0.00	0.19	5.46	7.17	4.67	6.50		6.77	6.77	2.18	0.00	0.47	195.44	3.32	4.60	4.60
6/30/2009	2009	2009	6	5.50		0.00	0.17	5.25	6.58	4.39	6.00		6.38	6.38	2.18	0.00	0.47	195.44	3.32	4.21	4.21
7/1/2009	2009	2009	7	5.50		0.00	0.16	4.88	6.56	4.08	5.50		5.86	5.86	2.18	0.00	0.47	195.44	3.32	3.68	3.68
7/2/2009	2009	2009	7	5.80		0.00	0.00	5.95	8.06	5.57	5.30		5.95	5.95	2.23	0.00	0.48	199.89	3.57	3.72	3.72
7/3/2009	2009	2009	7	4.80		0.00	0.00	5.95	8.06	5.57	5.20		5.95	5.95	2.05	0.00	0.44	184.03	2.75	3.90	3.90
7/4/2009	2009	2009	7	4.60		0.00	0.00	5.95	8.06	5.57	5.50		5.95	5.95	2.01	0.00	0.43	180.46	2.59	3.94	3.94
7/5/2009	2009	2009	7	4.60		0.00	0.70	5.95	8.06	5.57	6.10		6.02	6.02	2.01	0.00	0.43	180.46	2.59	4.02	4.02
7/6/2009	2009	2009	7	4.60		0.00	0.16	4.48	5.23	3.24	6.60		7.29	7.29	2.01	0.00	0.43	180.46	2.59	5.28	4.48
7/7/2009	2009	2009	7	4.60		0.00	0.14	5.04	5.99	3.50	6.50		7.47	7.47	2.01	0.00	0.43	180.46	2.59	5.46	5.04
7/8/2009	2009	2009	7	4.50		0.00	0.18	5.31	6.56	3.89	6.60		7.46	7.46	1.99	0.00	0.43	178.62	2.51	5.47	5.31
7/9/2009	2009	2009	7	4.60		0.00	0.16	5.49	7.08	4.29	6.50		7.16	7.16	2.01	0.00	0.43	180.46	2.59	5.15	5.15
7/10/2009	2009	2009	7	4.60		0.00	0.00	5.65	8.84	6.00	6.60		5.81	5.81	2.01	0.00	0.43	180.46	2.59	3.80	3.80
7/11/2009	2009	2009	7	4.70		0.00	0.00	5.65	8.84	6.00	7.40		6.56	6.56	2.03	0.00	0.44	182.26	2.67	4.53	4.53
7/12/2009	2009	2009	7	4.70		0.00	0.52	5.65	8.84	6.00	7.80		6.93	6.93	2.03	0.00	0.44	182.26	2.67	4.90	4.90
7/13/2009	2009	2009	7	4.50		0.00	0.17	4.35	6.09	3.78	6.60		6.67	6.67	1.99	0.00	0.43	178.62	2.51	4.68	4.35
7/14/2009	2009	2009	7	4.50		0.00	0.15	4.34	6.25	3.75	5.50		5.66	5.66	1.99	0.00	0.43	178.62	2.51	3.68	3.68
7/15/2009	2009	2009	7	4.40		0.00	0.20	4.87	6.44	4.00	5.10		5.55	5.55	1.97	0.00	0.43	176.74	2.43	3.58	3.58
7/16/2009	2009	2009	7	4.60		0.00	0.22	5.39	7.15	4.46	5.10		5.61	5.61	2.01	0.00	0.43	180.46	2.59	3.60	3.60
7/17/2009	2009	2009	7	4.60		0.00	0.00	5.65	8.84	6.10	5.00		5.65	5.65	2.01	0.00	0.43	180.46	2.59	3.64	3.64
7/18/2009	2009	2009	7	4.60		0.00	0.00	5.65	8.84	6.10	5.40		5.65	5.65	2.01	0.00	0.43	180.46	2.59	3.64	3.64
7/19/2009	2009	2009	7	4.60		0.00	0.50	5.65	8.84	6.10	6.10		5.65	5.65	2.01	0.00	0.43	180.46	2.59	3.64	3.64
7/20/2009	2009	2009	7	4.60		0.00	0.14	3.98	5.80	3.45	6.40		6.45	6.45	2.01	0.00	0.43	180.46	2.59	4.44	3.98
7/21/2009	2009	2009	7	4.70		0.00	0.15	4.84	6.35	3.75	6.10		6.69	6.69	2.03	0.00	0.44	182.26	2.67	4.66	4.66
7/22/2009	2009	2009	7	5.60		0.00	0.17	5.50	6.76	4.11	5.70		6.59	6.59	2.19	0.00	0.47	196.95	3.41	4.40	4.40
7/23/2009	2009	2009	7	5.50		0.00	0.23	4.48	6.04	3.48	5.40		5.95	5.95	2.18	0.00	0.47	195.44	3.32	3.77	3.77
7/24/2009	2009	2009	7	5.50		0.00	0.00	5.29	8.15	5.40	5.10		5.29	5.29	2.18	0.00	0.47	195.44	3.32	3.11	3.11
7/25/2009	2009	2009	7	5.60		0.00	0.00	5.29	8.15	5.40	5.30		5.29	5.29	2.19	0.00	0.47	196.95	3.41	3.10	3.10
7/26/2009	2009	2009	7	5.50		0.00	0.50	5.29	8.15	5.40	5.80		5.29	5.29	2.18	0.00	0.47	195.44	3.32	3.12	3.12
7/27/2009	2009	2009	7	5.50		0.00	0.12	4.58	6.00	3.71	5.80		6.21	6.21	2.18	0.00	0.47	195.44	3.32	4.03	4.03
7/28/2009	2009	2009	7	5.40		0.00	0.21	4.95	6.71	3.87	5.60		6.21	6.21	2.16	0.00	0.47	193.90	3.24	4.05	4.05
7/29/2009	2009	2009	7	5.40		0.00	0.17	5.41	6.66	4.33	5.40		6.02	6.02	2.16	0.00	0.47	193.90	3.24	3.86	3.86
7/30/2009	2009	2009	7	5.40		0.00	0.21	4.66	5.97	3.65	5.40		5.97	5.97	2.16	0.00	0.47	193.90	3.24	3.81	3.81
7/31/2009	2009	2009	7	5.30		0.00	0.00	5.23	7.98	4.69	5.50		5.61	5.61	2.14	0.00	0.46	192.33	3.16	3.47	3.47
8/1/2009	2009	2009	8	5.30		0.00	0.00	5.23	7.98	4.69	5.80		5.89	5.89	2.14	0.00	0.46	192.33	3.16	3.75	3.75
8/2/2009	2009	2009	8	5.20		0.00	0.63	5.23	7.98	4.69	5.70		5.80	5.80	2.12	0.00	0.46	190.74	3.08	3.68	3.68
8/3/2009	2009	2009	8	5.20		0.00	0.20	4.21	4.94	2.70	5.00		6.05	6.05	2.12	0.00	0.46	190.74	3.08	3.93	3.93
8/4/2009	2009	2009	8	5.20		0.00	0.20	5.56	6.26	3.70	4.70		6.10	6.10	2.12	0.00	0.46	190.74	3.08	3.97	3.97
8/5/2009	2009	2009	8	5.20		0.00	0.21	4.84	5.63	3.31	4.80		5.89	5.89	2.12	0.00	0.46	190.74	3.08	3.77	3.77
8/6/2009	2009	2009	8	5.10		0.00	0.21	5.37	6.23	3.75	5.20		6.34	6.34	2.11	0.00	0.46	189.11	2.99	4.24	4.24
8/7/2009	2009	2009	8	5.10		0.00	0.00	5.55	7.56	4.92	5.30		5.55	5.55	2.11	0.00	0.46	189.11	2.99	3.44	3.44
8/8/2009	2009	2009	8	5.00		0.00	0.00	5.55	7.56	4.92	5.70		5.89	5.89	2.09	0.00	0.45	187.45	2.91	3.80	3.80
8/9/2009	2009	2009	8	4.90		0.00	0.67	5.55	7.56	4.92	6.10		6.26	6.26	2.07	0.00	0.45	185.76	2.83	4.19	4.19
8/10/2009	2009	2009	8	4.80		0.00	0.23	5.20	6.50	3.92	6.10		6.86	6.86	2.05	0.00	0.44	184.03	2.75	4.81	4.81
8/11/2009	2009	2009	8	4.90		0.00	0.18	4.82	5.74	3.42	6.20		7.07	7.07	2.07	0.00	0.45	185.76	2.83	5.00	4.82
8/12/2009	2009	2009	8	4.60		0.00	0.22	5.01	6.00	3.58	5.90		6.82	6.82	2.01	0.00	0.43	180.46	2.59	4.81	4.81
8/13/2009	2009	2009	8	4.80		0.00	0.21	5.01	5.85	3.53	5.60		6.58	6.58	2.05	0.00	0.44	184.03	2.75	4.53	4.53
8/14/2009	2009	2009	8	4.80		0.00	0.00	5.46	8.34	5.50	5.30		5.46	5.46	2.05	0.00	0.44	184.03	2.75	3.41	3.41
8/15/2009	2009	2009	8	4.80		0.00	0.00	5.46	8.34	5.50	5.40		5.46	5.46	2.05	0.00	0.44	184.03	2.75	3.41	3.41
8/16/2009	2009	2009	8	4.60		0.00	0.57	5.46	8.34	5.50	5.90		5.46	5.46	2.01	0.00	0.43	180.46	2.59	3.45	3.45
8/17/2009	2009	2009	8	4.60		0.00	0.20	4.97	6.97	4.36	6.00		6.15	6.15	2.01	0.00	0.43	180.46	2.59	4.14	4.14
8/18/2009	2009	2009	8	4.70		0.00	0.18	4.17	5.41	3.22	5.60		6.09	6.09	2.03	0.00	0.44	182.26	2.67	4.06	4.06
8/19/2009	2009	2009	8	4.60		0.00	0.19	5.52	7.08	4.28	5.40		6.18	6.18	2.01	0.00	0.43	180.46	2.59	4.17	4.17
8/20/2009	2009	2009	8	4.90		0.00	0.20	4.97	6.14	4.21	5.10		5.45	5.45	2.07	0.00	0.45	185.76	2.83	3.38	3.38
8/21/2009	2009	2009	8	5.20		0.00	0.00	5.07	8.44	5.71	4.80		5.07	5.07	2.12	0.00	0.46	190.74	3.08	2.94	2.94
8/22/2009	2009	2009	8	5.10		0.00	0.00	5.07	8.44	5.71	5.00		5.07	5.07	2.11	0.00	0.46	189.11	2.99	2.96	2.96
8/23/2009	2009	2009	8	5.20		0.00	0.62	5.07	8.44	5.71	5.50		5.07	5.07	2.12	0.00	0.46	190.74	3.08	2.94	2.94
8/24/2009	2009	2009	8	5.20		0.00	0.19	5.05	7.18	4.50	5.60		5.72	5.72	2.12	0.00	0.46	190.74	3.08	3.60	3.60
8/25/2009	2009	2009	8	5.60		0.00	0.17	4.97	6.55	3.83	5.10		5.80	5.80	2.19	0.00	0.47	196.95	3.41	3.61	3.61
8/26/2009	2009	2009	8	5.90		0.00	0.19	5.47	6.14	4.33	4.80		5.52	5.52	2.24	0.00	0.48	201.32	3.66	3.28	3.28
8/27/2009	2009	2009	8	5.60		0.00	0.19	4.29	5.90	3.67	4.80		5.04	5.04	2.19	0.00	0.47	196.95	3.41	2.85	2.85
8/28/2009	2009	2009	8	5.20		0.00	0.00	5.33	8.53	5.76	4.60		5.33	5.33	2.12	0.00	0.46	190.74	3.08	3.21	3.21
8/29/2009	2009	2009	8	4.70		0.00	0.00	5.33	8.53	5.76	4.70		5.33	5.33	2.03	0.00	0.44	182.26	2.67	3.30	3.30
8/30/2009	2009	2009	8	4.50		0.00	0.70	5.33	8.53	5.76	5.20		5.33	5.33	1.99	0.00	0.43	178.62	2.51	3.34	3.34

Existing Condition

San Joaquin Marsh Operations

With Project Diversion

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
8/31/2009	2009	2009	8	4.10		(0.05)	0.19	4.27	6.15	3.78	5.30		5.38	5.38	1.90	(0.02)	0.41	168.66	2.22	3.51	3.51
9/1/2009	2009	2009	9	4.00		(0.09)	0.07	4.95	6.58	3.85	5.00		5.67	5.67	1.88	(0.04)	0.40	165.12	2.16	3.83	3.83
9/2/2009	2009	2009	9	3.90		(0.12)	0.08	5.33	6.36	3.87	4.80		5.82	5.82	1.86	(0.06)	0.39	161.49	2.10	4.02	4.02
9/3/2009	2009	2009	9	4.10		(0.05)	0.08	5.11	6.55	3.78	4.80		5.69	5.69	1.90	(0.02)	0.41	168.66	2.22	3.82	3.82
9/4/2009	2009	2009	9	4.10		(0.05)	0.00	5.04	7.65	5.21	4.60		5.04	5.04	1.90	(0.02)	0.41	168.66	2.22	3.16	3.16
9/5/2009	2009	2009	9	4.00		(0.09)	0.00	5.04	7.65	5.21	4.70		5.04	5.04	1.88	(0.04)	0.40	165.12	2.16	3.20	3.20
9/6/2009	2009	2009	9	4.20		(0.02)	0.00	5.04	7.65	5.21	5.10		5.04	5.04	1.92	(0.01)	0.41	172.10	2.28	3.12	3.12
9/7/2009	2009	2009	9	4.00		(0.09)	0.33	5.04	7.65	5.21	5.20		5.04	5.04	1.88	(0.04)	0.40	165.12	2.16	3.20	3.20
9/8/2009	2009	2009	9	4.00		(0.09)	0.08	4.39	6.24	3.84	5.10		5.25	5.25	1.88	(0.04)	0.40	165.12	2.16	3.42	3.42
9/9/2009	2009	2009	9	4.00		(0.09)	0.05	5.34	6.82	4.20	5.00		5.71	5.71	1.88	(0.04)	0.40	165.12	2.16	3.87	3.87
9/10/2009	2009	2009	9	3.90		(0.12)	0.11	5.13	6.28	4.14	4.80		5.39	5.39	1.86	(0.06)	0.39	161.49	2.10	3.59	3.59
9/11/2009	2009	2009	9	4.20		(0.02)	0.00	5.24	8.44	5.77	5.00		5.24	5.24	1.92	(0.01)	0.41	172.10	2.28	3.32	3.32
9/12/2009	2009	2009	9	4.30		0.00	0.00	5.24	8.44	5.77	5.30		5.24	5.24	1.95	0.00	0.42	174.81	2.35	3.29	3.29
9/13/2009	2009	2009	9	4.30		0.00	0.30	5.24	8.44	5.77	5.60		5.24	5.24	1.95	0.00	0.42	174.81	2.35	3.29	3.29
9/14/2009	2009	2009	9	4.10		(0.05)	0.00	4.27	6.01	3.66	5.60		5.78	5.78	1.90	(0.02)	0.41	168.66	2.22	3.90	3.90
9/15/2009	2009	2009	9	4.10		(0.05)	0.00	4.98	6.10	3.67	5.20		6.06	6.06	1.90	(0.02)	0.41	168.66	2.22	4.18	4.18
9/16/2009	2009	2009	9	4.40		0.00	0.00	5.13	6.26	3.69	4.60		5.62	5.62	1.97	0.00	0.43	176.74	2.43	3.65	3.65
9/17/2009	2009	2009	9	4.40		0.00	0.00	5.30	8.59	3.79	4.10		5.30	5.30	1.97	0.00	0.43	176.74	2.43	3.33	3.33
9/18/2009	2009	2009	9	4.40		0.00	0.00	5.39	6.75	4.93	4.10		5.39	5.39	1.97	0.00	0.43	176.74	2.43	3.42	3.42
9/19/2009	2009	2009	9	4.60		0.00	0.00	5.39	6.75	4.93	4.60		5.39	5.39	2.01	0.00	0.43	180.46	2.59	3.38	3.38
9/20/2009	2009	2009	9	4.80		0.00	0.00	5.39	6.75	4.93	5.60		5.64	5.64	2.05	0.00	0.44	184.03	2.75	3.59	3.59
9/21/2009	2009	2009	9	4.70		0.00	0.00	4.80	5.08	3.22	5.90		6.96	6.96	2.03	0.00	0.44	182.26	2.67	4.93	4.80
9/22/2009	2009	2009	9	4.90		0.00	0.00	5.14	5.47	3.12	5.30		6.81	6.81	2.07	0.00	0.45	185.76	2.83	4.74	4.74
9/23/2009	2009	2009	9	5.20		0.00	0.00	5.30	5.66	3.18	4.90		6.53	6.53	2.12	0.00	0.46	190.74	3.08	4.40	4.40
9/24/2009	2009	2009	9	5.30		0.00	0.00	5.57	6.14	3.55	4.40		5.96	5.96	2.14	0.00	0.46	192.33	3.16	3.82	3.82
9/25/2009	2009	2009	9	5.50		0.00	0.00	5.26	7.53	5.01	3.90		5.26	5.26	2.18	0.00	0.47	195.44	3.32	3.08	3.08
9/26/2009	2009	2009	9	5.70		0.00	0.00	5.26	7.53	5.01	4.40		5.26	5.26	2.21	0.00	0.48	198.43	3.49	3.05	3.05
9/27/2009	2009	2009	9	5.90		0.00	0.00	5.26	7.53	5.01	4.90		5.26	5.26	2.24	0.00	0.48	201.32	3.66	3.01	3.01
9/28/2009	2009	2009	9	5.80		0.00	0.00	3.91	7.88	3.49	5.00		5.04	5.04	2.23	0.00	0.48	199.89	3.57	2.81	2.81
9/29/2009	2009	2009	9	5.90		0.00	0.00	5.32	4.55	4.14	4.80		5.57	5.57	2.24	0.00	0.48	201.32	3.66	3.32	3.32
9/30/2009	2009	2009	9	5.80		0.00	0.00	4.84	5.84	3.76	4.60		5.28	5.28	2.23	0.00	0.48	199.89	3.57	3.06	3.06
10/1/2009	2009	2010	10	5.90		0.00	0.10	4.91	5.98	3.72	4.60		5.39	5.39	2.24	0.00	0.48	201.32	3.66	3.15	3.15
10/2/2009	2009	2010	10	5.40		0.00	0.00	6.02	7.44	4.88	4.70		6.02	6.02	2.16	0.00	0.47	193.90	3.24	3.86	3.86
10/3/2009	2009	2010	10	5.60		0.00	0.00	6.02	7.44	4.88	4.90		6.02	6.02	2.19	0.00	0.47	196.95	3.41	3.83	3.83
10/4/2009	2009	2010	10	5.50		0.00	0.25	6.02	7.44	4.88	4.90		6.02	6.02	2.18	0.00	0.47	195.44	3.32	3.85	3.85
10/5/2009	2009	2010	10	5.40		0.00	0.07	5.51	6.98	3.88	4.90		6.08	6.08	2.16	0.00	0.47	193.90	3.24	3.92	3.92
10/6/2009	2009	2010	10	5.20		0.00	0.07	5.99	6.99	3.74	4.80		6.56	6.56	2.12	0.00	0.46	190.74	3.08	4.43	4.43
10/7/2009	2009	2010	10	5.10		0.00	0.07	5.45	6.51	3.48	4.60		6.11	6.11	2.11	0.00	0.46	189.11	2.99	4.01	4.01
10/8/2009	2009	2010	10	5.00		0.00	0.07	5.05	6.74	4.11	4.40		5.05	5.05	2.09	0.00	0.45	187.45	2.91	2.96	2.96
10/9/2009	2009	2010	10	5.20		0.00	0.00	5.20	4.98	4.87	4.40		5.20	5.20	2.12	0.00	0.46	190.74	3.08	3.07	3.07
10/10/2009	2009	2010	10	5.20		0.00	0.00	5.20	4.98	4.87	4.80		5.20	5.20	2.12	0.00	0.46	190.74	3.08	3.07	3.07
10/11/2009	2009	2010	10	5.20		0.00	0.26	5.20	4.98	4.87	4.90		5.20	5.20	2.12	0.00	0.46	190.74	3.08	3.07	3.07
10/12/2009	2009	2010	10	6.60		0.00	0.05	5.38	15.05	4.71	5.00		5.38	5.38	2.35	0.00	0.51	210.71	4.25	3.03	3.03
10/13/2009	2009	2010	10	18.00		0.00	0.06	3.62	8.69	4.44	5.30		4.16	4.16	2.60	0.00	0.56	233.51	15.40	1.56	1.56
10/14/2009	2009	2010	10	168.00		0.00	0.07	4.85	8.35	4.96	168.00		156.14		0.00	0.00	0.00	0.00	168.00	156.14	4.85
10/15/2009	2009	2010	10	6.50		0.00	0.08	4.79	7.93	5.29	16.00		14.41	14.41	2.33	0.00	0.50	209.43	4.17	12.08	4.79
10/16/2009	2009	2010	10	5.20		0.00	0.00	5.99	8.45	5.74	5.80		5.99	5.99	2.12	0.00	0.46	190.74	3.08	3.86	3.86
10/17/2009	2009	2010	10	5.00		0.00	0.00	5.99	8.45	5.74	5.20		5.99	5.99	2.09	0.00	0.45	187.45	2.91	3.90	3.90
10/18/2009	2009	2010	10	4.70		0.00	0.22	5.99	8.45	5.74	5.40		5.99	5.99	2.03	0.00	0.44	182.26	2.67	3.96	3.96
10/19/2009	2009	2010	10	4.30		0.00	0.07	5.45	7.92	4.85	5.30		5.49	5.49	1.95	0.00	0.42	174.81	2.35	3.54	3.54
10/20/2009	2009	2010	10	4.80		0.00	0.07	5.53	8.11	4.93	5.00		5.53	5.53	2.05	0.00	0.44	184.03	2.75	3.48	3.48
10/21/2009	2009	2010	10	5.20		0.00	0.08	5.86	8.51	5.24	5.20		5.86	5.86	2.12	0.00	0.46	190.74	3.08	3.74	3.74
10/22/2009	2009	2010	10	5.10		0.00	0.06	5.56	7.80	4.85	5.30		5.59	5.59	2.11	0.00	0.46	189.11	2.99	3.49	3.49
10/23/2009	2009	2010	10	4.90		0.00	0.00	5.74	8.10	5.23	5.20		5.74	5.74	2.07	0.00	0.45	185.76	2.83	3.67	3.67
10/24/2009	2009	2010	10	4.50		0.00	0.00	5.74	8.10	5.23	5.30		5.74	5.74	1.99	0.00	0.43	178.62	2.51	3.75	3.75
10/25/2009	2009	2010	10	4.30		0.00	0.23	5.74	8.10	5.23	5.20		5.74	5.74	1.95	0.00	0.42	174.81	2.35	3.79	3.79
10/26/2009	2009	2010	10	3.70		(0.20)	0.08	5.92	8.16	5.30	5.10		5.92	5.92	1.81	(0.09)	0.37	153.91	1.99	4.21	4.21
10/27/2009	2009	2010	10	4.00		(0.09)	0.06	5.27	7.62	4.21	4.80		5.45	5.45	1.88	(0.04)	0.40	165.12	2.16	3.61	3.61
10/28/2009	2009	2010	10	4.10		(0.05)	0.08	4.73	8.22	4.74	4.40		4.73	4.73	1.90	(0.02)	0.41	168.66	2.22	2.85	2.85
10/29/2009	2009	2010	10	3.90		(0.12)	0.08	5.53	8.64	4.98	4.40		5.53	5.53	1.86	(0.06)	0.39	161.49	2.10	3.74	3.74
10/30/2009	2009	2010	10	4.20		(0.02)	0.00	4.90	8.88	6.06	5.30		4.90	4.90	1.92	(0.01)	0.41	172.10	2.28	2.98	2.98
10/31/2009	2009	2010	10	3.90		(0.12)	0.00	4.90	8.88	6.06	6.60		5.06	5.06	1.86	(0.06)	0.39	161.49	2.10	3.26	3.26
11/1/2009	2009	2010	11	3.70		(0.20)	0.24	4.90	8.88	6.06	7.20		5.61	5.61	1.81	(0.09)	0.37	153.91	1.99	3.90	3.90
11/2/2009	2009	2010	11	4.10		(0.05)	0.08	4.48	9.32	6.29	7.00		4.83	4.83	1.90	(0.02)	0.41	168.66	2.22	2.95	2.95
11/3/2009	2009	2010	11	3.90		(0.12)	0.07	4.93	8.65	5.60	6.40		5.33	5.33	1.86	(0.06)	0.39	161.49	2.10	3.53	3.53
11/4/2009	2009	2010	11	3.90		(0.12)	0.08	4.82	8.53	5.24	6.10		5.28	5.28	1.86	(0.06)	0.39	161.49	2.10	3.48	3.48
11/5/2009	2009	2010	11	4.00		(0.09)	0.08	4.96	8.50	5.73	6.40		5.24	5.24	1.88	(0.04)	0.40	165.12	2.16	3.40	3.40
11/6/2009	2009	2010	11	4.40		0.00	0.00	5.03	8.39	5.66	6.80		5.75	5.75	1.97	0.00	0.43	176.74	2.43	3.78	3.78
11/7/2009	2009	2010	11	4.50		0.00	0.00	5.03	8.39	5.66	6.50		5.47	5.47	1.99	0.00	0.43	178.62	2.51	3.48	3.48
11/8/2009	2009	2010	11	5.00		0.00	0.22	5.03	8.39	5.66	6.00		5.03	5.03	2.09	0.00	0.45	187.45	2.91	2.95	2.95
11/9/2009	2009	2010	11	6.00		0.00	0.07	5.43	7.70	4.48	5.50		6.00	6.00	2.26	0.00	0.49	202.73	3.74	3.75	3.75

									Existing Condition									With Project Diversion			
													0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
						Est. Loss,		San Joaquin Marsh Operations					**Adjusted	**Adjusted		Est. Loss,	39.7 ppb	16.5 ppm		**Adjusted	using SDC at Can
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	San Diego Cr (SDC) at Campus (cfs)	San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	San Diego Cr (SDC) at Campus (cfs)	SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
11/10/2009	2009	2010	11	5.50		0.00	0.07	4.58	7.57	4.22	4.80		4.80	4.80	2.18	0.00	0.47	195.44	3.32	2.62	2.62
11/11/2009	2009	2010	11	6.10		0.00	0.07	5.32	8.04	4.58	4.60		5.32	5.32	2.27	0.00	0.49	204.11	3.83	3.05	3.05
11/12/2009	2009	2010	11	5.40		0.00	0.06	5.00	7.70	4.36	4.70		5.00	5.00	2.16	0.00	0.47	193.90	3.24	2.84	2.84
11/13/2009	2009	2010	11	5.80		0.00	0.00	5.09	7.71	5.04	5.00		5.09	5.09	2.23	0.00	0.48	199.89	3.57	2.86	2.86
11/14/2009	2009	2010	11	4.60		0.00	0.00	5.09	7.71	5.04	5.80		5.44	5.44	2.01	0.00	0.43	180.46	2.59	3.43	3.43
11/15/2009	2009	2010	11	4.10		(0.05)	0.20	5.09	7.71	5.04	5.70		5.35	5.35	1.90	(0.02)	0.41	168.66	2.22	3.47	3.47
11/16/2009	2009	2010	11	4.00		(0.09)	0.08	4.71	6.84	3.00	5.60		6.80	6.80	1.88	(0.04)	0.40	165.12	2.16	4.96	4.71
11/17/2009	2009	2010	11	3.70		(0.20)	0.06	4.71	6.84	3.00	5.10		6.34	6.34	1.81	(0.09)	0.37	153.91	1.99	4.62	4.62
11/18/2009	2009	2010	11	4.30		0.00	0.07	5.33	8.18	4.61	4.90		5.33	5.33	1.95	0.00	0.42	174.81	2.35	3.38	3.38
11/19/2009	2009	2010	11	4.10		(0.05)	0.07	4.56	6.36	4.03	4.90		5.05	5.05	1.90	(0.02)	0.41	168.66	2.22	3.17	3.17
11/20/2009	2009	2010	11	4.40		0.00	0.00	5.34	7.73	5.12	5.00		5.34	5.34	1.97	0.00	0.43	176.74	2.43	3.37	3.37
11/21/2009	2009	2010	11	5.40		0.00	0.00	5.34	7.73	5.12	5.20		5.34	5.34	2.16	0.00	0.47	193.90	3.24	3.18	3.18
11/22/2009	2009	2010	11	5.00		0.00	0.18	5.34	7.73	5.12	5.50		5.34	5.34	2.09	0.00	0.45	187.45	2.91	3.26	3.26
11/23/2009	2009	2010	11	5.00		0.00	0.06	5.41	7.72	5.03	5.60		5.56	5.56	2.09	0.00	0.45	187.45	2.91	3.48	3.48
11/24/2009	2009	2010	11	5.10		0.00	0.06	4.90	7.63	4.91	5.50		5.11	5.11	2.11	0.00	0.46	189.11	2.99	3.00	3.00
11/25/2009	2009	2010	11	4.60		0.00	0.00	4.39	7.56	4.96	5.40		4.49	4.49	2.01	0.00	0.43	180.46	2.59	2.48	2.48
11/26/2009	2009	2010	11	4.20		(0.02)	0.00	4.39	7.56	4.96	5.30		4.40	4.40	1.92	(0.01)	0.41	172.10	2.28	2.48	2.48
11/27/2009	2009	2010	11	4.30		0.00	0.00	4.39	7.56	4.96	5.20		4.39	4.39	1.95	0.00	0.42	174.81	2.35	2.45	2.45
11/28/2009	2009	2010	11	4.10		(0.05)	0.00	4.39	7.56	4.96	5.40		4.49	4.49	1.90	(0.02)	0.41	168.66	2.22	2.61	2.61
11/29/2009	2009	2010	11	4.10		(0.05)	0.33	4.39	7.56	4.96	5.30		4.40	4.40	1.90	(0.02)	0.41	168.66	2.22	2.52	2.52
11/30/2009	2009	2010	11	4.30		0.00	0.07	4.83	5.21	3.38	5.20		6.19	6.19	1.95	0.00	0.42	174.81	2.35	4.24	4.24
12/1/2009	2009	2010	12	4.30		0.00	0.07	4.83	5.21	3.38	5.10		6.10	6.10	1.95	0.00	0.42	174.81	2.35	4.15	4.15
12/2/2009	2009	2010	12	5.40		0.00	0.07	5.01	7.23	4.87	4.90		5.01	5.01	2.16	0.00	0.47	193.90	3.24	2.85	2.85
12/3/2009	2009	2010	12	6.10		0.00	0.07	4.16	6.93	4.62	4.60		4.16	4.16	2.27	0.00	0.49	204.11	3.83	1.89	1.89
12/4/2009	2009	2010	12	6.00		0.00	0.07	4.81	7.71	5.60	4.50		4.81	4.81	2.26	0.00	0.49	202.73	3.74	2.55	2.55
12/5/2009	2009	2010	12	5.90		0.00	0.07	4.81	7.71	5.60	5.00		4.81	4.81	2.24	0.00	0.48	201.32	3.66	2.57	2.57
12/6/2009	2009	2010	12	5.70		0.00	0.07	4.81	7.71	5.60	5.30		4.81	4.81	2.21	0.00	0.48	198.43	3.49	2.60	2.60
12/7/2009	2009	2010	12	500.00		0.00	0.07	1.32	6.75	4.44	857.00		794.10		0.00	0.00	0.00	0.00	500.00	794.10	1.32
12/8/2009	2009	2010	12	25.00		0.00	0.07	5.92	6.99	4.55	62.00		58.94		0.00	0.00	0.00	0.00	25.00	58.94	5.92
12/9/2009	2009	2010	12	5.50		0.00	0.07	6.41	6.79	4.03	9.70		11.23	11.23	2.18	0.00	0.47	195.44	3.32	9.05	6.41
12/10/2009	2009	2010	12	5.10		0.00	0.07	6.42	6.14	3.50	4.30		6.72	6.72	2.11	0.00	0.46	189.11	2.99	4.62	4.62
12/11/2009	2009	2010	12	22.00		0.00	0.07	4.18	7.23	4.72	4.20		4.18	4.18	2.60	0.00	0.56	233.51	19.40	1.58	1.58
12/12/2009	2009	2010	12	367.00		0.00	0.07	4.18	7.23	4.72	886.00		823.47		0.00	0.00	0.00	0.00	367.00	823.47	4.18
12/13/2009	2009	2010	12	73.00		0.00	0.07	4.18	7.23	4.72	289.00		268.26		0.00	0.00	0.00	0.00	73.00	268.26	4.18
12/14/2009	2009	2010	12	8.20		0.00	0.07	5.78	7.63	4.52	24.00		23.49		0.00	0.00	0.00	0.00	8.20	23.49	5.78
12/15/2009	2009	2010	12	6.70		0.00	0.07	6.60	8.13	4.72	9.10		10.21	10.21	2.36	0.00	0.51	211.97	4.34	7.85	6.60
12/16/2009	2009	2010	12	6.30		0.00	0.07	6.24	7.35	4.23	5.40		6.89	6.89	2.30	0.00	0.50	206.81	4.00	4.59	4.59
12/17/2009	2009	2010	12	6.40		0.00	0.07	6.50	7.09	4.00	4.30		6.50	6.50	2.32	0.00	0.50	208.13	4.08	4.19	4.19
12/18/2009	2009	2010	12	6.00		0.00	0.07	6.66	7.37	3.91	4.30		6.66	6.66	2.26	0.00	0.49	202.73	3.74	4.41	4.41
12/19/2009	2009	2010	12	7.40		0.00	0.07	6.66	7.37	3.91	3.90		6.66	6.66	2.45	0.00	0.53	220.30	4.95	4.21	4.21
12/20/2009	2009	2010	12	7.40		0.00	0.07	6.66	7.37	3.91	3.70		6.66	6.66	2.45	0.00	0.53	220.30	4.95	4.21	4.21
12/21/2009	2009	2010	12	8.50		0.00	0.07	5.70	6.93	3.73	3.50		5.70	5.70	2.58	0.00	0.56	231.91	5.92	3.12	3.12
12/22/2009	2009	2010	12	47.00		0.00	0.07	4.56	6.68	3.90	52.00		48.97		0.00	0.00	0.00	0.00	47.00	48.97	4.56
12/23/2009	2009	2010	12	8.40		0.00	0.07	6.01	7.34	4.18	7.60		8.77	8.77	2.57	0.00	0.56	230.92	5.83	6.20	6.01
12/24/2009	2009	2010	12	7.60		0.00	0.07	6.01	7.34	4.18	3.50		6.01	6.01	2.48	0.00	0.54	222.53	5.12	3.53	3.53
12/25/2009	2009	2010	12	7.70		0.00	0.07	6.01	7.34	4.18	3.10		6.01	6.01	2.49	0.00	0.54	223.63	5.21	3.52	3.52
12/26/2009	2009	2010	12	7.90		0.00	0.07	6.01	7.34	4.18	3.30		6.01	6.01	2.51	0.00	0.54	225.78	5.39	3.49	3.49
12/27/2009	2009	2010	12	7.90		0.00	0.07	6.01	7.34	4.18	3.70		6.01	6.01	2.51	0.00	0.54	225.78	5.39	3.49	3.49
12/28/2009	2009	2010	12	8.10		0.00	0.07	5.56	7.43	3.93	3.60		5.56	5.56	2.54	0.00	0.55	227.87	5.56	3.02	3.02
12/29/2009	2009	2010	12	8.00		0.00	0.07	5.41	8.06	3.99	3.30		5.41	5.41	2.53	0.00	0.55	226.83	5.47	2.88	2.88
12/30/2009	2009	2010	12	18.00		0.00	0.07	5.48	7.49	4.12	3.40		5.48	5.48	2.60	0.00	0.56	233.51	15.40	2.88	2.88
12/31/2009	2009	2010	12	11.00		0.00	0.07	5.48	7.49	4.12	8.00		8.70	8.70	2.60	0.00	0.56	233.51	8.40	6.10	5.48
1/1/2010	2010	2010	1	7.70		0.00	0.00	5.48	7.49	4.12	4.20		5.48	5.48	2.49	0.00	0.54	223.63	5.21	2.99	2.99
1/2/2010	2010	2010	1	7.40		0.00	0.00	5.48	7.49	4.12	3.80		5.48	5.48	2.45	0.00	0.53	220.30	4.95	3.03	3.03
1/3/2010	2010	2010	1	7.30		0.00	0.47	5.48	7.49	4.12	3.40		5.48	5.48	2.44	0.00	0.53	219.16	4.86	3.04	3.04
1/4/2010	2010	2010	1	6.80		0.00	0.16	5.55	7.51	4.09	3.30		5.55	5.55	2.37	0.00	0.51	213.21	4.43	3.18	3.18
1/5/2010	2010	2010	1	6.40		0.00	0.14	5.55	7.05	3.65	3.50		5.55	5.55	2.32	0.00	0.50	208.13	4.08	3.23	3.23
1/6/2010	2010	2010	1	6.10		0.00	0.17	5.24	6.82	3.47	3.20		5.24	5.24	2.27	0.00	0.49	204.11	3.83	2.97	2.97
1/7/2010	2010	2010	1	5.30		0.00	0.15	5.40	6.87	3.59	3.00		5.40	5.40	2.14	0.00	0.46	192.33	3.16	3.25	3.25
1/8/2010	2010	2010	1	5.80		0.00	0.00	5.77	7.61	4.07	3.10		5.77	5.77	2.23	0.00	0.48	199.89	3.57	3.54	3.54
1/9/2010	2010	2010	1	6.20		0.00	0.00	5.77	7.61	4.07	3.10		5.77	5.77	2.29	0.00	0.49	205.47	3.91	3.48	3.48
1/10/2010	2010	2010	1	6.80		0.00	0.50	5.77	7.61	4.07	3.40		5.77	5.77	2.37	0.00	0.51	213.21	4.43	3.39	3.39
1/11/2010	2010	2010	1	7.40		0.00	0.14	5.12	7.17	4.45	4.40		5.12	5.12	2.45	0.00	0.53	220.30	4.95	2.66	2.66
1/12/2010	2010	2010	1	7.30		0.00	0.17	5.46	7.66	5.37	4.90		5.46	5.46	2.44	0.00	0.53	219.16	4.86	3.02	3.02
1/13/2010	2010	2010	1	19.00		0.00	0.17	5.62	9.03	6.53	10.00		8.46	8.46	2.60	0.00	0.56	233.51	16.40	5.86	5.62
1/14/2010	2010	2010	1	8.00		0.00	0.17	5.62	7.44	4.60	8.10		8.48	8.48	2.53	0.00	0.55	226.83	5.47	5.95	5.62
1/15/2010	2010	2010	1	6.80		0.00	0.00	4.95	8.93	6.06	4.70		4.95	4.95	2.37	0.00	0.51	213.21	4.43	2.58	2.58
1/16/2010	2010	2010	1	6.80		0.00	0.00	4.95	8.93	6.06	5.00		4.95	4.95	2.37	0.00	0.51	213.21	4.43	2.58	2.58
1/17/2010	2010	2010	1	48.00		0.00	0.52	4.95	8.93	6.06	31.00		27.81		0.00	0.00	0.00	0.00	48.00	27.81	4.95
1/18/2010	2010	2010	1	755.00		0.00	0.16	0.90	8.13	5.79	2020.00		1874.05		0.00	0.00	0.00	0.00	755.00	1874.05	0.90
1/19/2010	2010	2010	1	368.00		0.00	0.16	0.65	11.17	7.58	1170.00		1081.66		0.00	0.00	0.00	0.00	368.00	1081.66	0.65

Existing Condition | **With Project Diversion**

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	San Joaquin Marsh Operations: SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
1/20/2010	2010	2010	1	604.00		0.00	0.17	0.46	10.31	10.63	1660.00		1534.34		0.00	0.00	0.00	0.00	604.00	1534.34	0.46
1/21/2010	2010	2010	1	509.00		0.00	0.20	0.00	10.58	10.09	1370.00		1264.72		0.00	0.00	0.00	0.00	509.00	1264.72	0.00
1/22/2010	2010	2010	1	755.00		0.00	0.00	4.06	10.68	10.59	1600.00		1481.93		0.00	0.00	0.00	0.00	755.00	1481.93	4.06
1/23/2010	2010	2010	1	45.00		0.00	0.00	4.06	10.68	10.59	155.00		138.08		0.00	0.00	0.00	0.00	45.00	138.08	4.06
1/24/2010	2010	2010	1	15.00		0.00	0.49	4.06	10.68	10.59	75.00		63.68		0.00	0.00	0.00	0.00	15.00	63.68	4.06
1/25/2010	2010	2010	1	5.90		0.00	0.17	6.85	11.44	8.21	50.00		45.24		0.00	0.00	0.00	0.00	5.90	45.24	6.85
1/26/2010	2010	2010	1	90.00		0.00	0.24	3.82	9.70	6.82	205.00		187.86		0.00	0.00	0.00	0.00	90.00	187.86	3.82
1/27/2010	2010	2010	1	13.00		0.00	0.12	6.92	11.36	7.83	92.00		84.71		0.00	0.00	0.00	0.00	13.00	84.71	6.92
1/28/2010	2010	2010	1	5.20		0.00	0.22	6.25	9.64	6.62	22.00		20.12		0.00	0.00	0.00	0.00	5.20	20.12	6.25
1/29/2010	2010	2010	1	5.20		0.00	0.00	7.12	10.73	7.24	17.00		15.70	15.70	2.12	0.00	0.46	190.74	3.08	13.57	7.12
1/30/2010	2010	2010	1	5.50		0.00	0.00	7.12	10.73	7.24	14.00		12.91	12.91	2.18	0.00	0.47	195.44	3.32	10.73	7.12
1/31/2010	2010	2010	1	5.60		0.00	0.63	7.12	10.73	7.24	10.00		9.19	9.19	2.19	0.00	0.47	196.95	3.41	6.99	6.99
2/1/2010	2010	2010	2	5.50		0.00	0.21	6.46	10.14	6.62	9.80		8.96	8.96	2.18	0.00	0.47	195.44	3.32	6.79	6.46
2/2/2010	2010	2010	2	5.90		0.00	0.18	6.72	9.20	7.15	10.00		8.90	8.90	2.24	0.00	0.48	201.32	3.66	6.66	6.66
2/3/2010	2010	2010	2	6.40		0.00	0.25	7.07	10.38	7.49	9.50		8.44	8.44	2.32	0.00	0.50	208.13	4.08	6.13	6.13
2/4/2010	2010	2010	2	5.70		0.00	0.22	7.18	10.29	7.70	8.50		7.43	7.43	2.21	0.00	0.48	198.43	3.49	5.22	5.22
2/5/2010	2010	2010	2	68.00		0.00	0.00	2.94	11.02	7.41	118.00		105.57		0.00	0.00	0.00	0.00	68.00	105.57	2.94
2/6/2010	2010	2010	2	821.00		0.00	0.00	2.94	11.02	7.41	2020.00		1874.43		0.00	0.00	0.00	0.00	821.00	1874.43	2.94
2/7/2010	2010	2010	2	32.00		0.00	0.77	2.94	11.02	7.41	142.00		127.89		0.00	0.00	0.00	0.00	32.00	127.89	2.94
2/8/2010	2010	2010	2	7.80		0.00	0.25	6.91	11.35	7.73	53.00		48.53		0.00	0.00	0.00	0.00	7.80	48.53	6.91
2/9/2010	2010	2010	2	89.00		0.00	0.22	4.37	11.26	7.51	180.00		164.48		0.00	0.00	0.00	0.00	89.00	164.48	4.37
2/10/2010	2010	2010	2	12.00		0.00	0.25	6.44	11.09	7.49	68.00		62.26		0.00	0.00	0.00	0.00	12.00	62.26	6.44
2/11/2010	2010	2010	2	7.30		0.00	0.26	6.81	11.04	7.52	20.00		17.94	17.94	2.44	0.00	0.53	219.16	4.86	15.50	6.81
2/12/2010	2010	2010	2	7.30		0.00	0.00	7.02	11.10	7.49	16.00		14.44	14.44	2.44	0.00	0.53	219.16	4.86	12.00	7.02
2/13/2010	2010	2010	2	8.10		0.00	0.00	7.02	11.10	7.49	12.00		10.72	10.72	2.54	0.00	0.55	227.87	5.56	8.18	7.02
2/14/2010	2010	2010	2	6.60		0.00	0.00	7.02	11.10	7.49	9.80		8.67	8.67	2.35	0.00	0.51	210.71	4.25	6.33	6.33
2/15/2010	2010	2010	2	7.80		0.00	1.02	7.02	11.10	7.49	9.50		8.39	8.39	2.50	0.00	0.54	224.71	5.30	5.89	5.89
2/16/2010	2010	2010	2	7.70		0.00	0.24	6.89	10.23	7.40	11.00		9.75	9.75	2.49	0.00	0.54	223.63	5.21	7.26	6.89
2/17/2010	2010	2010	2	7.70		0.00	0.25	7.03	10.89	7.58	11.00		9.71	9.71	2.49	0.00	0.54	223.63	5.21	7.22	7.03
2/18/2010	2010	2010	2	8.20		0.00	0.24	6.92	10.46	7.43	12.00		10.69	10.69	2.55	0.00	0.55	228.90	5.65	8.14	6.92
2/19/2010	2010	2010	2	6.60		0.00	0.00	6.67	9.65	6.21	16.00		15.31	15.31	2.35	0.00	0.51	210.71	4.25	12.96	6.67
2/20/2010	2010	2010	2	33.00		0.00	0.00	6.67	9.65	6.21	95.00		88.78		0.00	0.00	0.00	0.00	33.00	88.78	6.67
2/21/2010	2010	2010	2	8.00		0.00	0.68	6.67	9.65	6.21	21.00		19.96		0.00	0.00	0.00	0.00	8.00	19.96	6.67
2/22/2010	2010	2010	2	9.80		0.00	0.21	7.06	8.24	5.43	27.00		26.63		0.00	0.00	0.00	0.00	9.80	26.63	7.06
2/23/2010	2010	2010	2	9.50		0.00	0.18	6.70	7.58	4.81	14.00		14.78	14.78	2.60	0.00	0.56	233.51	6.90	12.18	6.70
2/24/2010	2010	2010	2	8.60		0.00	0.22	7.25	8.37	4.53	12.00		13.69	13.69	2.59	0.00	0.56	232.89	6.01	11.10	7.25
2/25/2010	2010	2010	2	13.00		0.00	0.32	6.72	7.62	4.43	16.00		17.01	17.01	2.60	0.00	0.56	233.51	10.40	14.41	6.72
2/26/2010	2010	2010	2	12.00		0.00	0.00	4.52	9.60	6.13	14.00		11.52	11.52	2.60	0.00	0.56	233.51	9.40	8.92	4.52
2/27/2010	2010	2010	2	509.00		0.00	0.00	4.52	9.60	6.13	1040.00		965.70		0.00	0.00	0.00	0.00	509.00	965.70	4.52
2/28/2010	2010	2010	2	31.00		0.00	0.81	4.52	9.60	6.13	95.00		86.85		0.00	0.00	0.00	0.00	31.00	86.85	4.52
3/1/2010	2010	2010	3	17.00		0.00	0.26	6.25	9.91	6.81	26.00		23.67		0.00	0.00	0.00	0.00	17.00	23.67	6.25
3/2/2010	2010	2010	3	14.00		0.00	0.24	6.98	7.69	4.79	22.00		22.50		0.00	0.00	0.00	0.00	14.00	22.50	6.98
3/3/2010	2010	2010	3	12.00		0.00	0.26	9.65	10.88	7.64	19.00		19.54		0.00	0.00	0.00	0.00	12.00	19.54	9.65
3/4/2010	2010	2010	3	78.00		0.00	0.26	12.42	11.38	7.45	137.00		132.03		0.00	0.00	0.00	0.00	78.00	132.03	12.42
3/5/2010	2010	2010	3	11.00		0.00	0.00	6.68	10.73	7.95	15.00		12.77	12.77	2.60	0.00	0.56	233.51	8.40	10.17	6.68
3/6/2010	2010	2010	3	27.00		0.00	0.00	6.68	10.73	7.95	31.00		27.65		0.00	0.00	0.00	0.00	27.00	27.65	6.68
3/7/2010	2010	2010	3	13.00		0.00	0.81	6.68	10.73	7.95	64.00		58.34		0.00	0.00	0.00	0.00	13.00	58.34	6.68
3/8/2010	2010	2010	3	8.60		0.00	0.26	6.79	10.80	7.84	21.00		18.56	18.56	2.59	0.00	0.56	232.89	6.01	15.96	6.79
3/9/2010	2010	2010	3	8.00		0.00	0.26	10.28	9.80	7.60	17.00		18.30	18.30	2.53	0.00	0.55	226.83	5.47	15.77	10.28
3/10/2010	2010	2010	3	10.00		0.00	0.25	8.07	9.83	7.41	9.40		9.35	9.35	2.60	0.00	0.56	233.51	7.40	6.75	6.75
3/11/2010	2010	2010	3	9.90		0.00	0.27	6.68	9.97	7.22	11.00		9.73	9.73	2.60	0.00	0.56	233.51	7.30	7.13	6.68
3/12/2010	2010	2010	3	9.90		0.00	0.00	7.03	10.44	7.58	13.00		11.58	11.58	2.60	0.00	0.56	233.51	7.30	8.98	7.03
3/13/2010	2010	2010	3	10.00		0.00	0.00	7.03	10.44	7.58	14.00		12.51	12.51	2.60	0.00	0.56	233.51	7.40	9.91	7.03
3/14/2010	2010	2010	3	9.30		0.00	0.86	7.03	10.44	7.58	14.00		12.51	12.51	2.60	0.00	0.56	233.51	6.70	9.91	7.03
3/15/2010	2010	2010	3	9.30		0.00	0.22	6.62	10.23	7.19	15.00		13.42	13.42	2.60	0.00	0.56	233.51	6.70	10.82	6.62
3/16/2010	2010	2010	3	8.70		0.00	0.24	6.56	9.33	6.78	16.00		14.68	14.68	2.60	0.00	0.56	233.51	6.10	12.08	6.56
3/17/2010	2010	2010	3	8.50		0.00	0.27	6.70	9.45	6.85	16.00		14.74	14.74	2.58	0.00	0.56	231.91	5.92	12.16	6.70
3/18/2010	2010	2010	3	8.20		0.00	0.11	7.02	9.91	7.37	17.00		15.49	15.49	2.55	0.00	0.55	228.90	5.65	12.94	7.02
3/19/2010	2010	2010	3	7.80		0.00	0.00	6.88	9.66	7.03	17.00		15.67	15.67	2.50	0.00	0.54	224.71	5.30	13.16	6.88
3/20/2010	2010	2010	3	7.30		0.00	0.00	6.88	9.66	7.03	16.00		14.74	14.74	2.44	0.00	0.53	219.16	4.86	12.30	6.88
3/21/2010	2010	2010	3	7.00		0.00	0.77	6.88	9.66	7.03	15.00		13.81	13.81	2.40	0.00	0.52	215.64	4.60	11.40	6.88
3/22/2010	2010	2010	3	6.50		0.00	0.25	7.16	10.29	7.10	15.00		14.01	14.01	2.33	0.00	0.50	209.43	4.17	11.68	7.16
3/23/2010	2010	2010	3	6.00		0.00	0.22	6.45	9.11	6.90	8.50		7.49	7.49	2.26	0.00	0.49	202.73	3.74	5.23	5.23
3/24/2010	2010	2010	3	5.70		0.00	0.13	6.80	9.75	6.97	8.50		7.75	7.75	2.21	0.00	0.48	198.43	3.49	5.54	5.54
3/25/2010	2010	2010	3	4.90		0.00	0.38	6.59	9.16	6.89	8.40		7.53	7.53	2.07	0.00	0.45	185.76	2.83	5.46	5.46
3/26/2010	2010	2010	3	4.60		0.00	0.00	7.12	8.44	5.89	6.70		7.37	7.37	2.01	0.00	0.43	180.46	2.59	5.36	5.36
3/27/2010	2010	2010	3	4.60		0.00	0.00	7.12	8.44	5.89	5.20		7.12	7.12	2.01	0.00	0.43	180.46	2.59	5.11	5.11
3/28/2010	2010	2010	3	4.60		0.00	0.77	7.12	8.44	5.89	5.10		7.12	7.12	2.01	0.00	0.43	180.46	2.59	5.11	5.11
3/29/2010	2010	2010	3	4.60		0.00	0.27	6.43	7.99	5.39	5.10		6.43	6.43	2.01	0.00	0.43	180.46	2.59	4.42	4.42
3/30/2010	2010	2010	3	5.30		0.00	0.20	6.37	7.82	5.23	4.70		6.37	6.37	2.14	0.00	0.46	192.33	3.16	4.23	4.23
3/31/2010	2010	2010	3	4.60		0.00	0.28	6.37	7.50	5.04	4.60		6.37	6.37	2.01	0.00	0.43	180.46	2.59	4.36	4.36

Existing Condition — San Joaquin Marsh Operations | **With Project Diversion**

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
4/1/2010	2010	2010	4	4.90		0.00	0.00	6.71	7.88	5.32	4.60		6.71	6.71	2.07	0.00	0.45	185.76	2.83	4.64	4.64
4/2/2010	2010	2010	4	6.30		0.00	0.00	6.71	7.88	5.32	5.70		6.71	6.71	2.30	0.00	0.50	206.81	4.00	4.41	4.41
4/3/2010	2010	2010	4	6.20		0.00	0.00	6.71	7.88	5.32	7.80		8.55	8.55	2.29	0.00	0.49	205.47	3.91	6.26	6.26
4/4/2010	2010	2010	4	6.10		0.00	1.07	6.71	7.88	5.32	8.00		8.73	8.73	2.27	0.00	0.49	204.11	3.83	6.46	6.46
4/5/2010	2010	2010	4	51.00		0.00	0.24	5.33	7.68	5.25	73.00		67.96		0.00	0.00	0.00	0.00	51.00	67.96	5.33
4/6/2010	2010	2010	4	6.00		0.00	0.12	6.47	7.79	5.43	15.00		14.93	14.93	2.26	0.00	0.49	202.73	3.74	12.67	6.47
4/7/2010	2010	2010	4	5.50		0.00	0.38	7.09	7.71	5.27	4.90		7.09	7.09	2.18	0.00	0.47	195.44	3.32	4.92	4.92
4/8/2010	2010	2010	4	5.10		0.00	0.27	6.62	7.10	4.80	4.90		6.62	6.62	2.11	0.00	0.46	189.11	2.99	4.51	4.51
4/9/2010	2010	2010	4	5.70		0.00	0.00	5.91	7.87	5.32	4.80		5.91	5.91	2.21	0.00	0.48	198.43	3.49	3.70	3.70
4/10/2010	2010	2010	4	5.80		0.00	0.00	5.91	7.87	5.32	4.70		5.91	5.91	2.23	0.00	0.48	199.89	3.57	3.68	3.68
4/11/2010	2010	2010	4	5.90		0.00	0.78	5.91	7.87	5.32	5.20		5.91	5.91	2.24	0.00	0.48	201.32	3.66	3.67	3.67
4/12/2010	2010	2010	4	253.00		0.00	0.30	4.62	7.41	5.47	605.00		561.86		0.00	0.00	0.00	0.00	253.00	561.86	4.62
4/13/2010	2010	2010	4	6.00		0.00	0.24	6.16	7.24	4.98	24.00		23.42		0.00	0.00	0.00	0.00	6.00	23.42	6.16
4/14/2010	2010	2010	4	4.30		0.00	0.30	7.47	7.96	5.75	11.00		11.83	11.83	1.95	0.00	0.42	174.81	2.35	9.88	7.47
4/15/2010	2010	2010	4	4.80		0.00	0.31	11.22	7.44	4.96	9.30		14.48	14.48	2.05	0.00	0.44	184.03	2.75	12.43	11.22
4/16/2010	2010	2010	4	4.60		0.00	0.00	7.59	8.17	5.60	6.20		7.61	7.61	2.01	0.00	0.43	180.46	2.59	5.60	5.60
4/17/2010	2010	2010	4	4.40		0.00	0.00	7.59	8.17	5.60	7.90		9.19	9.19	1.97	0.00	0.43	176.74	2.43	7.23	7.23
4/18/2010	2010	2010	4	4.10		(0.05)	0.83	7.59	8.17	5.60	8.70		9.94	9.94	1.90	(0.02)	0.41	168.66	2.22	8.06	7.59
4/19/2010	2010	2010	4	4.20		(0.02)	0.00	6.24	6.58	4.54	8.50		9.48	9.48	1.92	(0.01)	0.41	172.10	2.28	7.57	6.24
4/20/2010	2010	2010	4	7.30		0.00	0.28	7.26	7.48	5.04	6.70		8.29	8.29	2.44	0.00	0.53	219.16	4.86	5.85	5.85
4/21/2010	2010	2010	4	5.50		0.00	0.29	6.25	7.66	5.06	13.00		13.20	13.20	2.18	0.00	0.47	195.44	3.32	11.03	6.25
4/22/2010	2010	2010	4	49.00		0.00	0.26	5.47	6.65	4.46	101.00		94.87		0.00	0.00	0.00	0.00	49.00	94.87	5.47
4/23/2010	2010	2010	4	4.50		0.00	0.00	7.23	6.60	4.12	11.00		13.12	13.12	1.99	0.00	0.43	178.62	2.51	11.13	7.23
4/24/2010	2010	2010	4	4.10		(0.05)	0.00	7.23	6.60	4.12	4.90		7.45	7.45	1.90	(0.02)	0.41	168.66	2.22	5.57	5.57
4/25/2010	2010	2010	4	4.10		(0.05)	0.80	7.23	6.60	4.12	4.10		7.23	7.23	1.90	(0.02)	0.41	168.66	2.22	5.36	5.36
4/26/2010	2010	2010	4	4.20		(0.02)	0.24	6.85	5.65	3.46	4.10		6.97	6.97	1.92	(0.01)	0.41	172.10	2.28	5.06	5.06
4/27/2010	2010	2010	4	4.40		0.00	0.23	6.48	5.51	3.24	4.10		6.82	6.82	1.97	0.00	0.43	176.74	2.43	4.85	4.85
4/28/2010	2010	2010	4	15.00		0.00	0.25	6.50	5.83	3.38	30.00		30.80		0.00	0.00	0.00	0.00	15.00	30.80	6.50
4/29/2010	2010	2010	4	4.30		0.00	0.23	6.78	6.25	3.54	8.20		10.64	10.64	1.95	0.00	0.42	174.81	2.35	8.69	6.78
4/30/2010	2010	2010	4	4.10		(0.05)	0.00	6.53	6.23	3.60	4.10		6.55	6.55	1.90	(0.02)	0.41	168.66	2.22	4.67	4.67
5/1/2010	2010	2010	5	4.00		(0.09)	0.00	6.53	6.23	3.60	4.10		6.55	6.55	1.88	(0.04)	0.40	165.12	2.16	4.71	4.71
5/2/2010	2010	2010	5	3.80		(0.16)	1.07	6.53	6.23	3.60	4.50		6.92	6.92	1.83	(0.07)	0.38	157.75	2.04	5.16	5.16
5/3/2010	2010	2010	5	4.10		(0.05)	0.32	5.45	5.86	3.64	5.00		6.33	6.33	1.90	(0.02)	0.41	168.66	2.22	4.46	4.46
5/4/2010	2010	2010	5	4.10		(0.05)	0.27	6.57	7.03	4.19	5.50		7.33	7.33	1.90	(0.02)	0.41	168.66	2.22	5.45	5.45
5/5/2010	2010	2010	5	4.50		0.00	0.31	5.85	7.50	4.57	5.50		6.31	6.31	1.99	0.00	0.43	178.62	2.51	4.32	4.32
5/6/2010	2010	2010	5	4.50		0.00	0.34	4.99	7.75	5.40	7.20		6.32	6.32	1.99	0.00	0.43	178.62	2.51	4.33	4.33
5/7/2010	2010	2010	5	4.30		0.00	0.00	5.84	9.01	6.32	8.40		7.37	7.37	1.95	0.00	0.42	174.81	2.35	5.42	5.42
5/8/2010	2010	2010	5	4.00		(0.09)	0.00	5.84	9.01	6.32	8.60		7.55	7.55	1.88	(0.04)	0.40	165.12	2.16	5.71	5.71
5/9/2010	2010	2010	5	4.00		(0.09)	0.91	5.84	9.01	6.32	8.50		7.46	7.46	1.88	(0.04)	0.40	165.12	2.16	5.62	5.62
5/10/2010	2010	2010	5	4.00		(0.09)	0.11	4.84	7.22	4.95	7.90		7.24	7.24	1.88	(0.04)	0.40	165.12	2.16	5.40	4.84
5/11/2010	2010	2010	5	3.90		(0.12)	0.09	6.00	8.26	5.22	7.40		7.61	7.61	1.86	(0.06)	0.39	161.49	2.10	5.81	5.81
5/12/2010	2010	2010	5	3.80		(0.16)	0.28	5.17	8.41	4.45	6.40		6.63	6.63	1.83	(0.07)	0.38	157.75	2.04	4.87	4.87
5/13/2010	2010	2010	5	4.10		(0.05)	0.18	5.28	7.60	4.36	6.40		6.81	6.81	1.90	(0.02)	0.41	168.66	2.22	4.93	4.93
5/14/2010	2010	2010	5	4.50		0.00	0.00	5.50	7.90	4.90	6.70		6.79	6.79	1.99	0.00	0.43	178.62	2.51	4.80	4.80
5/15/2010	2010	2010	5	5.00		0.00	0.00	5.50	7.90	4.90	7.40		7.44	7.44	2.09	0.00	0.45	187.45	2.91	5.36	5.36
5/16/2010	2010	2010	5	5.10		0.00	0.48	5.50	7.90	4.90	7.10		7.16	7.16	2.11	0.00	0.46	189.11	2.99	5.06	5.06
5/17/2010	2010	2010	5	5.70		0.00	0.24	5.70	7.81	4.39	6.50		7.27	7.27	2.21	0.00	0.48	198.43	3.49	5.06	5.06
5/18/2010	2010	2010	5	5.30		0.00	0.10	5.21	7.72	4.66	6.20		6.28	6.28	2.14	0.00	0.46	192.33	3.16	4.14	4.14
5/19/2010	2010	2010	5	5.20		0.00	0.13	5.79	7.80	4.48	7.10		7.82	7.82	2.12	0.00	0.46	190.74	3.08	5.69	5.69
5/20/2010	2010	2010	5	5.50		0.00	0.15	4.91	7.10	4.43	6.50		6.49	6.49	2.18	0.00	0.47	195.44	3.32	4.31	4.31
5/21/2010	2010	2010	5	5.40		0.00	0.00	5.45	7.74	4.81	6.80		6.92	6.92	2.16	0.00	0.47	193.90	3.24	4.76	4.76
5/22/2010	2010	2010	5	5.40		0.00	0.00	5.45	7.74	4.81	6.50		6.64	6.64	2.16	0.00	0.47	193.90	3.24	4.48	4.48
5/23/2010	2010	2010	5	5.00		0.00	0.57	5.45	7.74	4.81	6.90		7.01	7.01	2.09	0.00	0.45	187.45	2.91	4.92	4.92
5/24/2010	2010	2010	5	4.50		0.00	0.20	5.93	8.29	5.16	6.50		6.76	6.76	1.99	0.00	0.43	178.62	2.51	4.77	4.77
5/25/2010	2010	2010	5	4.10		(0.05)	0.17	5.59	8.09	4.30	5.90		6.69	6.69	1.90	(0.02)	0.41	168.66	2.22	4.82	4.82
5/26/2010	2010	2010	5	4.00		(0.09)	0.19	5.16	7.32	4.06	5.40		6.05	6.05	1.88	(0.04)	0.40	165.12	2.16	4.21	4.21
5/27/2010	2010	2010	5	3.90		(0.12)	0.20	5.27	7.56	4.67	7.50		7.53	7.53	1.86	(0.06)	0.39	161.49	2.10	5.74	5.27
5/28/2010	2010	2010	5	3.80		(0.16)	0.00	5.53	7.73	5.01	6.80		6.80	6.80	1.83	(0.07)	0.38	157.75	2.04	5.05	5.05
5/29/2010	2010	2010	5	3.90		(0.12)	0.00	5.53	7.73	5.01	6.30		6.34	6.34	1.86	(0.06)	0.39	161.49	2.10	4.54	4.54
5/30/2010	2010	2010	5	3.80		(0.16)	0.00	5.53	7.73	5.01	6.00		6.06	6.06	1.83	(0.07)	0.38	157.75	2.04	4.30	4.30
5/31/2010	2010	2010	5	3.80		(0.16)	0.90	5.53	7.73	5.01	6.20		6.25	6.25	1.83	(0.07)	0.38	157.75	2.04	4.49	4.49
6/1/2010	2010	2010	6	3.80		(0.16)	0.16	5.65	7.22	4.42	5.60		6.35	6.35	1.83	(0.07)	0.38	157.75	2.04	4.59	4.59
6/2/2010	2010	2010	6	3.70		(0.20)	0.22	5.05	6.90	4.19	5.20		5.63	5.63	1.81	(0.09)	0.37	153.91	1.99	3.92	3.92
6/3/2010	2010	2010	6	3.90		(0.12)	0.16	5.13	7.20	4.60	5.40		5.51	5.51	1.86	(0.06)	0.39	161.49	2.10	3.71	3.71
6/4/2010	2010	2010	6	3.90		(0.12)	0.00	5.53	7.28	4.45	5.60		6.21	6.21	1.86	(0.06)	0.39	161.49	2.10	4.41	4.41
6/5/2010	2010	2010	6	3.80		(0.16)	0.00	5.53	7.28	4.45	5.60		6.21	6.21	1.83	(0.07)	0.38	157.75	2.04	4.45	4.45
6/6/2010	2010	2010	6	4.00		(0.09)	0.51	5.53	7.28	4.45	7.00		7.51	7.51	1.88	(0.04)	0.40	165.12	2.16	5.67	5.53
6/7/2010	2010	2010	6	4.10		(0.05)	0.28	5.53	7.28	4.45	5.80		6.39	6.39	1.90	(0.02)	0.41	168.66	2.22	4.52	4.52
6/8/2010	2010	2010	6	4.60		0.00	0.15	5.26	5.57	3.02	5.70		7.38	7.38	2.01	0.00	0.43	180.46	2.59	5.37	5.26
6/9/2010	2010	2010	6	3.70		(0.20)	0.14	5.15	5.48	3.06	5.10		6.68	6.68	1.81	(0.09)	0.37	153.91	1.99	4.97	4.97
6/10/2010	2010	2010	6	3.80		(0.16)	0.20	5.33	5.75	3.77	4.30		5.44	5.44	1.83	(0.07)	0.38	157.75	2.04	3.69	3.69

Existing Condition

San Joaquin Marsh Operations

With Project Diversion

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb / 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm / 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
6/11/2010	2010	2010	6	4.00		(0.09)	0.00	5.20	8.30	5.75	4.50		5.20	5.20	1.88	(0.04)	0.40	165.12	2.16	3.36	3.36
6/12/2010	2010	2010	6	4.20		(0.02)	0.00	5.20	8.30	5.75	6.30		5.35	5.35	1.92	(0.01)	0.41	172.10	2.28	3.43	3.43
6/13/2010	2010	2010	6	4.50		0.00	0.49	5.20	8.30	5.75	8.10		7.02	7.02	1.99	0.00	0.43	178.62	2.51	5.03	5.03
6/14/2010	2010	2010	6	5.00		0.00	0.14	4.92	7.11	4.60	6.60		6.44	6.44	2.09	0.00	0.45	187.45	2.91	4.35	4.35
6/15/2010	2010	2010	6	4.70		0.00	0.20	5.59	7.61	4.83	7.30		7.49	7.49	2.03	0.00	0.44	182.26	2.67	5.46	5.46
6/16/2010	2010	2010	6	5.10		0.00	0.16	5.46	7.18	5.04	6.80		6.71	6.71	2.11	0.00	0.46	189.11	2.99	4.60	4.60
6/17/2010	2010	2010	6	5.10		0.00	0.16	5.09	6.58	4.63	6.90		6.85	6.85	2.11	0.00	0.46	189.11	2.99	4.74	4.74
6/18/2010	2010	2010	6	5.20		0.00	0.00	5.21	8.07	5.46	6.60		5.91	5.91	2.12	0.00	0.46	190.74	3.08	3.79	3.79
6/19/2010	2010	2010	6	5.30		0.00	0.00	5.21	8.07	5.46	6.20		5.54	5.54	2.14	0.00	0.46	192.33	3.16	3.40	3.40
6/20/2010	2010	2010	6	5.20		0.00	0.55	5.21	8.07	5.46	6.40		5.73	5.73	2.12	0.00	0.46	190.74	3.08	3.60	3.60
6/21/2010	2010	2010	6	5.10		0.00	0.18	5.52	6.75	3.73	6.00		7.24	7.24	2.11	0.00	0.46	189.11	2.99	5.14	5.14
6/22/2010	2010	2010	6	4.80		0.00	0.14	4.85	6.19	3.01	5.10		6.46	6.46	2.05	0.00	0.44	184.03	2.75	4.41	4.41
6/23/2010	2010	2010	6	5.00		0.00	0.12	5.69	5.38	3.48	4.20		5.97	5.97	2.09	0.00	0.45	187.45	2.91	3.88	3.88
6/24/2010	2010	2010	6	5.20		0.00	0.17	5.29	5.86	3.79	2.20		5.29	5.29	2.12	0.00	0.46	190.74	3.08	3.17	3.17
6/25/2010	2010	2010	6	5.00		0.00	0.00	5.31	7.49	4.99	2.80		5.31	5.31	2.09	0.00	0.45	187.45	2.91	3.23	3.23
6/26/2010	2010	2010	6	4.70		0.00	0.00	5.31	7.49	4.99	3.30		5.31	5.31	2.03	0.00	0.44	182.26	2.67	3.29	3.29
6/27/2010	2010	2010	6	4.20		(0.02)	0.58	5.31	7.49	4.99	5.00		5.31	5.31	1.92	(0.01)	0.41	172.10	2.28	3.40	3.40
6/28/2010	2010	2010	6	4.00		(0.09)	0.11	5.01	6.57	4.38	5.70		5.89	5.89	1.88	(0.04)	0.40	165.12	2.16	4.05	4.05
6/29/2010	2010	2010	6	3.90		(0.12)	0.15	4.75	6.15	3.86	5.00		5.48	5.48	1.86	(0.06)	0.39	161.49	2.10	3.68	3.68
6/30/2010	2010	2010	6	3.90		(0.12)	0.15	5.33	7.14	4.33	4.90		5.48	5.48	1.86	(0.06)	0.39	161.49	2.10	3.69	3.69
7/1/2010	2010	2010	7	5.20		0.00	0.15	4.79	5.39	3.47	4.90		5.78	5.78	2.12	0.00	0.46	190.74	3.08	3.66	3.66
7/2/2010	2010	2010	7	5.10		0.00	0.15	5.26	7.29	4.96	5.00		5.26	5.26	2.11	0.00	0.46	189.11	2.99	3.15	3.15
7/3/2010	2010	2010	7	5.10		0.00	0.15	5.26	7.29	4.96	6.30		6.14	6.14	2.11	0.00	0.46	189.11	2.99	4.03	4.03
7/4/2010	2010	2010	7	5.20		0.00	0.15	5.26	7.29	4.96	7.80		7.53	7.53	2.12	0.00	0.46	190.74	3.08	5.41	5.26
7/5/2010	2010	2010	7	5.10		0.00	0.15	5.26	7.29	4.96	6.10		5.95	5.95	2.11	0.00	0.46	189.11	2.99	3.84	3.84
7/6/2010	2010	2010	7	5.20		0.00	0.15	5.43	5.93	3.48	6.30		7.67	7.67	2.12	0.00	0.46	190.74	3.08	5.54	5.43
7/7/2010	2010	2010	7	5.10		0.00	0.15	5.43	5.93	3.48	5.30		6.74	6.74	2.11	0.00	0.46	189.11	2.99	4.63	4.63
7/8/2010	2010	2010	7	5.10		0.00	0.15	5.59	6.00	3.46	5.00		6.63	6.63	2.11	0.00	0.46	189.11	2.99	4.52	4.52
7/9/2010	2010	2010	7	5.10		0.00	0.15	5.23	7.79	5.17	4.90		5.23	5.23	2.11	0.00	0.46	189.11	2.99	3.12	3.12
7/10/2010	2010	2010	7	5.10		0.00	0.15	5.23	7.79	5.17	6.70		6.29	6.29	2.11	0.00	0.46	189.11	2.99	4.18	4.18
7/11/2010	2010	2010	7	5.00		0.00	0.15	5.23	7.79	5.17	7.20		6.75	6.75	2.09	0.00	0.45	187.45	2.91	4.66	4.66
7/12/2010	2010	2010	7	5.10		0.00	0.15	4.66	6.26	3.94	7.00		7.19	7.19	2.11	0.00	0.46	189.11	2.99	5.08	4.66
7/13/2010	2010	2010	7	5.00		0.00	0.15	5.10	6.32	3.77	5.90		6.72	6.72	2.09	0.00	0.45	187.45	2.91	4.63	4.63
7/14/2010	2010	2010	7	4.90		0.00	0.15	4.97	6.07	4.19	4.90		5.28	5.28	2.07	0.00	0.45	185.76	2.83	3.21	3.21
7/15/2010	2010	2010	7	4.90		0.00	0.15	5.32	6.55	4.53	4.80		5.32	5.32	2.07	0.00	0.45	185.76	2.83	3.25	3.25
7/16/2010	2010	2010	7	5.60		0.00	0.15	5.10	7.57	5.08	4.80		5.10	5.10	2.19	0.00	0.47	196.95	3.41	2.90	2.90
7/17/2010	2010	2010	7	5.60		0.00	0.15	5.10	7.57	5.08	5.80		5.41	5.41	2.19	0.00	0.47	196.95	3.41	3.22	3.22
7/18/2010	2010	2010	7	5.70		0.00	0.15	5.10	7.57	5.08	6.20		5.78	5.78	2.21	0.00	0.48	198.43	3.49	3.57	3.57
7/19/2010	2010	2010	7	5.60		0.00	0.15	5.97	5.43	3.17	4.70		6.97	6.97	2.19	0.00	0.47	196.95	3.41	4.78	4.78
7/20/2010	2010	2010	7	5.60		0.00	0.15	5.50	5.30	2.93	4.20		6.30	6.30	2.19	0.00	0.47	196.95	3.41	4.10	4.10
7/21/2010	2010	2010	7	4.50		0.00	0.15	5.84	5.72	3.05	3.90		6.22	6.22	1.99	0.00	0.43	178.62	2.51	4.23	4.23
7/22/2010	2010	2010	7	4.90		0.00	0.15	4.66	4.58	2.47	3.80		5.57	5.57	2.07	0.00	0.45	185.76	2.83	3.50	3.50
7/23/2010	2010	2010	7	5.40		0.00	0.15	5.30	7.79	5.10	3.60		5.30	5.30	2.16	0.00	0.47	193.90	3.24	3.14	3.14
7/24/2010	2010	2010	7	5.60		0.00	0.15	5.30	7.79	5.10	4.00		5.30	5.30	2.19	0.00	0.47	196.95	3.41	3.11	3.11
7/25/2010	2010	2010	7	5.40		0.00	0.15	5.30	7.79	5.10	4.40		5.30	5.30	2.16	0.00	0.47	193.90	3.24	3.14	3.14
7/26/2010	2010	2010	7	4.90		0.00	0.15	5.40	7.05	4.63	4.80		5.40	5.40	2.07	0.00	0.45	185.76	2.83	3.33	3.33
7/27/2010	2010	2010	7	5.10		0.00	0.15	4.38	5.41	3.45	4.60		5.14	5.14	2.11	0.00	0.46	189.11	2.99	3.04	3.04
7/28/2010	2010	2010	7	5.30		0.00	0.15	5.41	6.62	4.30	4.50		5.41	5.41	2.14	0.00	0.46	192.33	3.16	3.27	3.27
7/29/2010	2010	2010	7	5.30		0.00	0.15	4.66	6.36	4.13	4.40		4.66	4.66	2.14	0.00	0.46	192.33	3.16	2.52	2.52
7/30/2010	2010	2010	7	5.40		0.00	0.15	5.42	8.07	5.52	4.50		5.42	5.42	2.16	0.00	0.47	193.90	3.24	3.26	3.26
7/31/2010	2010	2010	7	5.50		0.00	0.15	5.42	8.07	5.52	5.30		5.42	5.42	2.18	0.00	0.47	195.44	3.32	3.24	3.24
8/1/2010	2010	2010	8	5.70		0.00	0.23	5.42	8.07	5.52	6.00		5.49	5.49	2.21	0.00	0.48	198.43	3.49	3.28	3.28
8/2/2010	2010	2010	8	5.80		0.00	0.18	4.60	5.61	3.28	5.00		5.87	5.87	2.23	0.00	0.48	199.89	3.57	3.65	3.65
8/3/2010	2010	2010	8	5.80		0.00	0.18	5.15	5.78	3.29	4.10		5.55	5.55	2.23	0.00	0.48	199.89	3.57	3.32	3.32
8/4/2010	2010	2010	8	6.00		0.00	0.22	5.37	5.93	3.63	4.10		5.43	5.43	2.26	0.00	0.49	202.73	3.74	3.17	3.17
8/5/2010	2010	2010	8	5.90		0.00	0.09	5.38	6.14	3.64	4.20		5.53	5.53	2.24	0.00	0.48	201.32	3.66	3.28	3.28
8/6/2010	2010	2010	8	5.60		0.00	0.00	5.28	7.82	5.21	4.50		5.28	5.28	2.19	0.00	0.47	196.95	3.41	3.08	3.08
8/7/2010	2010	2010	8	5.50		0.00	0.00	5.28	7.82	5.21	6.10		5.74	5.74	2.18	0.00	0.47	195.44	3.32	3.56	3.56
8/8/2010	2010	2010	8	5.00		0.00	0.00	5.28	7.82	5.21	6.00		5.65	5.65	2.09	0.00	0.45	187.45	2.91	3.56	3.56
8/9/2010	2010	2010	8	5.70		0.00	6.61	4.86	6.23	3.79	4.90		5.55	5.55	2.21	0.00	0.48	198.43	3.49	3.34	3.34
8/10/2010	2010	2010	8	5.90		0.00	0.18	5.57	6.52	3.90	4.20		5.57	5.57	2.24	0.00	0.48	201.32	3.66	3.33	3.33
8/11/2010	2010	2010	8	5.30		0.00	0.21	4.74	5.50	3.26	4.10		5.19	5.19	2.14	0.00	0.46	192.33	3.16	3.04	3.04
8/12/2010	2010	2010	8	4.90		0.00	0.22	5.21	6.17	4.05	3.70		5.21	5.21	2.07	0.00	0.45	185.76	2.83	3.14	3.14
8/13/2010	2010	2010	8	5.30		0.00	0.00	5.13	7.72	5.20	3.60		5.13	5.13	2.14	0.00	0.46	192.33	3.16	2.99	2.99
8/14/2010	2010	2010	8	4.00		(0.09)	0.00	5.13	7.72	5.20	4.10		5.13	5.13	1.88	(0.04)	0.40	165.12	2.16	3.29	3.29
8/15/2010	2010	2010	8	3.80		(0.16)	0.65	5.13	7.72	5.20	5.40		5.13	5.13	1.83	(0.07)	0.38	157.75	2.04	3.37	3.37
8/16/2010	2010	2010	8	3.70		(0.20)	0.19	5.83	7.00	4.73	4.50		5.83	5.83	1.81	(0.09)	0.37	153.91	1.99	4.11	4.11
8/17/2010	2010	2010	8	3.60		(0.24)	0.17	4.92	5.68	3.35	4.10		5.28	5.28	1.78	(0.11)	0.36	149.97	1.93	3.61	3.61
8/18/2010	2010	2010	8	3.90		(0.12)	0.23	5.39	6.50	3.69	3.80		5.39	5.39	1.86	(0.06)	0.39	161.49	2.10	3.59	3.59
8/19/2010	2010	2010	8	3.60		(0.24)	0.22	5.13	5.73	3.36	3.70		5.13	5.13	1.78	(0.11)	0.36	149.97	1.93	3.46	3.46
8/20/2010	2010	2010	8	3.70		(0.20)	0.00	5.21	8.23	5.63	3.60		5.21	5.21	1.81	(0.09)	0.37	153.91	1.99	3.50	3.50

Existing Condition | **With Project Diversion**

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	San Joaquin Marsh Operations: SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Cam SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
8/21/2010	2010	2010	8	4.00		(0.09)	0.00	5.21	8.23	5.63	3.90		5.21	5.21	1.88	(0.04)	0.40	165.12	2.16	3.37	3.37
8/22/2010	2010	2010	8	3.80		(0.16)	0.66	5.21	8.23	5.63	6.00		5.21	5.21	1.83	(0.07)	0.38	157.75	2.04	3.45	3.45
8/23/2010	2010	2010	8	4.00		(0.09)	0.21	4.47	6.67	4.38	5.40		5.10	5.10	1.88	(0.04)	0.40	165.12	2.16	3.26	3.26
8/24/2010	2010	2010	8	8.50		0.00	0.19	4.25	6.34	4.16	4.70		4.45	4.45	2.58	0.00	0.56	231.91	5.92	1.87	1.87
8/25/2010	2010	2010	8	7.40		0.00	0.21	5.50	7.72	4.39	4.70		5.50	5.50	2.45	0.00	0.53	220.30	4.95	3.04	3.04
8/26/2010	2010	2010	8	4.70		0.00	0.23	3.60	5.42	4.08	5.00		4.20	4.20	2.03	0.00	0.44	182.26	2.67	2.18	2.18
8/27/2010	2010	2010	8	4.60		0.00	0.00	4.93	7.75	5.33	5.30		4.93	4.93	2.01	0.00	0.43	180.46	2.59	2.92	2.92
8/28/2010	2010	2010	8	5.00		0.00	0.00	4.93	7.75	5.33	6.80		5.95	5.95	2.09	0.00	0.45	187.45	2.91	3.87	3.87
8/29/2010	2010	2010	8	4.70		0.00	0.63	4.93	7.75	5.33	6.00		5.21	5.21	2.03	0.00	0.44	182.26	2.67	3.18	3.18
8/30/2010	2010	2010	8	4.80		0.00	0.22	5.40	6.89	4.28	5.80		6.44	6.44	2.05	0.00	0.44	184.03	2.75	4.39	4.39
8/31/2010	2010	2010	8	5.00		0.00	0.19	5.49	6.06	3.84	11.00		11.76	11.76	2.09	0.00	0.45	187.45	2.91	9.67	5.49
9/1/2010	2010	2010	9	5.20		0.00	0.21	4.78	5.50	3.33	5.40		6.37	6.37	2.12	0.00	0.46	190.74	3.08	4.25	4.25
9/2/2010	2010	2010	9	6.30		0.00	0.22	4.97	5.58	3.41	4.10		5.26	5.26	2.30	0.00	0.50	206.81	4.00	2.96	2.96
9/3/2010	2010	2010	9	5.10		0.00	0.00	5.37	6.80	4.50	3.90		5.37	5.37	2.11	0.00	0.46	189.11	2.99	3.26	3.26
9/4/2010	2010	2010	9	4.70		0.00	0.00	5.37	6.80	4.50	6.20		6.58	6.58	2.03	0.00	0.44	182.26	2.67	4.55	4.55
9/5/2010	2010	2010	9	5.20		0.00	0.00	5.37	6.80	4.50	6.50		6.85	6.85	2.12	0.00	0.46	190.74	3.08	4.73	4.73
9/6/2010	2010	2010	9	5.20		0.00	0.88	5.37	6.80	4.50	5.30		5.74	5.74	2.12	0.00	0.46	190.74	3.08	3.62	3.62
9/7/2010	2010	2010	9	5.00		0.00	0.23	5.72	5.68	3.45	5.20		6.95	6.95	2.09	0.00	0.45	187.45	2.91	4.86	4.86
9/8/2010	2010	2010	9	4.80		0.00	0.18	4.95	5.38	2.96	4.20		5.75	5.75	2.05	0.00	0.44	184.03	2.75	3.70	3.70
9/9/2010	2010	2010	9	5.50		0.00	0.26	4.87	5.12	2.99	4.20		5.66	5.66	2.18	0.00	0.47	195.44	3.32	3.48	3.48
9/10/2010	2010	2010	9	5.70		0.00	0.00	5.01	7.30	4.89	3.70		5.01	5.01	2.21	0.00	0.48	198.43	3.49	2.80	2.80
9/11/2010	2010	2010	9	5.00		0.00	0.00	5.01	7.30	4.89	4.50		5.01	5.01	2.09	0.00	0.45	187.45	2.91	2.93	2.93
9/12/2010	2010	2010	9	4.40		0.00	0.30	5.01	7.30	4.89	5.00		5.01	5.01	1.97	0.00	0.43	176.74	2.43	3.05	3.05
9/13/2010	2010	2010	9	4.40		0.00	0.09	5.64	6.80	3.96	4.30		5.64	5.64	1.97	0.00	0.43	176.74	2.43	3.67	3.67
9/14/2010	2010	2010	9	5.20		0.00	0.22	5.36	6.48	4.15	3.40		5.36	5.36	2.12	0.00	0.46	190.74	3.08	3.24	3.24
9/15/2010	2010	2010	9	5.20		0.00	0.52	4.81	6.11	3.53	3.50		4.81	4.81	2.12	0.00	0.46	190.74	3.08	2.69	2.69
9/16/2010	2010	2010	9	4.60		0.00	0.16	4.83	5.72	3.68	3.80		4.83	4.83	2.01	0.00	0.43	180.46	2.59	2.82	2.82
9/17/2010	2010	2010	9	4.60		0.00	0.00	5.07	8.21	5.67	4.10		5.07	5.07	2.01	0.00	0.43	180.46	2.59	3.06	3.06
9/18/2010	2010	2010	9	4.30		0.00	0.00	5.07	8.21	5.67	5.20		5.07	5.07	1.95	0.00	0.42	174.81	2.35	3.12	3.12
9/19/2010	2010	2010	9	4.30		0.00	0.69	5.07	8.21	5.67	6.70		5.67	5.67	1.95	0.00	0.42	174.81	2.35	3.73	3.73
9/20/2010	2010	2010	9	4.80		0.00	0.36	4.64	6.19	4.20	6.20		6.17	6.17	2.05	0.00	0.44	184.03	2.75	4.12	4.12
9/21/2010	2010	2010	9	4.10		(0.05)	0.11	4.79	6.10	3.87	4.10		4.79	4.79	1.90	(0.02)	0.41	168.66	2.22	2.91	2.91
9/22/2010	2010	2010	9	4.10		(0.05)	0.18	5.72	6.99	4.53	3.70		5.72	5.72	1.90	(0.02)	0.41	168.66	2.22	3.84	3.84
9/23/2010	2010	2010	9	3.90		(0.12)	0.16	4.63	5.77	3.71	4.10		4.67	4.67	1.86	(0.06)	0.39	161.49	2.10	2.87	2.87
9/24/2010	2010	2010	9	4.40		0.00	0.00	5.17	8.44	5.99	4.70		5.17	5.17	1.97	0.00	0.43	176.74	2.43	3.20	3.20
9/25/2010	2010	2010	9	4.50		0.00	0.00	5.17	8.44	5.99	6.50		5.29	5.29	1.99	0.00	0.43	178.62	2.51	3.30	3.30
9/26/2010	2010	2010	9	3.90		(0.12)	0.55	5.17	8.44	5.99	6.50		5.29	5.29	1.86	(0.06)	0.39	161.49	2.10	3.49	3.49
9/27/2010	2010	2010	9	4.20		(0.02)	0.18	4.63	5.82	3.67	5.20		5.73	5.73	1.92	(0.01)	0.41	172.10	2.28	3.82	3.82
9/28/2010	2010	2010	9	4.00		(0.09)	0.15	4.80	6.26	3.74	4.10		4.80	4.80	1.88	(0.04)	0.40	165.12	2.16	2.96	2.96
9/29/2010	2010	2010	9	4.70		0.00	0.18	4.14	6.29	3.80	3.80		4.14	4.14	2.03	0.00	0.44	182.26	2.67	2.11	2.11
9/30/2010	2010	2010	9	4.50		0.00	0.18	5.00	6.98	4.37	3.60		5.00	5.00	1.99	0.00	0.43	178.62	2.51	3.02	3.02
10/1/2010	2010	2011	10	5.40		0.00	0.00	4.87	8.15	5.58	3.30		4.87	4.87	2.16	0.00	0.47	193.90	3.24	2.71	2.71
10/2/2010	2010	2011	10	3.10		(0.45)	0.00	4.87	8.15	5.58	11.00		9.57	9.57	1.64	(0.21)	0.31	128.59	1.67	8.14	4.87
10/3/2010	2010	2011	10	2.80		(0.60)	0.97	4.87	8.15	5.58	11.00		9.57	9.57	1.55	(0.27)	0.28	114.39	1.53	8.30	4.87
10/4/2010	2010	2011	10	5.70		0.00	0.34	6.20	8.25	5.05	7.90		8.41	8.41	2.21	0.00	0.48	198.43	3.49	6.20	6.20
10/5/2010	2010	2011	10	18.00		0.00	0.06	4.86	7.40	4.59	11.00		10.49	10.49	2.60	0.00	0.56	233.51	15.40	7.89	4.86
10/6/2010	2010	2011	10	155.00		0.00	0.35	2.60	7.06	4.84	353.00		326.21		0.00	0.00	0.00	0.00	155.00	326.21	2.60
10/7/2010	2010	2011	10	5.20		0.00	0.32	6.06	7.91	5.36	20.00		19.25		0.00	0.00	0.00	0.00	5.20	19.25	6.06
10/8/2010	2010	2011	10	5.00		0.00	0.00	6.50	7.36	4.83	4.60		6.50	6.50	2.09	0.00	0.45	187.45	2.91	4.41	4.41
10/9/2010	2010	2011	10	5.10		0.00	0.00	6.50	7.36	4.83	3.30		6.50	6.50	2.11	0.00	0.46	189.11	2.99	4.39	4.39
10/10/2010	2010	2011	10	5.10		0.00	0.98	6.50	7.36	4.83	3.10		6.50	6.50	2.11	0.00	0.46	189.11	2.99	4.39	4.39
10/11/2010	2010	2011	10	5.10		0.00	0.29	5.31	7.21	3.82	2.70		5.31	5.31	2.11	0.00	0.46	189.11	2.99	3.20	3.20
10/12/2010	2010	2011	10	4.90		0.00	0.28	5.20	7.66	4.21	2.40		5.20	5.20	2.07	0.00	0.45	185.76	2.83	3.14	3.14
10/13/2010	2010	2011	10	4.90		0.00	0.39	5.00	7.75	4.33	2.70		5.00	5.00	2.07	0.00	0.45	185.76	2.83	2.93	2.93
10/14/2010	2010	2011	10	5.00		0.00	0.25	4.68	8.19	5.51	3.60		4.68	4.68	2.09	0.00	0.45	187.45	2.91	2.59	2.59
10/15/2010	2010	2011	10	5.20		0.00	0.00	2.38	3.98	3.04	5.40		4.41	4.41	2.12	0.00	0.46	190.74	3.08	2.28	2.28
10/16/2010	2010	2011	10	5.40		0.00	0.00	2.38	3.98	3.04	5.50		4.50	4.50	2.16	0.00	0.47	193.90	3.24	2.34	2.34
10/17/2010	2010	2011	10	5.50		0.00	1.01	2.38	3.98	3.04	3.30		2.45	2.45	2.18	0.00	0.47	195.44	3.32	0.28	0.28
10/18/2010	2010	2011	10	18.00		0.00	0.27	5.52	10.08	8.10	25.00		20.85		0.00	0.00	0.00	0.00	18.00	20.85	5.52
10/19/2010	2010	2011	10	230.00		0.00	0.25	1.14	10.78	10.67	954.00		878.36		0.00	0.00	0.00	0.00	230.00	878.36	1.14
10/20/2010	2010	2011	10	19.00		0.00	0.30	4.41	10.72	7.73	151.00		137.34		0.00	0.00	0.00	0.00	19.00	137.34	4.41
10/21/2010	2010	2011	10	12.00		0.00	0.31	5.82	9.76	7.09	30.00		26.72		0.00	0.00	0.00	0.00	12.00	26.72	5.82
10/22/2010	2010	2011	10	10.00		0.00	0.00	5.84	8.73	6.30	22.00		20.03		0.00	0.00	0.00	0.00	10.00	20.03	5.84
10/23/2010	2010	2011	10	11.00		0.00	0.00	5.84	8.73	6.30	16.00		14.45	14.45	2.60	0.00	0.56	233.51	8.40	11.85	5.84
10/24/2010	2010	2011	10	12.00		0.00	0.95	5.84	8.73	6.30	13.00		11.66	11.66	2.60	0.00	0.56	233.51	9.40	9.06	5.84
10/25/2010	2010	2011	10	52.00		0.00	0.42	4.69	8.62	5.67	106.00		97.66		0.00	0.00	0.00	0.00	52.00	97.66	4.69
10/26/2010	2010	2011	10	11.00		0.00	0.22	6.05	8.30	5.46	14.00		13.57	13.57	2.60	0.00	0.56	233.51	8.40	10.97	6.05
10/27/2010	2010	2011	10	10.00		0.00	0.35	5.81	7.90	4.88	7.90		8.21	8.21	2.60	0.00	0.56	233.51	7.40	5.61	5.61
10/28/2010	2010	2011	10	10.00		0.00	0.27	6.31	8.14	4.94	7.10		7.88	7.88	2.60	0.00	0.56	233.51	7.40	5.28	5.28
10/29/2010	2010	2011	10	10.00		0.00	0.00	5.45	8.35	5.67	7.70		6.96	6.96	2.60	0.00	0.56	233.51	7.40	4.36	4.36
10/30/2010	2010	2011	10	80.00		0.00	0.00	5.45	8.35	5.67	147.00		136.51		0.00	0.00	0.00	0.00	80.00	136.51	5.45

Existing Condition — **San Joaquin Marsh Operations** — **With Project Diversion**

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
10/31/2010	2010	2011	10	10.00		0.00	0.20	5.45	8.35	5.67	17.00		15.61	15.61	2.60	0.00	0.56	233.51	7.40	13.01	5.45
11/1/2010	2010	2011	11	9.70		0.00	0.26	6.37	8.41	5.74	8.90		8.87	8.87	2.60	0.00	0.56	233.51	7.10	6.27	6.27
11/2/2010	2010	2011	11	10.00		0.00	0.22	6.15	7.79	5.01	9.40		9.80	9.80	2.60	0.00	0.56	233.51	7.40	7.20	6.15
11/3/2010	2010	2011	11	9.80		0.00	0.31	5.71	7.66	4.66	9.10		9.44	9.44	2.60	0.00	0.56	233.51	7.20	6.84	5.71
11/4/2010	2010	2011	11	9.00		0.00	0.32	6.16	8.32	5.66	11.00		10.69	10.69	2.60	0.00	0.56	233.51	6.40	8.09	6.16
11/5/2010	2010	2011	11	9.40		0.00	0.00	6.31	9.21	6.49	9.30		8.48	8.48	2.60	0.00	0.56	233.51	6.80	5.88	5.88
11/6/2010	2010	2011	11	9.80		0.00	0.00	6.31	9.21	6.49	10.00		9.13	9.13	2.60	0.00	0.56	233.51	7.20	6.53	6.31
11/7/2010	2010	2011	11	8.40		0.00	1.10	6.31	9.21	6.49	10.00		9.13	9.13	2.57	0.00	0.56	230.92	5.83	6.56	6.31
11/8/2010	2010	2011	11	37.00		0.00	0.40	5.51	9.58	6.95	53.00		47.95		0.00	0.00	0.00	0.00	37.00	47.95	5.51
11/9/2010	2010	2011	11	11.00		0.00	0.32	5.41	8.51	5.92	18.00		16.27	16.27	2.60	0.00	0.56	233.51	8.40	13.67	5.41
11/10/2010	2010	2011	11	8.60		0.00	0.18	6.32	9.66	6.70	14.00		12.67	12.67	2.59	0.00	0.56	232.89	6.01	10.08	6.32
11/11/2010	2010	2011	11	8.50		0.00	0.16	5.99	9.52	6.47	10.00		8.85	8.85	2.58	0.00	0.56	231.91	5.92	6.27	5.99
11/12/2010	2010	2011	11	7.90		0.00	0.00	6.07	9.13	6.63	10.00		8.79	8.79	2.51	0.00	0.54	225.78	5.39	6.27	6.07
11/13/2010	2010	2011	11	8.00		0.00	0.00	6.07	9.13	6.63	12.00		10.65	10.65	2.53	0.00	0.55	226.83	5.47	8.12	6.07
11/14/2010	2010	2011	11	8.40		0.00	1.01	6.07	9.13	6.63	10.00		8.79	8.79	2.57	0.00	0.56	230.92	5.83	6.21	6.07
11/15/2010	2010	2011	11	8.90		0.00	0.41	6.17	9.08	6.46	10.00		9.03	9.03	2.60	0.00	0.56	233.51	6.30	6.43	6.17
11/16/2010	2010	2011	11	10.00		0.00	0.32	5.67	8.63	6.06	12.00		10.79	10.79	2.60	0.00	0.56	233.51	7.40	8.19	5.67
11/17/2010	2010	2011	11	10.00		0.00	0.34	6.81	9.87	7.25	13.00		11.69	11.69	2.60	0.00	0.56	233.51	7.40	9.09	6.81
11/18/2010	2010	2011	11	9.10		0.00	0.32	5.43	8.35	5.85	12.00		10.77	10.77	2.60	0.00	0.56	233.51	6.50	8.17	5.43
11/19/2010	2010	2011	11	8.50		0.00	0.00	3.99	9.47	6.92	12.00		8.44	8.44	2.58	0.00	0.56	231.91	5.92	5.86	3.99
11/20/2010	2010	2011	11	142.00		0.00	0.00	3.99	9.47	6.92	259.00		238.15		0.00	0.00	0.00	0.00	142.00	238.15	3.99
11/21/2010	2010	2011	11	86.00		0.00	0.96	3.99	9.47	6.92	199.00		182.35		0.00	0.00	0.00	0.00	86.00	182.35	3.99
11/22/2010	2010	2011	11	10.00		0.00	0.33	6.02	10.34	7.78	26.00		22.55		0.00	0.00	0.00	0.00	10.00	22.55	6.02
11/23/2010	2010	2011	11	16.00		0.00	0.24	5.67	9.55	7.14	16.00		13.52	13.52	2.60	0.00	0.56	233.51	13.40	10.92	5.67
11/24/2010	2010	2011	11	42.00		0.00	0.00	5.86	9.36	6.97	62.00		56.63		0.00	0.00	0.00	0.00	42.00	56.63	5.86
11/25/2010	2010	2011	11	10.00		0.00	0.00	5.86	9.36	6.97	15.00		12.92	12.92	2.60	0.00	0.56	233.51	7.40	10.32	5.86
11/26/2010	2010	2011	11	9.40		0.00	0.00	5.86	9.36	6.97	11.00		9.20	9.20	2.60	0.00	0.56	233.51	6.80	6.60	5.86
11/27/2010	2010	2011	11	14.00		0.00	0.00	5.86	9.36	6.97	12.00		10.13	10.13	2.60	0.00	0.56	233.51	11.40	7.53	5.86
11/28/2010	2010	2011	11	19.00		0.00	1.89	5.86	9.36	6.97	54.00		49.19		0.00	0.00	0.00	0.00	19.00	49.19	5.86
11/29/2010	2010	2011	11	9.40		0.00	0.35	6.13	9.39	6.84	11.00		9.57	9.57	2.60	0.00	0.56	233.51	6.80	6.97	6.13
11/30/2010	2010	2011	11	11.00		0.00	0.29	5.94	8.88	6.12	8.80		8.02	8.02	2.60	0.00	0.56	233.51	8.40	5.42	5.42
12/1/2010	2010	2011	12	10.00		0.00	0.36	5.95	8.72	6.49	9.30		8.15	8.15	2.60	0.00	0.56	233.51	7.40	5.55	5.55
12/2/2010	2010	2011	12	9.60		0.00	0.29	5.48	8.44	6.09	9.40		8.18	8.18	2.60	0.00	0.56	233.51	7.00	5.58	5.48
12/3/2010	2010	2011	12	9.90		0.00	0.00	5.28	8.99	6.45	9.20		7.47	7.47	2.60	0.00	0.56	233.51	7.30	4.87	4.87
12/4/2010	2010	2011	12	9.10		0.00	0.00	5.28	8.99	6.45	9.50		7.75	7.75	2.60	0.00	0.56	233.51	6.50	5.15	5.15
12/5/2010	2010	2011	12	37.00		0.00	0.88	5.28	8.99	6.45	17.00		14.72	14.72	2.60	0.00	0.56	233.51	34.40	12.12	5.28
12/6/2010	2010	2011	12	111.00		0.00	0.33	5.04	8.60	5.52	283.00		262.75		0.00	0.00	0.00	0.00	111.00	262.75	5.04
12/7/2010	2010	2011	12	10.00		0.00	0.05	5.75	8.52	5.17	16.00		15.42	15.42	2.60	0.00	0.56	233.51	7.40	12.82	5.75
12/8/2010	2010	2011	12	8.50		0.00	0.08	6.83	7.97	4.77	9.50		10.74	10.74	2.58	0.00	0.56	231.91	5.92	8.16	6.83
12/9/2010	2010	2011	12	7.70		0.00	0.09	5.54	6.74	3.71	8.30		9.42	9.42	2.49	0.00	0.54	223.63	5.21	6.93	5.54
12/10/2010	2010	2011	12	7.80		0.00	0.00	6.29	7.36	4.24	7.60		8.98	8.98	2.50	0.00	0.54	224.71	5.30	6.47	6.29
12/11/2010	2010	2011	12	7.90		0.00	0.00	6.29	7.36	4.24	7.60		8.98	8.98	2.51	0.00	0.54	225.78	5.39	6.46	6.29
12/12/2010	2010	2011	12	7.90		0.00	0.70	6.29	7.36	4.24	7.50		8.88	8.88	2.51	0.00	0.54	225.78	5.39	6.37	6.29
12/13/2010	2010	2011	12	7.80		0.00	0.22	6.12	7.35	4.12	7.60		8.92	8.92	2.50	0.00	0.54	224.71	5.30	6.42	6.12
12/14/2010	2010	2011	12	8.00		0.00	0.21	6.79	8.02	4.96	8.20		9.33	9.33	2.53	0.00	0.55	226.83	5.47	6.80	6.79
12/15/2010	2010	2011	12	8.40		0.00	0.24	5.11	6.15	3.48	7.90		8.86	8.86	2.57	0.00	0.56	230.92	5.83	6.29	5.11
12/16/2010	2010	2011	12	16.00		0.00	0.19	5.98	7.25	4.35	29.00		28.48		0.00	0.00	0.00	0.00	16.00	28.48	5.98
12/17/2010	2010	2011	12	105.00		0.00	0.00	1.09	7.25	4.88	124.00		111.79		0.00	0.00	0.00	0.00	105.00	111.79	1.09
12/18/2010	2010	2011	12	113.00		0.00	0.00	1.09	7.25	4.88	317.00		291.28		0.00	0.00	0.00	0.00	113.00	291.28	1.09
12/19/2010	2010	2011	12	856.00		0.00	0.59	1.09	7.25	4.88	2150.00		1995.97		0.00	0.00	0.00	0.00	856.00	1995.97	1.09
12/20/2010	2010	2011	12	1110.00		0.00	0.59	0.00	8.03	4.93	2880.00		2673.82		0.00	0.00	0.00	0.00	1110.00	2673.82	0.00
12/21/2010	2010	2011	12	802.00		0.00	0.22	0.86	7.40	7.14	2210.00		2049.46		0.00	0.00	0.00	0.00	802.00	2049.46	0.86
12/22/2010	2010	2011	12	1970.00		0.00	0.00	3.85	7.96	7.95	7950.00		7389.68		0.00	0.00	0.00	0.00	1970.00	7389.68	3.85
12/23/2010	2010	2011	12	81.00		0.00	0.00	3.85	7.96	7.95	233.00		212.87		0.00	0.00	0.00	0.00	81.00	212.87	3.85
12/24/2010	2010	2011	12	41.00		0.00	0.00	3.85	7.96	7.95	101.00		90.11		0.00	0.00	0.00	0.00	41.00	90.11	3.85
12/25/2010	2010	2011	12	128.00		0.00	0.00	3.85	7.96	7.95	172.00		156.14		0.00	0.00	0.00	0.00	128.00	156.14	3.85
12/26/2010	2010	2011	12	92.00		0.00	1.88	3.85	7.96	7.95	339.00		311.45		0.00	0.00	0.00	0.00	92.00	311.45	3.85
12/27/2010	2010	2011	12	28.00		0.00	0.38	6.98	6.69	3.70	40.00		40.24		0.00	0.00	0.00	0.00	28.00	40.24	6.98
12/28/2010	2010	2011	12	25.00		0.00	0.35	3.83	6.27	3.22	30.00		28.47		0.00	0.00	0.00	0.00	25.00	28.47	3.83
12/29/2010	2010	2011	12	411.00		0.00	0.20	3.83	6.27	3.22	870.00		809.67		0.00	0.00	0.00	0.00	411.00	809.67	3.83
12/30/2010	2010	2011	12	36.00		0.00	0.00	5.35	6.61	3.44	82.00		78.04		0.00	0.00	0.00	0.00	36.00	78.04	5.35
12/31/2010	2010	2011	12	23.00		0.00	0.00	5.35	6.61	3.44	37.00		36.19		0.00	0.00	0.00	0.00	23.00	36.19	5.35
1/1/2011	2011	2011	1	21.00		0.00	0.31	5.35	6.61	3.44	28.00		27.82		0.00	0.00	0.00	0.00	21.00	27.82	5.35
1/2/2011	2011	2011	1	147.00		0.00	0.31	5.35	6.61	3.44	286.00		267.76		0.00	0.00	0.00	0.00	147.00	267.76	5.35
1/3/2011	2011	2011	1	99.00		0.00	0.31	5.35	6.61	3.44	380.00		355.18		0.00	0.00	0.00	0.00	99.00	355.18	5.35
1/4/2011	2011	2011	1	18.00		0.00	0.19	5.70	6.45	3.41	56.00		54.21		0.00	0.00	0.00	0.00	18.00	54.21	5.70
1/5/2011	2011	2011	1	15.00		0.00	0.27	6.46	6.14	3.19	32.00		32.80		0.00	0.00	0.00	0.00	15.00	32.80	6.46
1/6/2011	2011	2011	1	17.00		0.00	0.24	6.87	9.41	5.86	33.00		31.63		0.00	0.00	0.00	0.00	17.00	31.63	6.87
1/7/2011	2011	2011	1	16.00		0.00	0.24	6.46	9.66	9.63	32.00		26.81		0.00	0.00	0.00	0.00	16.00	26.81	6.46
1/8/2011	2011	2011	1	15.00		0.00	0.24	6.46	9.66	9.63	27.00		22.16		0.00	0.00	0.00	0.00	15.00	22.16	6.46
1/9/2011	2011	2011	1	15.00		0.00	0.24	6.46	9.66	9.63	26.00		21.23		0.00	0.00	0.00	0.00	15.00	21.23	6.46

Existing Condition — San Joaquin Marsh Operations | **With Project Diversion**

DATE	Year	Water Year WY	Month	Peters Canyon Wash (PCW) at Barranca (cfs) PCW Bar	QC PCW	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs) PCW Bar (Loss)	MWRP Dewatering Discharge (cfs) MWRP Dewtr	SJ Marsh Inflow (from SDC) (cfs) SJM In	SJ Marsh Outflow (#002A) (cfs) SJM Out (2A)	SJ Marsh Outflow (to SDC, #002B) (cfs) SJM Out (SDC)	San Diego Cr (SDC) at Campus (cfs) SDC Campus	QC SDC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs) SDC Campus **	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs) SDC Campus, Ba	Est. PROJECT Diversion (cfs) Project - Diversio	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs) Project - PCW Ba	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs) Project - Diversio	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs) Project - Diversio	Peters Canyon Wash (PCW) at Barranca (cfs) Project - PCW Ba	**Adjusted San Diego Cr (SDC) at Campus (cfs) Project - SDC Ca	using SDC at Can SJ Marsh Inflow (from SDC) (cfs) Project - SJM In
1/10/2011	2011	2011	1	15.00		0.00	0.25	6.62	10.26	10.00	24.00		19.18		0.00	0.00	0.00	0.00	15.00	19.18	6.62
1/11/2011	2011	2011	1	15.00		0.00	0.24	6.72	9.56	9.79	24.00		19.47		0.00	0.00	0.00	0.00	15.00	19.47	6.72
1/12/2011	2011	2011	1	16.00		0.00	0.27	6.54	9.42	9.44	23.00		18.69		0.00	0.00	0.00	0.00	16.00	18.69	6.54
1/13/2011	2011	2011	1	15.00		0.00	0.28	6.77	9.49	7.03	21.00		19.28		0.00	0.00	0.00	0.00	15.00	19.28	6.77
1/14/2011	2011	2011	1	14.00		0.00	0.26	6.68	9.13	6.63	18.00		16.79	16.79	2.60	0.00	0.56	233.51	11.40	14.19	6.68
1/15/2011	2011	2011	1	14.00		0.00	0.26	6.68	9.13	6.63	18.00		16.79	16.79	2.60	0.00	0.56	233.51	11.40	14.19	6.68
1/16/2011	2011	2011	1	14.00		0.00	0.26	6.68	9.13	6.63	17.00		15.86	15.86	2.60	0.00	0.56	233.51	11.40	13.26	6.68
1/17/2011	2011	2011	1	15.00		0.00	0.27	6.53	9.66	6.99	18.00		16.31	16.31	2.60	0.00	0.56	233.51	12.40	13.71	6.53
1/18/2011	2011	2011	1	14.00		0.00	0.22	6.25	9.38	6.85	18.00		16.18	16.18	2.60	0.00	0.56	233.51	11.40	13.58	6.25
1/19/2011	2011	2011	1	14.00		0.00	0.27	6.72	9.84	7.57	17.00		15.01	15.01	2.60	0.00	0.56	233.51	11.40	12.41	6.72
1/20/2011	2011	2011	1	13.00		0.00	0.27	6.38	10.11	7.38	17.00		14.87	14.87	2.60	0.00	0.56	233.51	10.40	12.27	6.38
1/21/2011	2011	2011	1	14.00		0.00	0.28	6.57	10.17	7.71	17.00		14.75	14.75	2.60	0.00	0.56	233.51	11.40	12.15	6.57
1/22/2011	2011	2011	1	13.00		0.00	0.29	6.57	10.17	7.71	16.00		13.82	13.82	2.60	0.00	0.56	233.51	10.40	11.22	6.57
1/23/2011	2011	2011	1	13.00		0.00	0.26	6.57	10.17	7.71	16.00		13.82	13.82	2.60	0.00	0.56	233.51	10.40	11.22	6.57
1/24/2011	2011	2011	1	13.00		0.00	0.30	6.81	10.89	8.27	16.00		13.52	13.52	2.60	0.00	0.56	233.51	10.40	10.92	6.81
1/25/2011	2011	2011	1	13.00		0.00	0.24	6.26	9.95	7.60	18.00		15.49	15.49	2.60	0.00	0.56	233.51	10.40	12.89	6.26
1/26/2011	2011	2011	1	13.00		0.00	0.27	6.84	10.61	8.39	17.00		14.37	14.37	2.60	0.00	0.56	233.51	10.40	11.77	6.84
1/27/2011	2011	2011	1	13.00		0.00	0.27	6.34	10.45	7.62	16.00		13.69	13.69	2.60	0.00	0.56	233.51	10.40	11.09	6.34
1/28/2011	2011	2011	1	12.00		0.00	0.28	6.65	10.76	8.12	16.00		13.51	13.51	2.60	0.00	0.56	233.51	9.40	10.91	6.65
1/29/2011	2011	2011	1	12.00		0.00	0.28	6.65	10.76	8.12	16.00		13.51	13.51	2.60	0.00	0.56	233.51	9.40	10.91	6.65
1/30/2011	2011	2011	1	42.00		0.00	0.28	6.65	10.76	8.12	53.00		47.92		0.00	0.00	0.00	0.00	42.00	47.92	6.65
1/31/2011	2011	2011	1	21.00		0.00	0.25	5.74	9.07	6.99	32.00		28.59		0.00	0.00	0.00	0.00	21.00	28.59	5.74
2/1/2011	2011	2011	2	19.00		0.00	0.22	6.65	10.24	7.78	16.00		13.83	13.83	2.60	0.00	0.56	233.51	16.40	11.23	6.65
2/2/2011	2011	2011	2	16.00		0.00	0.24	6.66	10.49	7.79	13.00		11.04	11.04	2.60	0.00	0.56	233.51	13.40	8.44	6.66
2/3/2011	2011	2011	2	13.00		0.00	0.27	6.87	10.72	8.10	12.00		10.01	10.01	2.60	0.00	0.56	233.51	10.40	7.41	6.87
2/4/2011	2011	2011	2	13.00		0.00	0.29	6.41	9.73	7.25	13.00		11.30	11.30	2.60	0.00	0.56	233.51	10.40	8.70	6.41
2/5/2011	2011	2011	2	13.00		0.00	0.29	6.41	9.73	7.25	12.00		10.37	10.37	2.60	0.00	0.56	233.51	10.40	7.77	6.41
2/6/2011	2011	2011	2	13.00		0.00	0.29	6.41	9.73	7.25	11.00		9.44	9.44	2.60	0.00	0.56	233.51	10.40	6.84	6.41
2/7/2011	2011	2011	2	13.00		0.00	0.27	6.35	8.94	7.14	11.00		9.49	9.49	2.60	0.00	0.56	233.51	10.40	6.89	6.35
2/8/2011	2011	2011	2	15.00		0.00	0.21	6.84	10.70	7.68	16.00		14.10	14.10	2.60	0.00	0.56	233.51	12.40	11.50	6.84
2/9/2011	2011	2011	2	13.00		0.00	0.25	6.97	10.38	7.81	14.00		12.24	12.24	2.60	0.00	0.56	233.51	10.40	9.64	6.97
2/10/2011	2011	2011	2	14.00		0.00	0.26	5.83	8.45	6.35	12.00		10.68	10.68	2.60	0.00	0.56	233.51	11.40	8.08	5.83
2/11/2011	2011	2011	2	14.00		0.00	0.27	6.53	9.33	7.21	9.80		8.48	8.48	2.60	0.00	0.56	233.51	11.40	5.88	5.88
2/12/2011	2011	2011	2	14.00		0.00	0.27	6.53	9.33	7.21	13.00		11.45	11.45	2.60	0.00	0.56	233.51	11.40	8.85	6.53
2/13/2011	2011	2011	2	15.00		0.00	0.27	6.53	9.33	7.21	14.00		12.38	12.38	2.60	0.00	0.56	233.51	12.40	9.78	6.53
2/14/2011	2011	2011	2	16.00		0.00	0.29	6.87	10.41	8.14	13.00		10.91	10.91	2.60	0.00	0.56	233.51	13.40	8.31	6.87
2/15/2011	2011	2011	2	16.00		0.00	0.19	6.46	10.12	7.71	14.00		11.86	11.86	2.60	0.00	0.56	233.51	13.40	9.26	6.46
2/16/2011	2011	2011	2	46.00		0.00	0.26	6.12	9.53	7.22	79.00		72.44		0.00	0.00	0.00	0.00	46.00	72.44	6.12
2/17/2011	2011	2011	2	16.00		0.00	0.24	5.23	8.32	5.96	21.00		18.85		0.00	0.00	0.00	0.00	16.00	18.85	5.23
2/18/2011	2011	2011	2	49.00		0.00	0.26	5.23	8.32	5.96	58.00		53.26		0.00	0.00	0.00	0.00	49.00	53.26	5.23
2/19/2011	2011	2011	2	165.00		0.00	0.26	4.61	8.35	6.34	380.00		351.80		0.00	0.00	0.00	0.00	165.00	351.80	4.61
2/20/2011	2011	2011	2	76.00		0.00	0.26	4.61	8.35	6.34	363.00		335.99		0.00	0.00	0.00	0.00	76.00	335.99	4.61
2/21/2011	2011	2011	2	13.00		0.00	0.26	4.61	8.35	6.34	26.00		22.58		0.00	0.00	0.00	0.00	13.00	22.58	4.61
2/22/2011	2011	2011	2	12.00		0.00	0.20	7.18	9.57	6.68	16.00		15.34	15.34	2.60	0.00	0.56	233.51	9.40	12.74	7.18
2/23/2011	2011	2011	2	11.00		0.00	0.25	6.37	8.06	5.83	13.00		12.60	12.60	2.60	0.00	0.56	233.51	8.40	10.00	6.37
2/24/2011	2011	2011	2	13.00		0.00	0.25	6.70	7.74	5.62	10.00		10.31	10.31	2.60	0.00	0.56	233.51	10.40	7.71	6.70
2/25/2011	2011	2011	2	75.00		0.00	0.21	4.69	9.17	6.79	35.00		30.60		0.00	0.00	0.00	0.00	75.00	30.60	4.69
2/26/2011	2011	2011	2	335.00		0.00	0.21	4.69	9.17	6.79	1070.00		993.15		0.00	0.00	0.00	0.00	335.00	993.15	4.69
2/27/2011	2011	2011	2	18.00		0.00	0.21	4.69	9.17	6.79	53.00		47.34		0.00	0.00	0.00	0.00	18.00	47.34	4.69
2/28/2011	2011	2011	2	15.00		0.00	0.25	5.95	8.71	6.55	19.00		17.12	17.12	2.60	0.00	0.56	233.51	12.40	14.52	5.95
3/1/2011	2011	2011	3	16.00		0.00	0.23	6.71	9.12	6.87	16.00		14.73	14.73	2.60	0.00	0.56	233.51	13.40	12.13	6.71
3/2/2011	2011	2011	3	15.00		0.00	0.27	6.79	9.20	6.49	13.00		12.38	12.38	2.60	0.00	0.56	233.51	12.40	9.78	6.79
3/3/2011	2011	2011	3	15.00		0.00	0.27	6.30	8.34	6.10	11.00		10.42	10.42	2.60	0.00	0.56	233.51	12.40	7.82	6.30
3/4/2011	2011	2011	3	15.00		0.00	0.30	6.62	9.21	6.73	11.00		10.13	10.13	2.60	0.00	0.56	233.51	12.40	7.53	6.62
3/5/2011	2011	2011	3	15.00		0.00	0.30	6.62	9.21	6.73	11.00		10.13	10.13	2.60	0.00	0.56	233.51	12.40	7.53	6.62
3/6/2011	2011	2011	3	15.00		0.00	0.30	6.62	9.21	6.73	11.00		10.13	10.13	2.60	0.00	0.56	233.51	12.40	7.53	6.62
3/7/2011	2011	2011	3	37.00		0.00	0.04	5.98	8.92	6.88	72.00		66.13		0.00	0.00	0.00	0.00	37.00	66.13	5.98
3/8/2011	2011	2011	3	12.00		0.00	0.36	6.66	10.04	7.71	18.00		15.77	15.77	2.60	0.00	0.56	233.51	9.40	13.17	6.66
3/9/2011	2011	2011	3	11.00		0.00	0.29	6.67	10.65	7.34	12.00		10.54	10.54	2.60	0.00	0.56	233.51	8.40	7.94	6.67
3/10/2011	2011	2011	3	12.00		0.00	0.26	6.00	9.18	7.16	15.00		12.87	12.87	2.60	0.00	0.56	233.51	9.40	10.27	6.00
3/11/2011	2011	2011	3	11.00		0.00	0.28	6.38	9.59	7.32	12.00		10.28	10.28	2.60	0.00	0.56	233.51	8.40	7.68	6.38
3/12/2011	2011	2011	3	11.00		0.00	0.28	6.38	9.59	7.32	14.00		12.14	12.14	2.60	0.00	0.56	233.51	8.40	9.54	6.38
3/13/2011	2011	2011	3	11.00		0.00	0.28	6.38	9.59	7.32	14.00		12.14	12.14	2.60	0.00	0.56	233.51	8.40	9.54	6.38
3/14/2011	2011	2011	3	11.00		0.00	0.27	6.38	9.59	7.32	15.00		13.07	13.07	2.60	0.00	0.56	233.51	8.40	10.47	6.38
3/15/2011	2011	2011	3	11.00		0.00	0.23	7.45	10.91	8.85	16.00		13.57	13.57	2.60	0.00	0.56	233.51	8.40	10.97	7.45
3/16/2011	2011	2011	3	11.00		0.00	0.29	6.39	10.19	7.45	17.00		14.83	14.83	2.60	0.00	0.56	233.51	8.40	12.23	6.39
3/17/2011	2011	2011	3	11.00		0.00	0.26	6.74	10.23	7.94	18.00		15.62	15.62	2.60	0.00	0.56	233.51	8.40	13.02	6.74
3/18/2011	2011	2011	3	12.00		0.00	0.28	5.18	10.10	7.76	15.00		11.54	11.54	2.60	0.00	0.56	233.51	9.40	8.94	5.18
3/19/2011	2011	2011	3	11.00		0.00	0.28	5.18	10.10	7.76	16.00		12.47	12.47	2.60	0.00	0.56	233.51	8.40	9.87	5.18
3/20/2011	2011	2011	3	301.00		0.00	0.28	5.18	10.10	7.76	568.00		525.83		0.00	0.00	0.00	0.00	301.00	525.83	5.18
3/21/2011	2011	2011	3	148.00		0.00	0.29	2.64	9.36	6.59	626.00		578.51		0.00	0.00	0.00	0.00	148.00	578.51	2.64

Existing Condition | **With Project Diversion**

								San Joaquin Marsh Operations					0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW Ba	Project - Diversi	Project - Diversi	Project - PCW Ba	Project - SDC Ca	Project - SJM In
3/22/2011	2011	2011	3	24.00		0.00	0.28	5.53	9.36	6.98	49.00		44.22		0.00	0.00	0.00	0.00	24.00	44.22	5.53
3/23/2011	2011	2011	3	208.00		0.00	0.29	3.07	10.43	8.43	506.00		465.60		0.00	0.00	0.00	0.00	208.00	465.60	3.07
3/24/2011	2011	2011	3	32.00		0.00	0.28	6.01	11.78	8.83	151.00		137.81		0.00	0.00	0.00	0.00	32.00	137.81	6.01
3/25/2011	2011	2011	3	95.00		0.00	0.28	5.52	9.50	7.28	238.00		219.71		0.00	0.00	0.00	0.00	95.00	219.71	5.52
3/26/2011	2011	2011	3	13.00		0.00	0.28	5.52	9.50	7.28	36.00		31.85		0.00	0.00	0.00	0.00	13.00	31.85	5.52
3/27/2011	2011	2011	3	12.00		0.00	0.28	5.52	9.50	7.28	23.00		19.76		0.00	0.00	0.00	0.00	12.00	19.76	5.52
3/28/2011	2011	2011	3	13.00		0.00	0.16	0.16	0.00	0.00	17.00		15.96	15.96	2.60	0.00	0.56	233.51	10.40	13.36	0.16
3/29/2011	2011	2011	3	15.00		0.00	0.15	5.37	9.28	8.90	20.00		15.32	15.32	2.60	0.00	0.56	233.51	12.40	12.72	5.37
3/30/2011	2011	2011	3	12.00		0.00	0.22	6.96	10.74	8.59	18.00		15.22	15.22	2.60	0.00	0.56	233.51	9.40	12.62	6.96
3/31/2011	2011	2011	3	11.00		0.00	0.17	6.47	11.03	8.07	18.00		15.25	15.25	2.60	0.00	0.56	233.51	8.40	12.65	6.47
4/1/2011	2011	2011	4	11.00		0.00	0.34	6.54	9.25	7.08	20.00		18.09	18.09	2.60	0.00	0.56	233.51	8.40	15.49	6.54
4/2/2011	2011	2011	4	9.80		0.00	0.34	6.54	9.25	7.08	18.00		16.23	16.23	2.60	0.00	0.56	233.51	7.20	13.63	6.54
4/3/2011	2011	2011	4	10.00		0.00	0.34	6.54	9.25	7.08	17.00		15.30	15.30	2.60	0.00	0.56	233.51	7.40	12.70	6.54
4/4/2011	2011	2011	4	9.90		0.00	0.30	7.15	9.06	6.79	17.00		16.14	16.14	2.60	0.00	0.56	233.51	7.30	13.54	7.15
4/5/2011	2011	2011	4	10.00		0.00	0.26	6.73	8.87	6.27	17.00		16.23	16.23	2.60	0.00	0.56	233.51	7.40	13.63	6.73
4/6/2011	2011	2011	4	11.00		0.00	0.30	6.57	7.93	6.06	18.00		17.21	17.21	2.60	0.00	0.56	233.51	8.40	14.61	6.57
4/7/2011	2011	2011	4	10.00		0.00	0.31	6.12	8.37	5.79	19.00		17.98	17.98	2.60	0.00	0.56	233.51	7.40	15.38	6.12
4/8/2011	2011	2011	4	35.00		0.00	0.29	5.82	8.99	6.71	38.00		34.51		0.00	0.00	0.00	0.00	35.00	34.51	5.82
4/9/2011	2011	2011	4	19.00		0.00	0.29	5.82	8.99	6.71	111.00		102.40		0.00	0.00	0.00	0.00	19.00	102.40	5.82
4/10/2011	2011	2011	4	9.90		0.00	0.29	5.82	8.99	6.71	19.00		16.84	16.84	2.60	0.00	0.56	233.51	7.30	14.24	5.82
4/11/2011	2011	2011	4	9.70		0.00	0.29	6.06	8.52	6.27	17.00		15.62	15.62	2.60	0.00	0.56	233.51	7.10	13.02	6.06
4/12/2011	2011	2011	4	9.90		0.00	0.28	7.31	10.45	7.61	17.00		15.53	15.53	2.60	0.00	0.56	233.51	7.30	12.93	7.31
4/13/2011	2011	2011	4	9.70		0.00	0.18	5.79	7.85	6.03	18.00		16.52	16.52	2.60	0.00	0.56	233.51	7.10	13.92	5.79
4/14/2011	2011	2011	4	11.00		0.00	0.29	6.85	9.74	7.24	18.00		16.37	16.37	2.60	0.00	0.56	233.51	8.40	13.77	6.85
4/15/2011	2011	2011	4	9.10		0.00	0.30	6.61	9.47	7.08	19.00		17.23	17.23	2.60	0.00	0.56	233.51	6.50	14.63	6.61
4/16/2011	2011	2011	4	7.20		0.00	0.30	6.61	9.47	7.08	16.00		14.44	14.44	2.43	0.00	0.52	218.00	4.77	12.01	6.61
4/17/2011	2011	2011	4	5.30		0.00	0.30	6.61	9.47	7.08	11.00		9.79	9.79	2.14	0.00	0.46	192.33	3.16	7.65	6.61
4/18/2011	2011	2011	4	5.40		0.00	0.30	5.95	8.38	6.30	9.60		8.60	8.60	2.16	0.00	0.47	193.90	3.24	6.44	5.95
4/19/2011	2011	2011	4	5.70		0.00	0.27	6.50	9.27	6.92	11.00		9.84	9.84	2.21	0.00	0.48	198.43	3.49	7.63	6.50
4/20/2011	2011	2011	4	5.50		0.00	0.28	5.98	8.58	6.58	12.00		10.60	10.60	2.18	0.00	0.47	195.44	3.32	8.43	5.98
4/21/2011	2011	2011	4	7.30		0.00	0.28	6.45	9.36	7.22	9.30		7.93	7.93	2.44	0.00	0.53	219.16	4.86	5.49	5.49
4/22/2011	2011	2011	4	9.40		0.00	0.28	6.45	9.36	7.22	9.20		7.84	7.84	2.60	0.00	0.56	233.51	6.80	5.24	5.24
4/23/2011	2011	2011	4	7.50		0.00	0.28	6.45	9.36	7.22	7.90		6.63	6.63	2.47	0.00	0.53	221.42	5.03	4.16	4.16
4/24/2011	2011	2011	4	5.70		0.00	0.28	6.45	9.36	7.22	7.10		6.45	6.45	2.21	0.00	0.48	198.43	3.49	4.24	4.24
4/25/2011	2011	2011	4	5.30		0.00	0.26	6.05	8.70	6.36	6.80		6.05	6.05	2.14	0.00	0.46	192.33	3.16	3.91	3.91
4/26/2011	2011	2011	4	5.10		0.00	0.12	6.34	8.96	6.79	6.30		6.34	6.34	2.11	0.00	0.46	189.11	2.99	4.24	4.24
4/27/2011	2011	2011	4	5.00		0.00	0.21	6.68	10.31	7.20	6.20		6.68	6.68	2.09	0.00	0.45	187.45	2.91	4.59	4.59
4/28/2011	2011	2011	4	4.60		0.00	0.19	5.93	8.13	6.39	6.40		5.93	5.93	2.01	0.00	0.43	180.46	2.59	3.92	3.92
4/29/2011	2011	2011	4	5.00		0.00	0.19	6.32	8.98	6.76	6.00		6.32	6.32	2.09	0.00	0.45	187.45	2.91	4.23	4.23
4/30/2011	2011	2011	4	4.70		0.00	0.19	6.32	8.98	6.76	5.70		6.32	6.32	2.03	0.00	0.44	182.26	2.67	4.29	4.29
5/1/2011	2011	2011	5	4.80		0.00	0.19	6.32	8.98	6.76	5.80		6.32	6.32	2.05	0.00	0.44	184.03	2.75	4.27	4.27
5/2/2011	2011	2011	5	5.20		0.00	0.18	6.56	8.80	6.59	5.50		6.56	6.56	2.12	0.00	0.46	190.74	3.08	4.44	4.44
5/3/2011	2011	2011	5	5.20		0.00	0.15	6.25	8.77	5.98	5.00		6.25	6.25	2.12	0.00	0.46	190.74	3.08	4.13	4.13
5/4/2011	2011	2011	5	5.60		0.00	0.20	6.24	8.89	5.34	4.30		6.24	6.24	2.19	0.00	0.47	196.95	3.41	4.05	4.05
5/5/2011	2011	2011	5	5.40		0.00	0.22	6.63	9.61	6.48	4.60		6.63	6.63	2.16	0.00	0.47	193.90	3.24	4.47	4.47
5/6/2011	2011	2011	5	5.20		0.00	0.32	5.96	8.64	6.37	4.70		5.96	5.96	2.12	0.00	0.46	190.74	3.08	3.84	3.84
5/7/2011	2011	2011	5	5.20		0.00	0.32	5.96	8.64	6.37	4.90		5.96	5.96	2.12	0.00	0.46	190.74	3.08	3.84	3.84
5/8/2011	2011	2011	5	4.90		0.00	0.32	5.96	8.64	6.37	4.90		5.96	5.96	2.07	0.00	0.45	185.76	2.83	3.89	3.89
5/9/2011	2011	2011	5	6.10		0.00	0.34	6.15	8.55	6.53	7.50		6.62	6.62	2.27	0.00	0.49	204.11	3.83	4.35	4.35
5/10/2011	2011	2011	5	4.60		0.00	0.28	6.16	8.97	6.15	5.90		6.16	6.16	2.01	0.00	0.43	180.46	2.59	4.15	4.15
5/11/2011	2011	2011	5	4.70		0.00	0.32	5.90	8.64	6.12	4.80		5.90	5.90	2.03	0.00	0.44	182.26	2.67	3.87	3.87
5/12/2011	2011	2011	5	5.10		0.00	0.33	6.53	9.91	7.20	4.90		6.53	6.53	2.11	0.00	0.46	189.11	2.99	4.43	4.43
5/13/2011	2011	2011	5	5.10		0.00	0.35	5.21	8.44	6.20	5.30		5.21	5.21	2.11	0.00	0.46	189.11	2.99	3.10	3.10
5/14/2011	2011	2011	5	5.30		0.00	0.35	5.21	8.44	6.20	5.40		5.21	5.21	2.14	0.00	0.46	192.33	3.16	3.07	3.07
5/15/2011	2011	2011	5	32.00		0.00	0.35	5.21	8.44	6.20	49.00		44.65		0.00	0.00	0.00	0.00	32.00	44.65	5.21
5/16/2011	2011	2011	5	5.80		0.00	0.36	5.54	8.28	6.24	11.00		9.58	9.58	2.23	0.00	0.48	199.89	3.57	7.35	5.54
5/17/2011	2011	2011	5	9.30		0.00	0.32	5.71	8.74	6.03	13.00		11.79	11.79	2.60	0.00	0.56	233.51	6.70	9.19	5.71
5/18/2011	2011	2011	5	57.00		0.00	0.30	0.00	9.96	6.84	128.00		112.68		0.00	0.00	0.00	0.00	57.00	112.68	0.00
5/19/2011	2011	2011	5	5.50		0.00	0.33	0.00	7.89	6.12	19.00		11.98	11.98	2.18	0.00	0.47	195.44	3.32	9.80	0.00
5/20/2011	2011	2011	5	5.00		0.00	0.17	5.91	8.38	6.03	11.00		10.12	10.12	2.09	0.00	0.45	187.45	2.91	8.03	5.91
5/21/2011	2011	2011	5	4.90		0.00	0.17	5.91	8.38	6.03	4.60		5.91	5.91	2.07	0.00	0.45	185.76	2.83	3.84	3.84
5/22/2011	2011	2011	5	4.90		0.00	0.17	5.91	8.38	6.03	4.20		5.91	5.91	2.07	0.00	0.45	185.76	2.83	3.84	3.84
5/23/2011	2011	2011	5	4.80		0.00	0.18	6.45	7.67	5.14	3.90		6.45	6.45	2.05	0.00	0.44	184.03	2.75	4.40	4.40
5/24/2011	2011	2011	5	4.70		0.00	0.12	5.59	7.07	4.32	3.90		5.59	5.59	2.03	0.00	0.44	182.26	2.67	3.56	3.56
5/25/2011	2011	2011	5	5.20		0.00	0.00	6.56	7.51	5.33	4.20		6.56	6.56	2.12	0.00	0.46	190.74	3.08	4.44	4.44
5/26/2011	2011	2011	5	5.50		0.00	0.00	5.72	7.04	4.32	4.30		5.72	5.72	2.18	0.00	0.47	195.44	3.32	3.54	3.54
5/27/2011	2011	2011	5	5.50		0.00	0.65	6.11	7.18	4.66	4.00		6.11	6.11	2.18	0.00	0.47	195.44	3.32	3.93	3.93
5/28/2011	2011	2011	5	5.50		0.00	0.65	6.11	7.18	4.66	4.30		6.11	6.11	2.18	0.00	0.47	195.44	3.32	3.93	3.93
5/29/2011	2011	2011	5	5.70		0.00	0.65	6.11	7.18	4.66	4.30		6.11	6.11	2.21	0.00	0.48	198.43	3.49	3.90	3.90
5/30/2011	2011	2011	5	5.50		0.00	0.65	6.11	7.18	4.66	4.60		6.11	6.11	2.18	0.00	0.47	195.44	3.32	3.93	3.93
5/31/2011	2011	2011	5	6.10		0.00	0.29	6.52	7.74	4.59	4.40		6.52	6.52	2.27	0.00	0.49	204.11	3.83	4.24	4.24

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
								Existing Condition					0.93	20.00 cfs	With Project Diversion		39.7 ppb / 39.7 ppb	16.5 ppm / 16.5 ppm			
								San Joaquin Marsh Operations													
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
6/1/2011	2011	2011	6	5.20		0.00	0.36	6.48	7.59	4.52	4.00		6.48	6.48	2.12	0.00	0.46	190.74	3.08	4.36	4.36
6/2/2011	2011	2011	6	5.80		0.00	0.36	6.18	7.87	5.38	4.00		6.18	6.18	2.23	0.00	0.48	199.89	3.57	3.96	3.96
6/3/2011	2011	2011	6	6.20		0.00	0.15	6.18	7.87	5.38	5.40		6.18	6.18	2.29	0.00	0.49	205.47	3.91	3.89	3.89
6/4/2011	2011	2011	6	6.00		0.00	0.15	6.18	7.87	5.38	6.10		6.42	6.42	2.26	0.00	0.49	202.73	3.74	4.16	4.16
6/5/2011	2011	2011	6	5.90		0.00	0.15	6.18	7.87	5.38	6.00		6.33	6.33	2.24	0.00	0.48	201.32	3.66	4.09	4.09
6/6/2011	2011	2011	6	6.50		0.00	0.85	5.25	6.63	5.11	5.40		5.25	5.25	2.33	0.00	0.50	209.43	4.17	2.92	2.92
6/7/2011	2011	2011	6	6.50		0.00	0.17	4.30	6.42	4.29	7.40		6.88	6.88	2.33	0.00	0.50	209.43	4.17	4.55	4.30
6/8/2011	2011	2011	6	6.50		0.00	0.52	4.91	6.32	4.53	8.00		7.79	7.79	2.33	0.00	0.50	209.43	4.17	5.46	4.91
6/9/2011	2011	2011	6	5.90		0.00	0.37	5.04	8.15	5.06	7.70		7.14	7.14	2.24	0.00	0.48	201.32	3.66	4.90	4.90
6/10/2011	2011	2011	6	6.10		0.00	0.37	5.94	8.92	6.85	8.00		6.59	6.59	2.27	0.00	0.49	204.11	3.83	4.32	4.32
6/11/2011	2011	2011	6	5.60		0.00	0.37	5.94	8.92	6.85	8.90		7.43	7.43	2.19	0.00	0.47	196.95	3.41	5.24	5.24
6/12/2011	2011	2011	6	5.40		0.00	0.37	5.94	8.92	6.85	9.70		8.17	8.17	2.16	0.00	0.47	193.90	3.24	6.02	5.94
6/13/2011	2011	2011	6	5.60		0.00	0.18	5.22	7.42	4.92	8.20		7.90	7.90	2.19	0.00	0.47	196.95	3.41	5.71	5.22
6/14/2011	2011	2011	6	5.90		0.00	0.45	5.00	7.43	4.57	7.40		7.28	7.28	2.24	0.00	0.48	201.32	3.66	5.04	5.00
6/15/2011	2011	2011	6	5.60		0.00	0.34	5.70	8.16	6.00	7.70		6.89	6.89	2.19	0.00	0.47	196.95	3.41	4.69	4.69
6/16/2011	2011	2011	6	5.10		0.00	0.31	5.16	7.62	5.55	7.90		6.99	6.99	2.11	0.00	0.46	189.11	2.99	4.88	4.88
6/17/2011	2011	2011	6	5.70		0.00	0.20	5.53	9.13	6.85	7.80		6.03	6.03	2.21	0.00	0.48	198.43	3.49	3.82	3.82
6/18/2011	2011	2011	6	5.80		0.00	0.20	5.53	9.13	6.85	9.00		7.14	7.14	2.23	0.00	0.48	199.89	3.57	4.92	4.92
6/19/2011	2011	2011	6	5.60		0.00	0.20	5.53	9.13	6.85	8.70		6.86	6.86	2.19	0.00	0.47	196.95	3.41	4.67	4.67
6/20/2011	2011	2011	6	5.50		0.00	0.20	5.17	8.15	6.05	7.60		6.25	6.25	2.18	0.00	0.47	195.44	3.32	4.07	4.07
6/21/2011	2011	2011	6	6.30		0.00	0.15	4.82	7.97	5.08	8.00		7.20	7.20	2.30	0.00	0.50	206.81	4.00	4.90	4.82
6/22/2011	2011	2011	6	5.30		0.00	0.23	5.27	8.04	5.59	7.20		6.40	6.40	2.14	0.00	0.46	192.33	3.16	4.26	4.26
6/23/2011	2011	2011	6	4.60		0.00	0.18	4.43	6.51	4.78	6.90		6.10	6.10	2.01	0.00	0.43	180.46	2.59	4.09	4.09
6/24/2011	2011	2011	6	5.00		0.00	0.81	5.69	9.53	7.06	7.10		5.69	5.69	2.09	0.00	0.45	187.45	2.91	3.60	3.60
6/25/2011	2011	2011	6	4.90		0.00	0.81	5.69	9.53	7.06	8.90		7.00	7.00	2.07	0.00	0.45	185.76	2.83	4.94	4.94
6/26/2011	2011	2011	6	4.60		0.00	0.81	5.69	9.53	7.06	8.00		6.17	6.17	2.01	0.00	0.43	180.46	2.59	4.16	4.16
6/27/2011	2011	2011	6	4.70		0.00	0.38	4.55	6.36	3.96	5.40		5.58	5.58	2.03	0.00	0.44	182.26	2.67	3.55	3.55
6/28/2011	2011	2011	6	4.80		0.00	0.34	5.78	7.76	5.13	5.40		5.78	5.78	2.05	0.00	0.44	184.03	2.75	3.73	3.73
6/29/2011	2011	2011	6	4.70		0.00	0.30	3.77	5.39	3.34	6.60		6.54	6.54	2.03	0.00	0.44	182.26	2.67	4.51	3.77
6/30/2011	2011	2011	6	4.60		0.00	0.33	5.37	7.39	4.79	9.50		9.38	9.38	2.01	0.00	0.43	180.46	2.59	7.37	5.37
7/1/2011	2011	2011	7	4.30		0.00	0.40	5.13	8.14	5.80	11.00		9.61	9.61	1.95	0.00	0.42	174.81	2.35	7.66	5.13
7/2/2011	2011	2011	7	4.30		0.00	0.40	5.13	8.14	5.80	12.00		10.54	10.54	1.95	0.00	0.42	174.81	2.35	8.59	5.13
7/3/2011	2011	2011	7	4.20		(0.02)	0.40	5.13	8.14	5.80	11.00		9.61	9.61	1.92	(0.01)	0.41	172.10	2.28	7.69	5.13
7/4/2011	2011	2011	7	4.40		0.00	0.40	5.13	8.14	5.80	10.00		8.68	8.68	1.97	0.00	0.43	176.74	2.43	6.71	5.13
7/5/2011	2011	2011	7	4.20		(0.02)	0.33	5.34	8.02	4.98	9.50		9.17	9.17	1.92	(0.01)	0.41	172.10	2.28	7.25	5.34
7/6/2011	2011	2011	7	4.30		0.00	0.42	4.01	5.66	3.67	6.20		6.08	6.08	1.95	0.00	0.42	174.81	2.35	4.14	4.01
7/7/2011	2011	2011	7	4.40		0.00	0.41	4.94	7.46	4.58	5.60		5.54	5.54	1.97	0.00	0.43	176.74	2.43	3.57	3.57
7/8/2011	2011	2011	7	4.30		0.00	0.21	5.26	8.20	5.93	5.40		5.26	5.26	1.95	0.00	0.42	174.81	2.35	3.31	3.31
7/9/2011	2011	2011	7	4.40		0.00	0.21	5.26	8.20	5.93	7.10		5.98	5.98	1.97	0.00	0.43	176.74	2.43	4.01	4.01
7/10/2011	2011	2011	7	4.30		0.00	0.21	5.26	8.20	5.93	11.00		9.61	9.61	1.95	0.00	0.42	174.81	2.35	7.66	5.26
7/11/2011	2011	2011	7	4.50		0.00	0.19	4.45	5.92	3.87	6.00		6.12	6.12	1.99	0.00	0.43	178.62	2.51	4.13	4.13
7/12/2011	2011	2011	7	4.70		0.00	0.18	5.34	7.18	4.78	5.40		5.54	5.54	2.03	0.00	0.44	182.26	2.67	3.51	3.51
7/13/2011	2011	2011	7	4.70		0.00	0.13	4.34	6.00	4.43	6.00		5.49	5.49	2.03	0.00	0.44	182.26	2.67	3.46	3.46
7/14/2011	2011	2011	7	5.10		0.00	1.62	5.04	6.85	4.97	6.10		5.74	5.74	2.11	0.00	0.46	189.11	2.99	3.63	3.63
7/15/2011	2011	2011	7	5.00		0.00	0.39	5.09	8.28	6.07	7.00		5.60	5.60	2.09	0.00	0.45	187.45	2.91	3.51	3.51
7/16/2011	2011	2011	7	4.80		0.00	0.39	5.09	8.28	6.07	7.20		5.79	5.79	2.05	0.00	0.44	184.03	2.75	3.74	3.74
7/17/2011	2011	2011	7	4.70		0.00	0.39	5.09	8.28	6.07	7.00		5.60	5.60	2.03	0.00	0.44	182.26	2.67	3.57	3.57
7/18/2011	2011	2011	7	4.80		0.00	0.44	5.00	7.27	4.84	6.00		5.73	5.73	2.05	0.00	0.44	184.03	2.75	3.69	3.69
7/19/2011	2011	2011	7	5.10		0.00	0.34	4.56	6.23	4.41	6.00		5.72	5.72	2.11	0.00	0.46	189.11	2.99	3.61	3.61
7/20/2011	2011	2011	7	4.90		0.00	0.42	4.34	7.10	4.54	5.80		5.21	5.21	2.07	0.00	0.45	185.76	2.83	3.14	3.14
7/21/2011	2011	2011	7	5.10		0.00	0.22	4.58	6.47	4.92	6.40		5.64	5.64	2.11	0.00	0.46	189.11	2.99	3.53	3.53
7/22/2011	2011	2011	7	4.90		0.00	0.47	4.85	8.06	5.79	6.30		4.98	4.98	2.07	0.00	0.45	185.76	2.83	2.92	2.92
7/23/2011	2011	2011	7	5.20		0.00	0.47	4.85	8.06	5.79	7.50		6.10	6.10	2.12	0.00	0.46	190.74	3.08	3.98	3.98
7/24/2011	2011	2011	7	5.30		0.00	0.47	4.85	8.06	5.79	7.20		5.82	5.82	2.14	0.00	0.46	192.33	3.16	3.68	3.68
7/25/2011	2011	2011	7	5.30		0.00	0.39	4.85	8.06	5.79	6.00		4.85	4.85	2.14	0.00	0.46	192.33	3.16	2.71	2.71
7/26/2011	2011	2011	7	5.60		0.00	0.37	4.91	7.05	4.59	5.90		5.78	5.78	2.19	0.00	0.47	196.95	3.41	3.59	3.59
7/27/2011	2011	2011	7	6.10		0.00	0.43	4.71	6.96	4.40	5.40		5.31	5.31	2.27	0.00	0.49	204.11	3.83	3.03	3.03
7/28/2011	2011	2011	7	5.80		0.00	0.40	4.45	6.40	4.75	6.00		5.30	5.30	2.23	0.00	0.48	199.89	3.57	3.08	3.08
7/29/2011	2011	2011	7	5.60		0.00	0.40	5.01	8.63	6.31	6.20		5.01	5.01	2.19	0.00	0.47	196.95	3.41	2.82	2.82
7/30/2011	2011	2011	7	5.40		0.00	0.40	5.01	8.63	6.31	7.50		5.76	5.76	2.16	0.00	0.47	193.90	3.24	3.61	3.61
7/31/2011	2011	2011	7	5.40		0.00	0.40	5.01	8.63	6.31	7.40		5.67	5.67	2.16	0.00	0.47	193.90	3.24	3.51	3.51
8/1/2011	2011	2011	8	5.50		0.00	0.43	4.44	6.31	4.71	6.50		5.80	5.80	2.18	0.00	0.47	195.44	3.32	3.62	3.62
8/2/2011	2011	2011	8	5.20		0.00	0.34	4.79	7.37	4.62	5.70		5.46	5.46	2.12	0.00	0.46	190.74	3.08	3.34	3.34
8/3/2011	2011	2011	8	5.50		0.00	0.39	4.63	6.83	4.72	5.00		4.63	4.63	2.18	0.00	0.47	195.44	3.32	2.46	2.46
8/4/2011	2011	2011	8	5.20		0.00	0.40	4.26	6.12	4.74	6.00		5.13	5.13	2.12	0.00	0.46	190.74	3.08	3.01	3.01
8/5/2011	2011	2011	8	5.20		0.00	0.38	4.87	8.61	6.42	6.50		4.87	4.87	2.12	0.00	0.46	190.74	3.08	2.75	2.75
8/6/2011	2011	2011	8	5.20		0.00	0.38	4.87	8.61	6.42	7.80		5.82	5.82	2.12	0.00	0.46	190.74	3.08	3.69	3.69
8/7/2011	2011	2011	8	5.00		0.00	0.38	4.87	8.61	6.42	7.10		5.16	5.16	2.09	0.00	0.45	187.45	2.91	3.08	3.08
8/8/2011	2011	2011	8	5.30		0.00	0.40	4.79	7.51	4.82	5.80		5.37	5.37	2.14	0.00	0.46	192.33	3.16	3.23	3.23
8/9/2011	2011	2011	8	5.40		0.00	0.18	4.27	6.26	4.36	5.20		4.76	4.76	2.16	0.00	0.47	193.90	3.24	2.60	2.60
8/10/2011	2011	2011	8	5.80		0.00	0.22	4.73	7.77	4.64	6.10		5.75	5.75	2.23	0.00	0.48	199.89	3.57	3.52	3.52

Existing Condition | **With Project Diversion**

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	San Joaquin Marsh Operations: SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
8/11/2011	2011	2011	8	8.60		0.00	0.71	5.02	6.98	5.85	8.60		7.23	7.23	2.59	0.00	0.56	232.89	6.01	4.64	4.64
8/12/2011	2011	2011	8	5.90		0.00	0.28	4.62	8.50	6.30	7.80		5.69	5.69	2.24	0.00	0.48	201.32	3.66	3.45	3.45
8/13/2011	2011	2011	8	5.50		0.00	0.28	4.62	8.50	6.30	7.60		5.50	5.50	2.18	0.00	0.47	195.44	3.32	3.33	3.33
8/14/2011	2011	2011	8	5.80		0.00	0.28	4.62	8.50	6.30	7.50		5.41	5.41	2.23	0.00	0.48	199.89	3.57	3.19	3.19
8/15/2011	2011	2011	8	5.80		0.00	0.82	4.53	6.95	4.99	6.30		5.43	5.43	2.23	0.00	0.48	199.89	3.57	3.21	3.21
8/16/2011	2011	2011	8	5.40		0.00	0.35	4.45	6.77	4.95	5.60		4.74	4.74	2.16	0.00	0.47	193.90	3.24	2.58	2.58
8/17/2011	2011	2011	8	5.60		0.00	0.43	4.29	6.52	4.78	5.00		4.29	4.29	2.19	0.00	0.47	196.95	3.41	2.10	2.10
8/18/2011	2011	2011	8	5.70		0.00	0.46	4.82	8.15	6.39	5.10		4.82	4.82	2.21	0.00	0.48	198.43	3.49	2.61	2.61
8/19/2011	2011	2011	8	5.80		0.00	0.43	4.82	8.15	6.39	5.80		4.82	4.82	2.23	0.00	0.48	199.89	3.57	2.60	2.60
8/20/2011	2011	2011	8	5.80		0.00	0.43	4.82	8.15	6.39	7.10		5.15	5.15	2.23	0.00	0.48	199.89	3.57	2.92	2.92
8/21/2011	2011	2011	8	5.70		0.00	0.43	4.82	8.15	6.39	6.90		4.96	4.96	2.21	0.00	0.48	198.43	3.49	2.75	2.75
8/22/2011	2011	2011	8	5.90		0.00	0.40	4.75	5.88	4.52	4.60		4.75	4.75	2.24	0.00	0.48	201.32	3.66	2.50	2.50
8/23/2011	2011	2011	8	5.80		0.00	0.41	4.41	6.23	4.86	5.20		4.42	4.42	2.23	0.00	0.48	199.89	3.57	2.19	2.19
8/24/2011	2011	2011	8	5.70		0.00	0.23	4.16	6.56	4.52	5.50		4.78	4.78	2.21	0.00	0.48	198.43	3.49	2.57	2.57
8/25/2011	2011	2011	8	6.00		0.00	0.61	4.51	6.70	4.71	5.90		5.30	5.30	2.26	0.00	0.49	202.73	3.74	3.04	3.04
8/26/2011	2011	2011	8	5.60		0.00	0.45	4.95	8.48	6.71	5.90		4.95	4.95	2.19	0.00	0.47	196.95	3.41	2.75	2.75
8/27/2011	2011	2011	8	5.60		0.00	0.45	4.95	8.48	6.71	7.20		5.06	5.06	2.19	0.00	0.47	196.95	3.41	2.87	2.87
8/28/2011	2011	2011	8	5.50		0.00	0.45	4.95	8.48	6.71	6.40		4.95	4.95	2.18	0.00	0.47	195.44	3.32	2.77	2.77
8/29/2011	2011	2011	8	6.30		0.00	0.41	4.26	6.27	3.96	5.00		4.93	4.93	2.30	0.00	0.50	206.81	4.00	2.62	2.62
8/30/2011	2011	2011	8	5.10		0.00	0.41	4.51	5.91	4.42	5.80		5.48	5.48	2.11	0.00	0.46	189.11	2.99	3.38	3.38
8/31/2011	2011	2011	8	5.30		0.00	0.45	4.28	6.19	4.26	8.60		8.02	8.02	2.14	0.00	0.46	192.33	3.16	5.88	4.28
9/1/2011	2011	2011	9	4.70		0.00	0.43	4.76	6.86	5.31	8.40		7.30	7.30	2.03	0.00	0.44	182.26	2.67	5.27	4.76
9/2/2011	2011	2011	9	6.50		0.00	0.34	4.61	7.70	5.91	11.00		9.03	9.03	2.33	0.00	0.50	209.43	4.17	6.70	4.61
9/3/2011	2011	2011	9	5.50		0.00	0.39	4.61	7.70	5.91	13.00		10.89	10.89	2.18	0.00	0.47	195.44	3.32	8.71	4.61
9/4/2011	2011	2011	9	4.10		(0.05)	0.40	4.61	7.70	5.91	9.20		7.35	7.35	1.90	(0.02)	0.41	168.66	2.22	5.48	4.61
9/5/2011	2011	2011	9	5.00		0.00	0.38	4.61	7.70	5.91	7.70		5.96	5.96	2.09	0.00	0.45	187.45	2.91	3.87	3.87
9/6/2011	2011	2011	9	5.50		0.00	0.38	4.64	7.01	5.22	8.10		6.99	6.99	2.18	0.00	0.47	195.44	3.32	4.81	4.64
9/7/2011	2011	2011	9	6.80		0.00	0.38	4.75	7.20	5.11	11.00		9.90	9.90	2.37	0.00	0.51	213.21	4.43	7.52	4.75
9/8/2011	2011	2011	9	5.30		0.00	0.40	3.71	5.79	4.00	9.40		8.47	8.47	2.14	0.00	0.46	192.33	3.16	6.33	3.71
9/9/2011	2011	2011	9	5.20		0.00	0.18	4.50	9.04	7.39	8.80		5.49	5.49	2.12	0.00	0.46	190.74	3.08	3.37	3.37
9/10/2011	2011	2011	9	97.00		0.00	0.22	4.50	9.04	7.39	72.00		64.26		0.00	0.00	0.00	0.00	97.00	64.26	4.50
9/11/2011	2011	2011	9	7.00		0.00	0.71	4.50	9.04	7.39	22.00		17.76	17.76	2.40	0.00	0.52	215.64	4.60	15.36	4.50
9/12/2011	2011	2011	9	4.90		0.00	0.28	4.08	5.38	4.07	9.30		8.66	8.66	2.07	0.00	0.45	185.76	2.83	6.59	4.08
9/13/2011	2011	2011	9	4.90		0.00	0.28	4.16	6.78	4.69	8.50		7.42	7.42	2.07	0.00	0.45	185.76	2.83	5.35	4.16
9/14/2011	2011	2011	9	6.00		0.00	0.28	4.99	7.30	5.23	10.00		9.08	9.08	2.26	0.00	0.49	202.73	3.74	6.82	4.99
9/15/2011	2011	2011	9	4.80		0.00	0.82	4.17	6.15	4.79	10.00		8.72	8.72	2.05	0.00	0.44	184.03	2.75	6.67	4.17
9/16/2011	2011	2011	9	4.10		(0.05)	0.35	4.92	8.51	6.74	8.60		6.31	6.31	1.90	(0.02)	0.41	168.66	2.22	4.43	4.43
9/17/2011	2011	2011	9	4.10		(0.05)	0.43	4.92	8.51	6.74	9.10		6.77	6.77	1.90	(0.02)	0.41	168.66	2.22	4.89	4.89
9/18/2011	2011	2011	9	4.20		(0.02)	0.46	4.92	8.51	6.74	8.30		6.03	6.03	1.92	(0.01)	0.41	172.10	2.28	4.11	4.11
9/19/2011	2011	2011	9	4.30		0.00	0.43	4.18	6.17	4.02	7.40		7.03	7.03	1.95	0.00	0.42	174.81	2.35	5.08	4.18
9/20/2011	2011	2011	9	4.10		(0.05)	0.43	3.82	5.48	3.73	8.10		7.62	7.62	1.90	(0.02)	0.41	168.66	2.22	5.74	3.82
9/21/2011	2011	2011	9	4.20		(0.02)	0.43	4.44	6.68	4.44	7.30		6.79	6.79	1.92	(0.01)	0.41	172.10	2.28	4.87	4.44
9/22/2011	2011	2011	9	4.00		(0.09)	0.40	4.45	6.34	5.22	7.40		6.17	6.17	1.88	(0.04)	0.40	165.12	2.16	4.33	4.33
9/23/2011	2011	2011	9	3.70		(0.20)	0.41	4.82	8.93	6.80	8.10		5.69	5.69	1.81	(0.09)	0.37	153.91	1.99	3.98	3.98
9/24/2011	2011	2011	9	3.70		(0.20)	0.23	4.82	8.93	6.80	9.00		6.53	6.53	1.81	(0.09)	0.37	153.91	1.99	4.81	4.81
9/25/2011	2011	2011	9	3.40		(0.32)	0.61	4.82	8.93	6.80	8.70		6.25	6.25	1.73	(0.15)	0.34	141.76	1.82	4.67	4.67
9/26/2011	2011	2011	9	3.70		(0.20)	0.45	4.30	7.08	5.01	7.50		6.32	6.32	1.81	(0.09)	0.37	153.91	1.99	4.60	4.30
9/27/2011	2011	2011	9	3.80		(0.16)	0.45	4.81	7.67	5.46	7.60		6.46	6.46	1.83	(0.07)	0.38	157.75	2.04	4.71	4.71
9/28/2011	2011	2011	9	3.70		(0.20)	0.45	4.00	6.26	4.98	8.50		6.99	6.99	1.81	(0.09)	0.37	153.91	1.99	5.28	4.00
9/29/2011	2011	2011	9	3.90		(0.12)	0.41	4.49	8.46	6.70	11.00		8.17	8.17	1.86	(0.06)	0.39	161.49	2.10	6.37	4.49
9/30/2011	2011	2011	9	3.90		(0.12)	0.41	4.49	8.46	6.70	11.00		8.17	8.17	1.86	(0.06)	0.39	161.49	2.10	6.37	4.49
10/1/2011	2011	2012	10	3.70		(0.20)	0.41	4.49	8.46	6.70	11.00		8.17	8.17	1.81	(0.09)	0.37	153.91	1.99	6.46	4.49
10/2/2011	2011	2012	10	3.60		(0.24)	0.31	4.49	8.46	6.70	9.60		6.87	6.87	1.78	(0.11)	0.36	149.97	1.93	5.20	4.49
10/3/2011	2011	2012	10	3.70		(0.20)	0.31	5.10	8.07	5.72	8.80		7.61	7.61	1.81	(0.09)	0.37	153.91	1.99	5.90	5.10
10/4/2011	2011	2012	10	4.50		0.00	1.10	5.10	8.07	5.72	19.00		17.10	17.10	1.99	0.00	0.43	178.62	2.51	15.11	5.10
10/5/2011	2011	2012	10	354.00		0.00	0.27	1.12	7.18	4.84	434.00		400.16		0.00	0.00	0.00	0.00	354.00	400.16	1.12
10/6/2011	2011	2012	10	33.00		0.00	0.70	4.36	7.50	5.93	66.00		59.93		0.00	0.00	0.00	0.00	33.00	59.93	4.36
10/7/2011	2011	2012	10	11.00		0.00	0.59	5.33	8.73	6.49	15.00		12.87	12.87	2.60	0.00	0.56	233.51	8.40	10.27	5.33
10/8/2011	2011	2012	10	8.90		0.00	0.63	5.33	8.73	6.49	9.90		8.13	8.13	2.60	0.00	0.56	233.51	6.30	5.53	5.33
10/9/2011	2011	2012	10	9.50		0.00	0.63	5.33	8.73	6.49	7.20		5.62	5.62	2.60	0.00	0.56	233.51	6.90	3.02	3.02
10/10/2011	2011	2012	10	10.00		0.00	0.63	5.08	7.97	5.43	8.80		7.85	7.85	2.60	0.00	0.56	233.51	7.40	5.25	5.08
10/11/2011	2011	2012	10	9.20		0.00	0.60	6.57	9.67	7.18	9.70		8.46	8.46	2.60	0.00	0.56	233.51	6.60	5.86	5.86
10/12/2011	2011	2012	10	9.40		0.00	0.60	4.74	8.10	6.86	11.00		8.26	8.26	2.60	0.00	0.56	233.51	6.80	5.66	4.74
10/13/2011	2011	2012	10	9.90		0.00	0.60	5.05	8.28	4.03	20.00		19.55		0.00	0.00	0.00	0.00	9.90	19.55	5.05
10/14/2011	2011	2012	10	9.80		0.00	0.63	5.05	8.28	4.03	13.00		13.04	13.04	2.60	0.00	0.56	233.51	7.20	10.44	5.05
10/15/2011	2011	2012	10	8.90		0.00	0.61	5.05	8.28	4.03	11.00		11.18	11.18	2.60	0.00	0.56	233.51	6.30	8.58	5.05
10/16/2011	2011	2012	10	8.10		0.00	0.61	5.05	8.28	4.03	12.00		12.11	12.11	2.54	0.00	0.55	227.87	5.56	9.58	5.05
10/17/2011	2011	2012	10	7.40		0.00	0.61	5.49	9.10	5.57	13.00		12.02	12.02	2.45	0.00	0.53	220.30	4.95	9.57	5.49
10/18/2011	2011	2012	10	7.20		0.00	0.60	4.55	7.33	0.97	12.00		14.49	14.49	2.43	0.00	0.52	218.00	4.77	12.06	4.55
10/19/2011	2011	2012	10	7.50		0.00	0.68	5.43	9.05	6.13	9.40		8.09	8.09	2.47	0.00	0.53	221.42	5.03	5.62	5.43
10/20/2011	2011	2012	10	6.70		0.00	0.65	5.31	8.70	6.59	9.40		7.55	7.55	2.36	0.00	0.51	211.97	4.34	5.19	5.19

Existing Condition

San Joaquin Marsh Operations

0.93 | 20.00 cfs

With Project Diversion

PROJ. Div | 39.7 ppb | 16.5 ppm

39.7 ppb | 16.5 ppm

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
10/21/2011	2011	2012	10	6.20		0.00	0.57	5.31	8.70	6.59	8.10		6.34	6.34	2.29	0.00	0.49	205.47	3.91	4.05	4.05
10/22/2011	2011	2012	10	6.80		0.00	0.66	5.31	8.70	6.59	7.20		5.50	5.50	2.37	0.00	0.51	213.21	4.43	3.13	3.13
10/23/2011	2011	2012	10	7.10		0.00	0.66	5.31	8.70	6.59	8.10		6.34	6.34	2.41	0.00	0.52	216.83	4.69	3.93	3.93
10/24/2011	2011	2012	10	7.70		0.00	0.66	5.31	8.70	6.59	8.50		6.71	6.71	2.49	0.00	0.54	223.63	5.21	4.22	4.22
10/25/2011	2011	2012	10	7.20		0.00	0.63	5.32	8.82	8.08	8.60		5.44	5.44	2.43	0.00	0.52	218.00	4.77	3.01	3.01
10/26/2011	2011	2012	10	6.80		0.00	0.56	4.68	7.83	5.90	8.70		6.96	6.96	2.37	0.00	0.51	213.21	4.43	4.58	4.58
10/27/2011	2011	2012	10	9.60		0.00	0.71	5.03	8.37	7.04	7.90		5.48	5.48	2.60	0.00	0.56	233.51	7.00	2.88	2.88
10/28/2011	2011	2012	10	7.50		0.00	0.65	5.03	8.37	7.04	8.00		5.57	5.57	2.47	0.00	0.53	221.42	5.03	3.10	3.10
10/29/2011	2011	2012	10	9.70		0.00	0.48	5.03	8.37	7.04	7.70		5.29	5.29	2.60	0.00	0.56	233.51	7.10	2.69	2.69
10/30/2011	2011	2012	10	7.00		0.00	0.48	5.03	8.37	7.04	7.80		5.38	5.38	2.40	0.00	0.52	215.64	4.60	2.98	2.98
10/31/2011	2011	2012	10	6.70		0.00	0.48	5.86	9.67	9.11	8.00		5.86	5.86	2.36	0.00	0.51	211.97	4.34	3.50	3.50
11/1/2011	2011	2012	11	9.70		0.00	0.60	4.83	8.11	7.08	8.30		5.62	5.62	2.60	0.00	0.56	233.51	7.10	3.02	3.02
11/2/2011	2011	2012	11	11.00		0.00	0.71	4.83	8.11	7.08	9.40		6.64	6.64	2.60	0.00	0.56	233.51	8.40	4.04	4.04
11/3/2011	2011	2012	11	8.50		0.00	0.67	4.65	6.37	5.71	13.00		11.10	11.10	2.58	0.00	0.56	231.91	5.92	8.52	4.65
11/4/2011	2011	2012	11	195.00		0.00	0.69	3.26	7.71	5.37	122.00		111.50		0.00	0.00	0.00	0.00	195.00	111.50	3.26
11/5/2011	2011	2012	11	32.00		0.00	0.69	3.26	7.71	5.37	22.00		18.50	18.50	2.60	0.00	0.56	233.51	29.40	15.90	3.26
11/6/2011	2011	2012	11	136.00		0.00	0.69	3.26	7.71	5.37	73.00		65.93		0.00	0.00	0.00	0.00	136.00	65.93	3.26
11/7/2011	2011	2012	11	26.00		0.00	0.68	5.14	9.95	8.02	19.00		14.99	14.99	2.60	0.00	0.56	233.51	23.40	12.39	5.14
11/8/2011	2011	2012	11	14.00		0.00	0.63	5.20	10.09	7.75	10.00		6.94	6.94	2.60	0.00	0.56	233.51	11.40	4.34	4.34
11/9/2011	2011	2012	11	9.40		0.00	0.65	4.46	7.27	5.73	8.70		6.91	6.91	2.60	0.00	0.56	233.51	6.80	4.31	4.31
11/10/2011	2011	2012	11	7.90		0.00	0.77	4.83	9.83	7.35	7.50		4.83	4.83	2.51	0.00	0.54	225.78	5.39	2.31	2.31
11/11/2011	2011	2012	11	7.70		0.00	0.69	4.83	9.83	7.35	7.20		4.83	4.83	2.49	0.00	0.54	223.63	5.21	2.34	2.34
11/12/2011	2011	2012	11	99.00		0.00	0.69	4.83	9.83	7.35	70.00		62.75		0.00	0.00	0.00	0.00	99.00	62.75	4.83
11/13/2011	2011	2012	11	43.00		0.00	0.69	4.83	9.83	7.35	45.00		39.50		0.00	0.00	0.00	0.00	43.00	39.50	4.83
11/14/2011	2011	2012	11	15.00		0.00	0.74	4.40	8.82	6.80	12.00		8.93	8.93	2.60	0.00	0.56	233.51	12.40	6.33	4.40
11/15/2011	2011	2012	11	7.20		0.00	0.46	5.88	11.20	9.26	9.90		6.06	6.06	2.43	0.00	0.52	218.00	4.77	3.63	3.63
11/16/2011	2011	2012	11	8.80		0.00	0.71	5.19	7.92	6.54	9.70		7.76	7.76	2.60	0.00	0.56	233.51	6.20	5.16	5.16
11/17/2011	2011	2012	11	6.10		0.00	0.74	4.25	7.54	6.95	7.70		4.65	4.65	2.27	0.00	0.49	204.11	3.83	2.38	2.38
11/18/2011	2011	2012	11	5.90		0.00	0.71	4.18	9.04	6.58	8.70		5.86	5.86	2.24	0.00	0.48	201.32	3.66	3.62	3.62
11/19/2011	2011	2012	11	6.20		0.00	0.71	4.18	9.04	6.58	7.40		4.65	4.65	2.29	0.00	0.49	205.47	3.91	2.37	2.37
11/20/2011	2011	2012	11	281.00		0.00	0.71	4.18	9.04	6.58	268.00		247.01		0.00	0.00	0.00	0.00	281.00	247.01	4.18
11/21/2011	2011	2012	11	76.00		0.00	0.63	3.89	8.61	6.27	101.00		91.72		0.00	0.00	0.00	0.00	76.00	91.72	3.89
11/22/2011	2011	2012	11	8.10		0.00	0.73	5.42	11.03	8.15	17.00		13.27	13.27	2.54	0.00	0.55	227.87	5.56	10.74	5.42
11/23/2011	2011	2012	11	6.30		0.00	0.73	5.09	9.90	7.50	12.00		8.92	8.92	2.30	0.00	0.50	206.81	4.00	6.61	5.09
11/24/2011	2011	2012	11	5.00		0.00	0.73	5.09	9.90	7.50	9.50		6.59	6.59	2.09	0.00	0.45	187.45	2.91	4.51	4.51
11/25/2011	2011	2012	11	4.50		0.00	0.73	5.09	9.90	7.50	8.60		5.76	5.76	1.99	0.00	0.43	178.62	2.51	3.77	3.77
11/26/2011	2011	2012	11	4.80		0.00	0.73	5.09	9.90	7.50	8.50		5.66	5.66	2.05	0.00	0.44	184.03	2.75	3.61	3.61
11/27/2011	2011	2012	11	4.90		0.00	0.73	5.09	9.90	7.50	8.60		5.76	5.76	2.07	0.00	0.45	185.76	2.83	3.69	3.69
11/28/2011	2011	2012	11	5.50		0.00	0.70	4.63	9.77	6.54	8.20		5.85	5.85	2.18	0.00	0.47	195.44	3.32	3.67	3.67
11/29/2011	2011	2012	11	5.40		0.00	0.53	4.88	9.65	6.62	7.70		5.55	5.55	2.16	0.00	0.47	193.90	3.24	3.39	3.39
11/30/2011	2011	2012	11	4.00		(0.09)	0.78	5.07	9.97	7.13	7.70		5.25	5.25	1.88	(0.04)	0.40	165.12	2.16	3.41	3.41
12/1/2011	2011	2012	12	3.80		(0.16)	0.52	4.92	8.55	5.97	7.80		6.27	6.27	1.83	(0.07)	0.38	157.75	2.04	4.52	4.52
12/2/2011	2011	2012	12	4.70		0.00	0.68	5.11	8.80	7.03	7.20		5.11	5.11	2.03	0.00	0.44	182.26	2.67	3.08	3.08
12/3/2011	2011	2012	12	4.70		0.00	0.68	5.11	8.80	7.03	8.00		5.66	5.66	2.03	0.00	0.44	182.26	2.67	3.63	3.63
12/4/2011	2011	2012	12	4.30		0.00	0.68	5.11	8.80	7.03	8.80		6.40	6.40	1.95	0.00	0.42	174.81	2.35	4.46	4.46
12/5/2011	2011	2012	12	4.10		(0.05)	0.73	3.45	8.10	6.36	8.70		5.38	5.38	1.90	(0.02)	0.41	168.66	2.22	3.51	3.45
12/6/2011	2011	2012	12	4.50		0.00	0.59	4.17	7.15	5.76	7.70		5.68	5.68	1.99	0.00	0.43	178.62	2.51	3.69	3.69
12/7/2011	2011	2012	12	4.80		0.00	0.51	3.89	7.12	4.96	6.00		4.58	4.58	2.05	0.00	0.44	184.03	2.75	2.54	2.54
12/8/2011	2011	2012	12	4.10		(0.05)	0.68	5.04	9.52	6.97	10.00		7.50	7.50	1.90	(0.02)	0.41	168.66	2.22	5.62	5.04
12/9/2011	2011	2012	12	3.60		(0.24)	0.71	5.04	9.52	6.97	7.70		5.36	5.36	1.78	(0.11)	0.36	149.97	1.93	3.69	3.69
12/10/2011	2011	2012	12	3.10		(0.45)	0.71	5.04	9.52	6.97	8.60		6.20	6.20	1.64	(0.21)	0.31	128.59	1.67	4.77	4.77
12/11/2011	2011	2012	12	3.00		(0.50)	0.71	5.04	9.52	6.97	9.20		6.76	6.76	1.61	(0.23)	0.30	123.97	1.62	5.38	5.04
12/12/2011	2011	2012	12	149.00		0.00	0.99	2.86	11.04	8.15	107.00		94.59		0.00	0.00	0.00	0.00	149.00	94.59	2.86
12/13/2011	2011	2012	12	14.00		0.00	0.93	1.93	8.71	6.36	31.00		24.70		0.00	0.00	0.00	0.00	14.00	24.70	1.93
12/14/2011	2011	2012	12	5.80		0.00	0.86	4.85	9.99	7.24	13.00		9.87	9.87	2.23	0.00	0.48	199.89	3.57	7.65	4.85
12/15/2011	2011	2012	12	21.00		0.00	0.63	4.79	10.89	7.96	18.00		13.79	13.79	2.60	0.00	0.56	233.51	18.40	11.19	4.79
12/16/2011	2011	2012	12	13.00		0.00	0.74	5.06	8.11	6.93	54.00		48.48		0.00	0.00	0.00	0.00	13.00	48.48	5.06
12/17/2011	2011	2012	12	5.60		0.00	0.74	5.06	8.11	6.93	12.00		9.42	9.42	2.19	0.00	0.47	196.95	3.41	7.23	5.06
12/18/2011	2011	2012	12	4.50		0.00	0.74	5.06	8.11	6.93	10.00		7.56	7.56	1.99	0.00	0.43	178.62	2.51	5.57	5.06
12/19/2011	2011	2012	12	3.40		(0.32)	0.64	5.51	6.80	1.82	6.50		9.48	9.48	1.73	(0.15)	0.34	141.76	1.82	7.90	5.51
12/20/2011	2011	2012	12	3.70		(0.20)	0.66	5.51	6.80	1.82	3.20		6.41	6.41	1.81	(0.09)	0.37	153.91	1.99	4.70	4.70
12/21/2011	2011	2012	12	5.50		0.00	0.69	4.21	5.15	0.00	0.57		4.44	4.44	2.18	0.00	0.47	195.44	3.32	2.27	2.27
12/22/2011	2011	2012	12	4.80		0.00	0.76	3.95	6.40	0.00	0.61		4.24	4.24	2.05	0.00	0.44	184.03	2.75	2.19	2.19
12/23/2011	2011	2012	12	4.60		0.00	0.76	3.95	6.40	0.00	0.62		4.25	4.25	2.01	0.00	0.43	180.46	2.59	2.24	2.24
12/24/2011	2011	2012	12	4.40		0.00	0.76	3.95	6.40	0.00	0.69		4.32	4.32	1.97	0.00	0.43	176.74	2.43	2.35	2.35
12/25/2011	2011	2012	12	4.30		0.00	0.76	3.95	6.40	0.00	0.57		4.21	4.21	1.95	0.00	0.42	174.81	2.35	2.26	2.26
12/26/2011	2011	2012	12	3.70		(0.20)	0.76	3.95	6.40	0.00	0.54		4.18	4.18	1.81	(0.09)	0.37	153.91	1.99	2.47	2.47
12/27/2011	2011	2012	12	4.30		0.00	0.45	4.95	5.84	0.00	0.57		5.14	5.14	1.95	0.00	0.42	174.81	2.35	3.19	3.19
12/28/2011	2011	2012	12	5.20		0.00	0.77	4.95	5.84	0.00	0.59		5.15	5.15	2.12	0.00	0.46	190.74	3.08	3.03	3.03
12/29/2011	2011	2012	12	5.10		0.00	0.54	5.22	6.42	0.00	0.58		5.39	5.39	2.11	0.00	0.46	189.11	2.99	3.28	3.28
12/30/2011	2011	2012	12	4.60		0.00	0.54	5.22	6.42	0.00	0.58		5.39	5.39	2.01	0.00	0.43	180.46	2.59	3.38	3.38

Existing Condition | **With Project Diversion**

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	San Joaquin Marsh Operations: SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
12/31/2011	2011	2012	12	6.20		0.00	0.54	5.22	6.42	0.00	0.58		5.39	5.39	2.29	0.00	0.49	205.47	3.91	3.10	3.10
1/1/2012	2012	2012	1	3.80		(0.16)	0.54	5.22	6.42	0.00	0.57		5.38	5.38	1.83	(0.07)	0.38	157.75	2.04	3.62	3.62
1/2/2012	2012	2012	1	3.80		(0.16)	0.54	5.22	6.42	0.00	0.56		5.37	5.37	1.83	(0.07)	0.38	157.75	2.04	3.61	3.61
1/3/2012	2012	2012	1	3.70		(0.20)	1.67	4.37	5.17	0.00	0.55		4.58	4.58	1.81	(0.09)	0.37	153.91	1.99	2.86	2.86
1/4/2012	2012	2012	1	5.50		0.00	0.82	5.93	7.37	0.13	0.53		5.93	5.93	2.18	0.00	0.47	195.44	3.32	3.76	3.76
1/5/2012	2012	2012	1	6.40		0.00	0.77	4.95	5.97	0.02	0.54		5.08	5.08	2.32	0.00	0.50	208.13	4.08	2.77	2.77
1/6/2012	2012	2012	1	6.30		0.00	0.82	4.95	5.97	0.02	0.55		5.09	5.09	2.30	0.00	0.50	206.81	4.00	2.79	2.79
1/7/2012	2012	2012	1	6.60		0.00	0.82	4.95	5.97	0.02	0.54		5.08	5.08	2.35	0.00	0.51	210.71	4.25	2.74	2.74
1/8/2012	2012	2012	1	3.90		(0.12)	0.82	4.95	5.97	0.02	0.48		5.03	5.03	1.86	(0.06)	0.39	161.49	2.10	3.23	3.23
1/9/2012	2012	2012	1	3.90		(0.12)	0.77	5.11	7.08	0.00	1.20		5.87	5.87	1.86	(0.06)	0.39	161.49	2.10	4.07	4.07
1/10/2012	2012	2012	1	3.80		(0.16)	0.69	5.11	7.08	0.00	1.80		6.43	6.43	1.83	(0.07)	0.38	157.75	2.04	4.67	4.67
1/11/2012	2012	2012	1	3.90		(0.12)	0.82	5.00	5.29	0.00	0.63		5.24	5.24	1.86	(0.06)	0.39	161.49	2.10	3.44	3.44
1/12/2012	2012	2012	1	3.40		(0.32)	0.78	4.75	5.71	0.00	0.55		4.93	4.93	1.73	(0.15)	0.34	141.76	1.82	3.35	3.35
1/13/2012	2012	2012	1	3.70		(0.20)	0.81	4.96	6.53	0.00	0.52		5.09	5.09	1.81	(0.09)	0.37	153.91	1.99	3.37	3.37
1/14/2012	2012	2012	1	3.70		(0.20)	0.81	4.96	6.53	0.00	0.53		5.10	5.10	1.81	(0.09)	0.37	153.91	1.99	3.38	3.38
1/15/2012	2012	2012	1	50.00		0.00	0.81	4.96	6.53	0.00	1.60		6.09	6.09	2.60	0.00	0.56	233.51	47.40	3.49	3.49
1/16/2012	2012	2012	1	80.00		0.00	0.78	3.27	5.45	0.00	61.00		59.77		0.00	0.00	0.00	0.00	80.00	59.77	3.27
1/17/2012	2012	2012	1	11.00		0.00	0.67	1.61	8.57	3.98	10.00		7.10	7.10	2.60	0.00	0.56	233.51	8.40	4.50	1.61
1/18/2012	2012	2012	1	6.60		0.00	0.79	4.78	9.81	5.80	11.00		9.28	9.28	2.35	0.00	0.51	210.71	4.25	6.94	4.78
1/19/2012	2012	2012	1	6.10		0.00	0.72	2.62	10.83	6.61	8.80		4.47	4.47	2.27	0.00	0.49	204.11	3.83	2.20	2.20
1/20/2012	2012	2012	1	6.20		0.00	0.75	2.62	10.83	6.61	12.00		7.44	7.44	2.29	0.00	0.49	205.47	3.91	5.16	2.62
1/21/2012	2012	2012	1	226.00		0.00	0.75	2.62	10.83	6.61	306.00		280.86		0.00	0.00	0.00	0.00	226.00	280.86	2.62
1/22/2012	2012	2012	1	10.00		0.00	0.75	2.62	10.83	6.61	23.00		17.67	17.67	2.60	0.00	0.56	233.51	7.40	15.07	2.62
1/23/2012	2012	2012	1	151.00		0.00	0.74	2.51	11.33	8.11	177.00		159.40		0.00	0.00	0.00	0.00	151.00	159.40	2.51
1/24/2012	2012	2012	1	13.00		0.00	0.63	4.23	10.16	7.12	39.00		33.58		0.00	0.00	0.00	0.00	13.00	33.58	4.23
1/25/2012	2012	2012	1	6.50		0.00	0.80	5.99	12.55	9.60	14.00		9.66	9.66	2.33	0.00	0.50	209.43	4.17	7.33	5.99
1/26/2012	2012	2012	1	7.30		0.00	0.74	5.10	10.43	7.96	9.50		6.18	6.18	2.44	0.00	0.53	219.16	4.86	3.74	3.74
1/27/2012	2012	2012	1	5.90		0.00	0.75	5.11	8.58	7.59	9.70		6.71	6.71	2.24	0.00	0.48	201.32	3.66	4.47	4.47
1/28/2012	2012	2012	1	4.60		0.00	0.75	5.11	8.58	7.59	10.00		6.99	6.99	2.01	0.00	0.43	180.46	2.59	4.98	4.98
1/29/2012	2012	2012	1	4.50		0.00	0.75	5.11	8.58	7.59	5.20		5.11	5.11	1.99	0.00	0.43	178.62	2.51	3.12	3.12
1/30/2012	2012	2012	1	8.60		0.00	0.74	5.11	8.58	7.59	7.20		5.11	5.11	2.59	0.00	0.56	232.89	6.01	2.51	2.51
1/31/2012	2012	2012	1	7.00		0.00	0.67	6.23	12.95	11.70	10.00		6.23	6.23	2.40	0.00	0.52	215.64	4.60	3.83	3.83
2/1/2012	2012	2012	2	5.50		0.00	0.00	4.41	8.81	7.42	10.00		6.51	6.51	2.18	0.00	0.47	195.44	3.32	4.33	4.33
2/2/2012	2012	2012	2	4.80		0.00	0.22	4.92	11.20	8.81	9.10		4.92	4.92	2.05	0.00	0.44	184.03	2.75	2.87	2.87
2/3/2012	2012	2012	2	5.80		0.00	0.84	4.92	11.20	8.81	8.70		4.92	4.92	2.23	0.00	0.48	199.89	3.57	2.70	2.70
2/4/2012	2012	2012	2	6.10		0.00	0.84	4.92	11.20	8.81	8.60		4.92	4.92	2.27	0.00	0.49	204.11	3.83	2.65	2.65
2/5/2012	2012	2012	2	4.60		0.00	0.84	4.92	11.20	8.81	8.40		4.92	4.92	2.01	0.00	0.43	180.46	2.59	2.91	2.91
2/6/2012	2012	2012	2	4.70		0.00	0.84	4.75	8.20	5.76	7.10		5.66	5.66	2.03	0.00	0.44	182.26	2.67	3.63	3.63
2/7/2012	2012	2012	2	4.80		0.00	0.36	4.75	8.20	5.76	6.40		5.01	5.01	2.05	0.00	0.44	184.03	2.75	2.96	2.96
2/8/2012	2012	2012	2	4.60		0.00	0.75	4.16	10.57	7.17	6.30		4.16	4.16	2.01	0.00	0.43	180.46	2.59	2.15	2.15
2/9/2012	2012	2012	2	4.40		0.00	0.76	5.22	8.91	6.16	6.40		5.22	5.22	1.97	0.00	0.43	176.74	2.43	3.25	3.25
2/10/2012	2012	2012	2	4.40		0.00	0.74	4.91	9.18	6.38	6.40		4.91	4.91	1.97	0.00	0.43	176.74	2.43	2.94	2.94
2/11/2012	2012	2012	2	4.70		0.00	0.74	4.91	9.18	6.38	6.40		4.91	4.91	2.03	0.00	0.44	182.26	2.67	2.88	2.88
2/12/2012	2012	2012	2	4.20		(0.02)	0.74	4.91	9.18	6.38	6.20		4.91	4.91	1.92	(0.01)	0.41	172.10	2.28	2.99	2.99
2/13/2012	2012	2012	2	4.00		(0.09)	0.82	4.06	9.26	5.66	6.20		4.28	4.28	1.88	(0.04)	0.40	165.12	2.16	2.44	2.44
2/14/2012	2012	2012	2	4.30		0.00	0.80	4.83	8.26	5.16	6.90		6.12	6.12	1.95	0.00	0.42	174.81	2.35	4.17	4.17
2/15/2012	2012	2012	2	130.00		0.00	0.82	2.77	8.97	5.18	87.00		78.67		0.00	0.00	0.00	0.00	130.00	78.67	2.77
2/16/2012	2012	2012	2	31.00		0.00	1.29	5.11	7.73	4.12	39.00		37.19		0.00	0.00	0.00	0.00	31.00	37.19	5.11
2/17/2012	2012	2012	2	4.80		0.00	0.72	5.11	7.73	4.12	7.50		7.90	7.90	2.05	0.00	0.44	184.03	2.75	5.85	5.11
2/18/2012	2012	2012	2	4.00		(0.09)	0.72	5.11	7.73	4.12	4.60		5.20	5.20	1.88	(0.04)	0.40	165.12	2.16	3.36	3.36
2/19/2012	2012	2012	2	3.70		(0.20)	0.72	5.11	7.73	4.12	4.40		5.11	5.11	1.81	(0.09)	0.37	153.91	1.99	3.40	3.40
2/20/2012	2012	2012	2	5.00		0.00	0.72	5.11	7.73	4.12	4.10		5.11	5.11	2.09	0.00	0.45	187.45	2.91	3.02	3.02
2/21/2012	2012	2012	2	3.60		(0.24)	0.62	4.45	6.26	3.21	4.00		4.87	4.87	1.78	(0.11)	0.36	149.97	1.93	3.20	3.20
2/22/2012	2012	2012	2	3.80		(0.16)	0.81	5.56	7.45	3.98	4.20		5.56	5.56	1.83	(0.07)	0.38	157.75	2.04	3.80	3.80
2/23/2012	2012	2012	2	3.70		(0.20)	0.82	5.08	6.87	3.53	4.20		5.35	5.35	1.81	(0.09)	0.37	153.91	1.99	3.63	3.63
2/24/2012	2012	2012	2	4.50		0.00	0.84	5.53	7.45	3.97	4.20		5.53	5.53	1.99	0.00	0.43	178.62	2.51	3.54	3.54
2/25/2012	2012	2012	2	4.50		0.00	0.84	5.53	7.45	3.97	4.10		5.53	5.53	1.99	0.00	0.43	178.62	2.51	3.54	3.54
2/26/2012	2012	2012	2	4.80		0.00	0.84	5.53	7.45	3.97	4.30		5.53	5.53	2.05	0.00	0.44	184.03	2.75	3.48	3.48
2/27/2012	2012	2012	2	104.00		0.00	0.91	2.47	7.77	4.44	88.00		80.01		0.00	0.00	0.00	0.00	104.00	80.01	2.47
2/28/2012	2012	2012	2	46.00		0.00	0.75	3.61	6.22	3.92	67.00		62.03		0.00	0.00	0.00	0.00	46.00	62.03	3.61
2/29/2012	2012	2012	2	7.90		0.00	0.53	5.08	7.73	3.95	8.80		9.24	9.24	2.51	0.00	0.54	225.78	5.39	6.72	5.08
3/1/2012	2012	2012	3	6.90		0.00	1.24	5.16	6.81	3.40	4.90		6.19	6.19	2.39	0.00	0.52	214.44	4.51	3.81	3.81
3/2/2012	2012	2012	3	7.60		0.00	0.85	5.16	6.81	3.40	6.70		7.87	7.87	2.48	0.00	0.54	222.53	5.12	5.39	5.16
3/3/2012	2012	2012	3	5.60		0.00	0.85	5.16	6.81	3.40	7.40		8.52	8.52	2.19	0.00	0.47	196.95	3.41	6.33	5.16
3/4/2012	2012	2012	3	5.30		0.00	0.85	5.16	6.81	3.40	7.80		8.89	8.89	2.14	0.00	0.46	192.33	3.16	6.75	5.16
3/5/2012	2012	2012	3	4.90		0.00	0.63	5.79	5.96	2.69	6.70		9.12	9.12	2.07	0.00	0.45	185.76	2.83	7.05	5.79
3/6/2012	2012	2012	3	4.80		0.00	0.46	5.55	6.13	2.78	3.10		5.55	5.55	2.05	0.00	0.44	184.03	2.75	3.50	3.50
3/7/2012	2012	2012	3	4.30		0.00	0.64	5.03	4.23	1.69	2.70		5.62	5.62	1.95	0.00	0.42	174.81	2.35	3.67	3.67
3/8/2012	2012	2012	3	4.10		(0.05)	0.58	5.03	4.23	1.69	1.90		5.03	5.03	1.90	(0.02)	0.41	168.66	2.22	3.15	3.15
3/9/2012	2012	2012	3	3.80		(0.16)	0.64	4.80	6.71	3.45	2.40		4.80	4.80	1.83	(0.07)	0.38	157.75	2.04	3.04	3.04
3/10/2012	2012	2012	3	4.00		(0.09)	0.64	4.80	6.71	3.45	3.90		4.88	4.88	1.88	(0.04)	0.40	165.12	2.16	3.04	3.04

										Existing Condition								With Project Diversion			
													0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
						Est. Loss,		San Joaquin Marsh Operations					**Adjusted	**Adjusted		Est. Loss,	39.7 ppb	16.5 ppm		**Adjusted	using SDC at Can
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	San Diego Cr (SDC) at Campus (cfs)	San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	San Diego Cr (SDC) at Campus (cfs)	SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
3/11/2012	2012	2012	3	3.90		(0.12)	0.64	4.80	6.71	3.45	4.80		5.72	5.72	1.86	(0.06)	0.39	161.49	2.10	3.92	3.92
3/12/2012	2012	2012	3	4.40		0.00	0.63	4.82	8.56	4.98	5.60		5.06	5.06	1.97	0.00	0.43	176.74	2.43	3.10	3.10
3/13/2012	2012	2012	3	6.10		0.00	0.57	6.31	11.08	7.46	9.50		7.77	7.77	2.27	0.00	0.49	204.11	3.83	5.49	5.49
3/14/2012	2012	2012	3	4.50		0.00	0.69	3.64	11.87	10.56	12.00		4.73	4.73	1.99	0.00	0.43	178.62	2.51	2.74	2.74
3/15/2012	2012	2012	3	6.30		0.00	0.25	3.62	10.89	9.30	15.00		8.68	8.68	2.30	0.00	0.50	206.81	4.00	6.37	3.62
3/16/2012	2012	2012	3	4.40		0.00	0.67	0.48	10.90	10.08	11.00		1.30	1.30	1.97	0.00	0.43	176.74	2.43	0.00	0.00
3/17/2012	2012	2012	3	247.00		0.00	0.67	0.48	10.90	10.08	424.00		385.39		0.00	0.00	0.00	0.00	247.00	385.39	0.48
3/18/2012	2012	2012	3	125.00		0.00	0.67	0.48	10.90	10.08	212.00		188.23		0.00	0.00	0.00	0.00	125.00	188.23	0.48
3/19/2012	2012	2012	3	4.50		0.00	0.63	7.89	12.06	9.50	21.00		18.03	18.03	1.99	0.00	0.43	178.62	2.51	16.05	7.89
3/20/2012	2012	2012	3	4.90		0.00	0.61	7.89	12.06	9.50	13.00		10.59	10.59	2.07	0.00	0.45	185.76	2.83	8.53	7.89
3/21/2012	2012	2012	3	4.50		0.00	0.65	7.01	8.51	6.37	9.20		9.15	9.15	1.99	0.00	0.43	178.62	2.51	7.16	7.01
3/22/2012	2012	2012	3	4.30		0.00	0.64	6.72	7.93	5.07	7.50		8.51	8.51	1.95	0.00	0.42	174.81	2.35	6.56	6.56
3/23/2012	2012	2012	3	6.50		0.00	0.55	5.80	6.54	4.01	5.60		6.87	6.87	2.33	0.00	0.50	209.43	4.17	4.54	4.54
3/24/2012	2012	2012	3	5.20		0.00	0.55	5.80	6.55	4.01	4.90		6.22	6.22	2.12	0.00	0.46	190.74	3.08	4.10	4.10
3/25/2012	2012	2012	3	226.00		0.00	0.55	5.80	6.55	4.01	309.00		289.03		0.00	0.00	0.00	0.00	226.00	289.03	5.80
3/26/2012	2012	2012	3	151.00		0.00	0.75	6.96	8.04	5.80	164.00		153.60		0.00	0.00	0.00	0.00	151.00	153.60	6.96
3/27/2012	2012	2012	3	6.20		0.00	0.56	6.96	8.04	5.80	17.00		16.89	16.89	2.29	0.00	0.49	205.47	3.91	14.60	6.96
3/28/2012	2012	2012	3	4.20		(0.02)	0.54	8.89	10.81	8.37	11.00		10.71	10.71	1.92	(0.01)	0.41	172.10	2.28	8.80	8.80
3/29/2012	2012	2012	3	4.10		(0.05)	0.55	6.53	8.69	6.39	9.30		8.78	8.78	1.90	(0.02)	0.41	168.66	2.22	6.90	6.53
3/30/2012	2012	2012	3	4.40		0.00	0.56	7.54	9.96	7.87	8.70		7.78	7.78	1.97	0.00	0.43	176.74	2.43	5.81	5.81
3/31/2012	2012	2012	3	8.30		0.00	0.56	7.54	9.96	7.87	9.10		8.15	8.15	2.56	0.00	0.55	229.92	5.74	5.59	5.59
4/1/2012	2012	2012	4	35.00		0.00	0.56	7.54	9.96	7.87	26.00		23.87		0.00	0.00	0.00	0.00	35.00	23.87	7.54
4/2/2012	2012	2012	4	4.90		0.00	0.59	7.31	9.51	6.93	10.00		9.65	9.65	2.07	0.00	0.45	185.76	2.83	7.58	7.31
4/3/2012	2012	2012	4	5.70		0.00	0.46	7.96	10.97	7.73	9.10		8.68	8.68	2.21	0.00	0.48	198.43	3.49	6.47	6.47
4/4/2012	2012	2012	4	6.70		0.00	0.53	7.18	10.56	7.42	10.00		9.08	9.08	2.36	0.00	0.51	211.97	4.34	6.72	6.72
4/5/2012	2012	2012	4	6.80		0.00	0.56	7.70	11.48	8.43	11.00		9.55	9.55	2.37	0.00	0.51	213.21	4.43	7.18	7.18
4/6/2012	2012	2012	4	5.00		0.00	0.56	7.70	11.48	8.43	12.00		10.48	10.48	2.09	0.00	0.45	187.45	2.91	8.40	7.70
4/7/2012	2012	2012	4	4.30		0.00	0.56	7.70	11.48	8.43	12.00		10.48	10.48	1.95	0.00	0.42	174.81	2.35	8.54	7.70
4/8/2012	2012	2012	4	5.60		0.00	0.56	7.70	11.48	8.43	13.00		11.41	11.41	2.19	0.00	0.47	196.95	3.41	9.22	7.70
4/9/2012	2012	2012	4	4.20		(0.02)	0.54	5.58	8.90	6.77	13.00		10.98	10.98	1.92	(0.01)	0.41	172.10	2.28	9.06	5.58
4/10/2012	2012	2012	4	4.80		0.00	0.55	5.58	8.90	6.77	11.00		9.12	9.12	2.05	0.00	0.44	184.03	2.75	7.07	5.58
4/11/2012	2012	2012	4	188.00		0.00	0.54	5.60	10.99	8.25	238.00		218.88		0.00	0.00	0.00	0.00	188.00	218.88	5.60
4/12/2012	2012	2012	4	8.20		0.00	0.56	6.84	11.65	8.75	21.00		17.75	17.75	2.55	0.00	0.55	228.90	5.65	15.21	6.84
4/13/2012	2012	2012	4	300.00		0.00	0.66	6.84	11.65	8.75	397.00		367.43		0.00	0.00	0.00	0.00	300.00	367.43	6.84
4/14/2012	2012	2012	4	62.00		0.00	0.66	6.84	11.65	8.75	81.00		73.55		0.00	0.00	0.00	0.00	62.00	73.55	6.84
4/15/2012	2012	2012	4	7.30		0.00	0.66	6.84	11.65	8.75	19.00		15.89	15.89	2.44	0.00	0.53	219.16	4.86	13.45	6.84
4/16/2012	2012	2012	4	7.30		0.00	0.62	7.14	9.96	8.12	13.00		11.18	11.18	2.44	0.00	0.53	219.16	4.86	8.74	7.14
4/17/2012	2012	2012	4	7.60		0.00	0.52	7.27	10.53	8.08	10.00		8.54	8.54	2.48	0.00	0.54	222.53	5.12	6.07	6.07
4/18/2012	2012	2012	4	7.90		0.00	0.00	6.97	9.23	7.01	9.10		8.42	8.42	2.51	0.00	0.54	225.78	5.39	5.91	5.91
4/19/2012	2012	2012	4	7.90		0.00	1.37	7.28	9.35	6.61	8.60		8.63	8.63	2.51	0.00	0.54	225.78	5.39	6.11	6.11
4/20/2012	2012	2012	4	6.70		0.00	0.64	7.72	9.36	7.07	7.80		7.86	7.86	2.36	0.00	0.51	211.97	4.34	5.50	5.50
4/21/2012	2012	2012	4	6.60		0.00	0.64	7.72	9.36	7.07	7.90		7.95	7.95	2.35	0.00	0.51	210.71	4.25	5.61	5.61
4/22/2012	2012	2012	4	6.50		0.00	0.64	7.72	9.36	7.07	7.90		7.95	7.95	2.33	0.00	0.50	209.43	4.17	5.62	5.62
4/23/2012	2012	2012	4	19.00		0.00	0.56	7.94	9.69	7.38	8.80		8.70	8.70	2.60	0.00	0.56	233.51	16.40	6.10	6.10
4/24/2012	2012	2012	4	12.00		0.00	0.55	7.24	8.32	6.58	9.40		9.35	9.35	2.60	0.00	0.56	233.51	9.40	6.75	6.75
4/25/2012	2012	2012	4	6.80		0.00	0.54	7.13	8.90	6.59	7.60		7.57	7.57	2.37	0.00	0.51	213.21	4.43	5.20	5.20
4/26/2012	2012	2012	4	85.00		0.00	0.47	7.54	9.24	6.74	68.00		63.98		0.00	0.00	0.00	0.00	85.00	63.98	7.54
4/27/2012	2012	2012	4	7.10		0.00	0.39	7.45	9.30	6.76	12.00		11.80	11.80	2.41	0.00	0.52	216.83	4.69	9.39	7.45
4/28/2012	2012	2012	4	6.70		0.00	0.39	7.45	9.30	6.76	7.60		7.71	7.71	2.36	0.00	0.51	211.97	4.34	5.35	5.35
4/29/2012	2012	2012	4	7.60		0.00	0.39	7.45	9.30	6.76	7.00		7.45	7.45	2.48	0.00	0.54	222.53	5.12	4.97	4.97
4/30/2012	2012	2012	4	12.00		0.00	0.33	7.82	10.00	7.67	7.30		7.82	7.82	2.60	0.00	0.56	233.51	9.40	5.22	5.22
5/1/2012	2012	2012	5	38.00		0.00	0.19	7.11	9.11	7.01	9.00		8.46	8.46	2.60	0.00	0.56	233.51	35.40	5.86	5.86
5/2/2012	2012	2012	5	19.00		0.00	0.48	7.11	9.11	7.01	11.00		10.32	10.32	2.60	0.00	0.56	233.51	16.40	7.72	7.11
5/3/2012	2012	2012	5	7.60		0.00	0.46	7.11	9.79	7.33	7.70		7.11	7.11	2.48	0.00	0.54	222.53	5.12	4.63	4.63
5/4/2012	2012	2012	5	6.80		0.00	0.00	7.42	10.32	7.74	7.20		7.42	7.42	2.37	0.00	0.51	213.21	4.43	5.05	5.05
5/5/2012	2012	2012	5	6.40		0.00	0.00	7.42	10.32	7.74	7.60		7.42	7.42	2.32	0.00	0.50	208.13	4.08	5.11	5.11
5/6/2012	2012	2012	5	6.10		0.00	1.36	7.42	10.32	7.74	7.70		7.42	7.42	2.27	0.00	0.49	204.11	3.83	5.15	5.15
5/7/2012	2012	2012	5	6.00		0.00	0.47	7.61	10.37	7.98	7.60		7.61	7.61	2.26	0.00	0.49	202.73	3.74	5.35	5.35
5/8/2012	2012	2012	5	5.70		0.00	0.50	7.61	10.37	7.98	7.40		7.61	7.61	2.21	0.00	0.48	198.43	3.49	5.40	5.40
5/9/2012	2012	2012	5	6.00		0.00	0.55	7.35	10.37	7.98	7.40		7.35	7.35	2.26	0.00	0.49	202.73	3.74	5.10	5.10
5/10/2012	2012	2012	5	5.70		0.00	0.53	7.10	9.42	7.45	7.40		7.10	7.10	2.21	0.00	0.48	198.43	3.49	4.89	4.89
5/11/2012	2012	2012	5	5.40		0.00	0.00	6.97	10.09	7.62	6.90		6.97	6.97	2.16	0.00	0.47	193.90	3.24	4.82	4.82
5/12/2012	2012	2012	5	5.40		0.00	0.00	6.97	10.09	7.62	7.00		6.97	6.97	2.16	0.00	0.47	193.90	3.24	4.82	4.82
5/13/2012	2012	2012	5	5.40		0.00	1.62	6.97	10.09	7.62	7.00		6.97	6.97	2.16	0.00	0.47	193.90	3.24	4.82	4.82
5/15/2012	2012	2012	5	5.40		0.00	0.50	7.46	9.93	7.05	6.60		7.46	7.46	2.16	0.00	0.47	193.90	3.24	5.30	5.30
5/16/2012	2012	2012	5	5.30		0.00	0.54	7.46	9.94	7.05	6.70		7.46	7.46	2.14	0.00	0.46	192.33	3.16	5.32	5.32
5/17/2012	2012	2012	5	5.30		0.00	0.46	8.10	8.65	7.66	7.00		8.10	8.10	2.14	0.00	0.46	192.33	3.16	5.96	5.96
5/18/2012	2012	2012	5	5.30		0.00	0.00	7.29	9.15	6.79	6.60		7.29	7.29	2.14	0.00	0.46	192.33	3.16	5.14	5.14
5/19/2012	2012	2012	5	5.60		0.00	0.00	7.29	9.15	6.79	6.40		7.29	7.29	2.19	0.00	0.47	196.95	3.41	5.09	5.09
5/20/2012	2012	2012	5	6.30		0.00	1.58	7.29	9.15	6.79	6.40		7.29	7.29	2.30	0.00	0.50	206.81	4.00	4.98	4.98
5/21/2012	2012	2012	5	6.30		0.00	0.48	5.83	7.37	5.66	5.80		5.83	5.83	2.30	0.00	0.50	206.81	4.00	3.52	3.52

									Existing Condition									With Project Diversion			
													0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
								San Joaquin Marsh Operations									39.7 ppb	16.5 ppm			
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW Ba	Project - Diversi	Project - Diversi	Project - PCW Ba	Project - SDC Ca	Project - SJM In
5/22/2012	2012	2012	5	6.20		0.00	0.51	7.44	8.33	6.30	5.70		7.44	7.44	2.29	0.00	0.49	205.47	3.91	5.15	5.15
5/23/2012	2012	2012	5	7.00		0.00	0.47	7.44	8.33	6.30	5.80		7.44	7.44	2.40	0.00	0.52	215.64	4.60	5.04	5.04
5/24/2012	2012	2012	5	6.40		0.00	0.56	6.12	8.68	6.24	5.60		6.12	6.12	2.32	0.00	0.50	208.13	4.08	3.81	3.81
5/25/2012	2012	2012	5	6.60		0.00	0.00	7.13	8.45	6.22	5.70		7.13	7.13	2.35	0.00	0.51	210.71	4.25	4.78	4.78
5/26/2012	2012	2012	5	6.00		0.00	0.00	7.13	8.45	6.22	5.70		7.13	7.13	2.26	0.00	0.49	202.73	3.74	4.87	4.87
5/27/2012	2012	2012	5	6.00		0.00	0.00	7.13	8.45	6.22	5.70		7.13	7.13	2.26	0.00	0.49	202.73	3.74	4.87	4.87
5/28/2012	2012	2012	5	6.20		0.00	2.03	7.13	8.45	6.22	5.80		7.13	7.13	2.29	0.00	0.49	205.47	3.91	4.84	4.84
5/29/2012	2012	2012	5	6.10		0.00	0.50	7.13	8.45	6.22	4.20		7.13	7.13	2.27	0.00	0.49	204.11	3.83	4.86	4.86
5/30/2012	2012	2012	5	5.70		0.00	0.49	7.37	8.47	6.19	5.50		7.37	7.37	2.21	0.00	0.48	198.43	3.49	5.16	5.16
5/31/2012	2012	2012	5	5.70		0.00	0.42	7.26	8.66	6.35	5.50		7.26	7.26	2.21	0.00	0.48	198.43	3.49	5.05	5.05
6/1/2012	2012	2012	6	4.90		0.00	0.47	7.26	8.66	6.35	5.70		7.26	7.26	2.07	0.00	0.45	185.76	2.83	5.19	5.19
6/2/2012	2012	2012	6	4.30		0.00	0.47	7.26	8.66	6.35	5.50		7.26	7.26	1.95	0.00	0.42	174.81	2.35	5.32	5.32
6/3/2012	2012	2012	6	3.90		(0.12)	0.47	7.26	8.66	6.35	5.40		7.26	7.26	1.86	(0.06)	0.39	161.49	2.10	5.46	5.46
6/4/2012	2012	2012	6	4.90		0.00	0.52	4.84	6.07	4.78	4.10		4.84	4.84	2.07	0.00	0.45	185.76	2.83	2.77	2.77
6/5/2012	2012	2012	6	5.30		0.00	0.50	4.84	6.07	4.78	4.50		4.84	4.84	2.14	0.00	0.46	192.33	3.16	2.70	2.70
6/6/2012	2012	2012	6	4.90		0.00	0.52	5.32	7.93	5.60	5.00		5.32	5.32	2.07	0.00	0.45	185.76	2.83	3.25	3.25
6/7/2012	2012	2012	6	5.20		0.00	0.49	6.37	9.28	7.11	6.20		6.37	6.37	2.12	0.00	0.46	190.74	3.08	4.25	4.25
6/8/2012	2012	2012	6	4.90		0.00	0.53	6.37	9.28	7.11	6.40		6.37	6.37	2.07	0.00	0.45	185.76	2.83	4.30	4.30
6/9/2012	2012	2012	6	5.30		0.00	0.53	6.37	9.28	7.11	8.20		6.94	6.94	2.14	0.00	0.46	192.33	3.16	4.80	4.80
6/10/2012	2012	2012	6	5.20		0.00	0.53	6.37	9.28	7.11	8.10		6.85	6.85	2.12	0.00	0.46	190.74	3.08	4.72	4.72
6/11/2012	2012	2012	6	5.30		0.00	0.60	5.09	7.40	5.56	5.80		5.09	5.09	2.14	0.00	0.46	192.33	3.16	2.95	2.95
6/12/2012	2012	2012	6	5.90		0.00	0.51	5.65	8.06	6.34	6.00		5.65	5.65	2.24	0.00	0.48	201.32	3.66	3.41	3.41
6/13/2012	2012	2012	6	5.90		0.00	0.55	5.48	7.95	5.85	6.80		5.98	5.98	2.24	0.00	0.48	201.32	3.66	3.74	3.74
6/14/2012	2012	2012	6	5.10		0.00	0.56	5.78	7.59	5.45	6.20		6.08	6.08	2.11	0.00	0.46	189.11	2.99	3.97	3.97
6/15/2012	2012	2012	6	5.50		0.00	0.53	6.86	8.21	5.90	5.90		6.86	6.86	2.18	0.00	0.47	195.44	3.32	4.68	4.68
6/16/2012	2012	2012	6	4.70		0.00	0.53	6.86	8.21	5.90	5.70		6.86	6.86	2.03	0.00	0.44	182.26	2.67	4.83	4.83
6/17/2012	2012	2012	6	4.60		0.00	0.53	6.86	8.21	5.90	5.80		6.86	6.86	2.01	0.00	0.43	180.46	2.59	4.85	4.85
6/18/2012	2012	2012	6	4.60		0.00	0.53	4.92	5.29	4.04	4.30		4.92	4.92	2.01	0.00	0.43	180.46	2.59	2.92	2.92
6/19/2012	2012	2012	6	5.30		0.00	0.51	5.70	7.20	4.78	5.10		5.70	5.70	2.14	0.00	0.46	192.33	3.16	3.55	3.55
6/20/2012	2012	2012	6	5.10		0.00	0.54	5.57	7.13	1.75	6.00		9.14	9.14	2.11	0.00	0.46	189.11	2.99	7.03	5.57
6/21/2012	2012	2012	6	5.00		0.00	0.52	5.57	7.13	1.75	6.20		9.32	9.32	2.09	0.00	0.45	187.45	2.91	7.24	5.57
6/22/2012	2012	2012	6	5.10		0.00	0.54	7.17	9.16	6.86	6.20		7.17	7.17	2.11	0.00	0.46	189.11	2.99	5.06	5.06
6/23/2012	2012	2012	6	4.80		0.00	0.54	7.17	9.16	6.86	7.30		7.17	7.17	2.05	0.00	0.44	184.03	2.75	5.12	5.12
6/24/2012	2012	2012	6	4.90		0.00	0.54	7.20	9.16	6.86	7.50		7.28	7.28	2.07	0.00	0.45	185.76	2.83	5.22	5.22
6/25/2012	2012	2012	6	4.80		0.00	0.52	5.29	6.14	4.28	5.50		6.05	6.05	2.05	0.00	0.44	184.03	2.75	4.00	4.00
6/26/2012	2012	2012	6	4.70		0.00	0.34	5.69	6.75	4.80	6.00		6.40	6.40	2.03	0.00	0.44	182.26	2.67	4.37	4.37
6/27/2012	2012	2012	6	4.00		(0.09)	0.51	5.41	6.07	4.52	7.40		7.71	7.71	1.88	(0.04)	0.40	165.12	2.16	5.87	5.41
6/28/2012	2012	2012	6	4.20		(0.02)	0.54	5.00	5.79	4.21	6.40		6.68	6.68	1.92	(0.01)	0.41	172.10	2.28	4.77	4.77
6/29/2012	2012	2012	6	4.80		0.00	0.57	7.34	8.84	6.47	5.10		7.34	7.34	2.05	0.00	0.44	184.03	2.75	5.29	5.29
6/30/2012	2012	2012	6	5.40		0.00	0.57	7.34	8.84	6.47	5.40		7.34	7.34	2.16	0.00	0.47	193.90	3.24	5.18	5.18
7/1/2012	2012	2012	7	8.50		0.00	1.72	7.34	8.84	6.47	5.30		7.34	7.34	2.58	0.00	0.56	231.91	5.92	4.76	4.76
7/2/2012	2012	2012	7	12.00		0.00	0.49	5.03	6.60	4.78	4.20		5.03	5.03	2.60	0.00	0.56	233.51	9.40	2.43	2.43
7/3/2012	2012	2012	7	12.00		0.00	0.00	5.61	7.04	5.17	4.40		5.61	5.61	2.60	0.00	0.56	233.51	9.40	3.01	3.01
7/4/2012	2012	2012	7	6.30		0.00	1.16	5.61	7.04	5.17	4.70		5.61	5.61	2.30	0.00	0.50	206.81	4.00	3.31	3.31
7/5/2012	2012	2012	7	4.70		0.00	0.37	10.17	11.41	8.39	4.30		10.17	10.17	2.03	0.00	0.44	182.26	2.67	8.14	8.14
7/6/2012	2012	2012	7	8.00		0.00	0.00	10.17	11.41	8.39	4.90		10.17	10.17	2.53	0.00	0.55	226.83	5.47	7.64	7.64
7/7/2012	2012	2012	7	7.10		0.00	0.00	10.17	11.41	8.39	5.00		10.17	10.17	2.41	0.00	0.52	216.83	4.69	7.75	7.75
7/8/2012	2012	2012	7	7.00		0.00	1.71	5.41	6.77	5.24	4.90		5.41	5.41	2.40	0.00	0.52	215.64	4.60	3.01	3.01
7/9/2012	2012	2012	7	11.00		0.00	0.55	5.00	6.32	4.83	3.50		5.00	5.00	2.60	0.00	0.56	233.51	8.40	2.40	2.40
7/10/2012	2012	2012	7	9.10		0.00	0.56	6.76	7.16	5.19	3.50		6.76	6.76	2.60	0.00	0.56	233.51	6.50	4.16	4.16
7/11/2012	2012	2012	7	11.00		0.00	0.52	2.93	3.06	2.14	4.10		4.54	4.54	2.60	0.00	0.56	233.51	8.40	1.94	1.94
7/12/2012	2012	2012	7	11.00		0.00	0.54	2.93	3.06	2.14	4.70		5.10	5.10	2.60	0.00	0.56	233.51	8.40	2.50	2.50
7/13/2012	2012	2012	7	115.00		0.00	0.00	8.44	9.15	6.80	43.00		41.51		0.00	0.00	0.00	0.00	115.00	41.51	8.44
7/14/2012	2012	2012	7	10.00		0.00	0.00	8.44	9.15	6.80	11.00		11.75	11.75	2.60	0.00	0.56	233.51	7.40	9.15	8.44
7/15/2012	2012	2012	7	6.30		0.00	1.36	8.44	9.15	6.80	8.20		9.15	9.15	2.30	0.00	0.50	206.81	4.00	6.85	6.85
7/16/2012	2012	2012	7	7.90		0.00	0.27	3.89	7.71	5.73	6.20		4.06	4.06	2.51	0.00	0.54	225.78	5.39	1.54	1.54
7/17/2012	2012	2012	7	7.80		0.00	0.30	5.21	6.95	5.26	6.10		5.63	5.63	2.50	0.00	0.54	224.71	5.30	3.13	3.13
7/18/2012	2012	2012	7	6.60		0.00	0.33	5.21	6.95	5.26	7.10		6.56	6.56	2.35	0.00	0.51	210.71	4.25	4.21	4.21
7/19/2012	2012	2012	7	6.20		0.00	0.22	6.48	8.98	7.13	6.90		6.48	6.48	2.29	0.00	0.49	205.47	3.91	4.19	4.19
7/20/2012	2012	2012	7	6.40		0.00	0.00	6.48	8.98	7.13	6.60		6.48	6.48	2.32	0.00	0.50	208.13	4.08	4.16	4.16
7/21/2012	2012	2012	7	5.30		0.00	0.00	6.48	8.98	7.13	7.90		6.74	6.74	2.14	0.00	0.46	192.33	3.16	4.60	4.60
7/22/2012	2012	2012	7	4.40		0.00	0.84	6.48	8.98	7.13	7.90		6.74	6.74	1.97	0.00	0.43	176.74	2.43	4.77	4.77
7/23/2012	2012	2012	7	5.00		0.00	0.00	6.48	8.98	7.13	6.50		6.48	6.48	2.09	0.00	0.45	187.45	2.91	4.39	4.39
7/24/2012	2012	2012	7	5.30		0.00	0.29	6.39	7.03	5.15	6.50		7.20	7.20	2.14	0.00	0.46	192.33	3.16	5.06	5.06
7/25/2012	2012	2012	7	5.10		0.00	0.29	6.39	7.03	5.15	6.00		6.74	6.74	2.11	0.00	0.46	189.11	2.99	4.63	4.63
7/26/2012	2012	2012	7	4.00		(0.09)	0.30	5.04	5.30	4.37	6.00		6.20	6.20	1.88	(0.04)	0.40	165.12	2.16	4.37	4.37
7/27/2012	2012	2012	7	5.20		0.00	0.00	6.86	8.38	5.87	5.60		6.86	6.86	2.12	0.00	0.46	190.74	3.08	4.73	4.73
7/28/2012	2012	2012	7	4.40		0.00	0.00	6.86	8.38	5.87	6.00		6.86	6.86	1.97	0.00	0.43	176.74	2.43	4.89	4.89
7/29/2012	2012	2012	7	4.80		0.00	0.84	6.86	6.83	5.87	5.90		6.86	6.86	2.05	0.00	0.44	184.03	2.75	4.81	4.81
7/30/2012	2012	2012	7	6.20		0.00	0.07	5.53	6.10	4.33	4.10		5.53	5.53	2.29	0.00	0.49	205.47	3.91	3.24	3.24
7/31/2012	2012	2012	7	5.90		0.00	0.22	5.53	6.10	4.33	3.90		5.53	5.53	2.24	0.00	0.48	201.32	3.66	3.29	3.29

									Existing Condition									With Project Diversion			
									San Joaquin Marsh Operations				0.93	20.00 cfs		PROJ. Div	39.7 ppb / 39.7 ppb	16.5 ppm / 16.5 ppm			
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW Ba	Project - Diversi	Project - Diversi	Project - PCW Ba	Project - SDC Ca	Project - SJM In
8/1/2012	2012	2012	8	9.40		0.00	0.29	6.42	7.30	5.15	4.70		6.42	6.42	2.60	0.00	0.56	233.51	6.80	3.82	3.82
8/2/2012	2012	2012	8	5.60		0.00	0.27	6.42	7.30	5.15	5.80		6.57	6.57	2.19	0.00	0.47	196.95	3.41	4.38	4.38
8/3/2012	2012	2012	8	4.60		0.00	0.26	6.42	7.30	5.15	5.40		6.42	6.42	2.01	0.00	0.43	180.46	2.59	4.41	4.41
8/4/2012	2012	2012	8	4.80		0.00	0.26	6.42	7.30	5.15	6.20		6.94	6.94	2.05	0.00	0.44	184.03	2.75	4.89	4.89
8/5/2012	2012	2012	8	4.40		0.00	0.26	6.42	7.30	5.15	5.90		6.66	6.66	1.97	0.00	0.43	176.74	2.43	4.70	4.70
8/6/2012	2012	2012	8	4.80		0.00	0.30	5.66	6.10	4.51	4.20		5.66	5.66	2.05	0.00	0.44	184.03	2.75	3.61	3.61
8/7/2012	2012	2012	8	4.80		0.00	0.30	7.25	6.27	4.59	3.40		7.25	7.25	2.05	0.00	0.44	184.03	2.75	5.20	5.20
8/8/2012	2012	2012	8	4.90		0.00	0.00	5.86	6.42	4.79	4.90		5.86	5.86	2.07	0.00	0.45	185.76	2.83	3.79	3.79
8/9/2012	2012	2012	8	4.10		(0.05)	0.00	5.86	6.42	4.79	5.10		5.86	5.86	1.90	(0.02)	0.41	168.66	2.22	3.98	3.98
8/10/2012	2012	2012	8	4.50		0.00	0.00	7.67	8.76	6.91	4.90		7.67	7.67	1.99	0.00	0.43	178.62	2.51	5.68	5.68
8/11/2012	2012	2012	8	3.60		(0.24)	0.20	7.67	8.76	6.91	6.80		7.67	7.67	1.78	(0.11)	0.36	149.97	1.93	6.00	6.00
8/12/2012	2012	2012	8	3.20		(0.41)	0.20	7.67	8.76	6.91	7.50		7.68	7.68	1.67	(0.19)	0.32	133.09	1.72	6.20	6.20
8/13/2012	2012	2012	8	4.60		0.00	0.20	5.20	6.23	4.73	5.50		5.55	5.55	2.01	0.00	0.43	180.46	2.59	3.54	3.54
8/14/2012	2012	2012	8	4.80		0.00	0.24	5.61	6.87	5.06	5.10		5.61	5.61	2.05	0.00	0.44	184.03	2.75	3.56	3.56
8/15/2012	2012	2012	8	3.10		(0.45)	0.31	6.09	7.40	5.49	5.70		6.09	6.09	1.64	(0.21)	0.31	128.59	1.67	4.66	4.66
8/16/2012	2012	2012	8	2.70		(0.65)	0.30	6.69	7.99	6.37	5.80		6.69	6.69	1.51	(0.29)	0.26	109.42	1.48	5.47	5.47
8/17/2012	2012	2012	8	3.00		(0.50)	0.30	6.69	7.99	6.37	5.80		6.69	6.69	1.61	(0.23)	0.30	123.97	1.62	5.31	5.31
8/18/2012	2012	2012	8	3.10		(0.45)	0.30	6.69	7.99	6.37	7.00		6.81	6.81	1.64	(0.21)	0.31	128.59	1.67	5.38	5.38
8/19/2012	2012	2012	8	2.90		(0.55)	0.30	6.69	7.99	6.37	7.00		6.81	6.81	1.58	(0.25)	0.29	119.24	1.57	5.48	5.48
8/20/2012	2012	2012	8	3.50		(0.28)	0.30	5.40	6.68	4.89	5.10		5.40	5.40	1.75	(0.13)	0.35	145.92	1.88	3.77	3.77
8/21/2012	2012	2012	8	4.50		0.00	0.25	5.51	5.93	4.43	4.70		5.51	5.51	1.99	0.00	0.43	178.62	2.51	3.52	3.52
8/22/2012	2012	2012	8	4.80		0.00	0.27	6.27	6.57	5.14	5.10		6.27	6.27	2.05	0.00	0.44	184.03	2.75	4.22	4.22
8/23/2012	2012	2012	8	4.70		0.00	0.24	6.19	6.50	5.09	5.20		6.19	6.19	2.03	0.00	0.44	182.26	2.67	4.16	4.16
8/24/2012	2012	2012	8	6.20		0.00	0.29	6.65	8.02	5.97	5.30		6.65	6.65	2.29	0.00	0.49	205.47	3.91	4.36	4.36
8/25/2012	2012	2012	8	4.50		0.00	0.29	6.65	8.02	5.97	6.80		6.96	6.96	1.99	0.00	0.43	178.62	2.51	4.97	4.97
8/26/2012	2012	2012	8	3.90		(0.12)	0.29	6.65	8.02	5.97	6.70		6.87	6.87	1.86	(0.06)	0.39	161.49	2.10	5.07	5.07
8/27/2012	2012	2012	8	4.90		0.00	0.29	6.65	8.02	5.97	5.10		6.65	6.65	2.07	0.00	0.45	185.76	2.83	4.58	4.58
8/28/2012	2012	2012	8	5.10		0.00	0.22	6.67	6.77	4.87	5.10		6.67	6.67	2.11	0.00	0.46	189.11	2.99	4.56	4.56
8/29/2012	2012	2012	8	4.70		0.00	0.27	6.17	7.01	5.33	4.90		6.17	6.17	2.03	0.00	0.44	182.26	2.67	4.14	4.14
8/30/2012	2012	2012	8	4.60		0.00	0.30	6.17	7.01	5.33	5.70		6.17	6.17	2.01	0.00	0.43	180.46	2.59	4.16	4.16
8/31/2012	2012	2012	8	6.90		0.00	0.26	6.64	7.99	4.28	7.00		8.71	8.71	2.39	0.00	0.52	214.44	4.51	6.32	6.32
9/1/2012	2012	2012	9	8.00		0.00	0.25	6.64	7.99	4.28	5.50		7.31	7.31	2.53	0.00	0.55	226.83	5.47	4.79	4.79
9/2/2012	2012	2012	9	3.80		(0.16)	0.25	6.64	7.99	4.28	4.70		6.64	6.64	1.83	(0.07)	0.38	157.75	2.04	4.88	4.88
9/3/2012	2012	2012	9	3.60		(0.24)	0.25	6.64	7.99	4.28	3.70		6.64	6.64	1.78	(0.11)	0.36	149.97	1.93	4.97	4.97
9/4/2012	2012	2012	9	9.30		0.00	0.44	6.11	7.00	4.08	5.10		6.63	6.63	2.60	0.00	0.56	233.51	6.70	4.03	4.03
9/5/2012	2012	2012	9	5.80		0.00	0.43	5.81	6.78	5.39	5.60		5.81	5.81	2.23	0.00	0.48	199.89	3.57	3.59	3.59
9/6/2012	2012	2012	9	5.90		0.00	0.45	5.97	7.03	5.43	6.20		6.27	6.27	2.24	0.00	0.48	201.32	3.66	4.02	4.02
9/7/2012	2012	2012	9	8.50		0.00	0.43	8.17	9.72	7.44	6.10		8.17	8.17	2.58	0.00	0.56	231.91	5.92	5.58	5.58
9/8/2012	2012	2012	9	9.00		0.00	0.43	8.17	9.72	7.44	7.30		8.17	8.17	2.60	0.00	0.56	233.51	6.40	5.57	5.57
9/9/2012	2012	2012	9	7.10		0.00	0.43	8.17	9.72	7.44	7.70		8.17	8.17	2.41	0.00	0.52	216.83	4.69	5.75	5.75
9/10/2012	2012	2012	9	8.80		0.00	0.44	5.15	7.20	5.58	5.60		5.15	5.15	2.60	0.00	0.56	233.51	6.20	2.55	2.55
9/11/2012	2012	2012	9	7.30		0.00	0.38	5.20	7.15	5.33	5.80		5.27	5.27	2.44	0.00	0.53	219.16	4.86	2.83	2.83
9/12/2012	2012	2012	9	8.40		0.00	0.47	5.91	8.31	6.21	6.60		5.91	5.91	2.57	0.00	0.56	230.92	5.83	3.34	3.34
9/13/2012	2012	2012	9	16.00		0.00	0.39	6.68	8.13	6.25	7.80		7.65	7.65	2.60	0.00	0.56	233.51	13.40	5.05	5.05
9/14/2012	2012	2012	9	16.00		0.00	0.43	6.68	8.13	6.25	8.60		8.40	8.40	2.60	0.00	0.56	233.51	13.40	5.80	5.80
9/15/2012	2012	2012	9	7.30		0.00	0.43	6.68	8.13	6.25	5.30		6.68	6.68	2.44	0.00	0.53	219.16	4.86	4.24	4.24
9/16/2012	2012	2012	9	6.10		0.00	0.43	6.68	8.13	6.25	7.30		7.19	7.19	2.27	0.00	0.49	204.11	3.83	4.91	4.91
9/17/2012	2012	2012	9	6.80		0.00	0.45	5.45	7.27	5.60	7.20		6.56	6.56	2.37	0.00	0.51	213.21	4.43	4.18	4.18
9/18/2012	2012	2012	9	9.70		0.00	0.36	5.45	7.27	5.60	9.90		9.07	9.07	2.60	0.00	0.56	233.51	7.10	6.47	5.45
9/19/2012	2012	2012	9	22.00		0.00	0.22	6.11	7.69	5.52	9.60		9.48	9.48	2.60	0.00	0.56	233.51	19.40	6.88	6.11
9/20/2012	2012	2012	9	8.20		0.00	0.22	4.88	5.92	3.91	6.10		6.57	6.57	2.55	0.00	0.55	228.90	5.65	4.02	4.02
9/21/2012	2012	2012	9	7.70		0.00	0.25	7.07	8.00	5.86	5.90		7.07	7.07	2.49	0.00	0.54	223.63	5.21	4.58	4.58
9/22/2012	2012	2012	9	8.10		0.00	0.25	7.07	8.00	5.86	6.60		7.27	7.27	2.54	0.00	0.55	227.87	5.56	4.73	4.73
9/23/2012	2012	2012	9	7.10		0.00	0.25	7.07	8.00	5.86	5.20		7.07	7.07	2.41	0.00	0.52	216.83	4.69	4.66	4.66
9/24/2012	2012	2012	9	8.60		0.00	0.31	6.23	6.05	3.98	4.10		6.23	6.23	2.59	0.00	0.56	232.89	6.01	3.63	3.63
9/25/2012	2012	2012	9	8.90		0.00	0.28	6.05	5.25	3.68	4.20		6.10	6.10	2.60	0.00	0.56	233.51	6.30	3.50	3.50
9/26/2012	2012	2012	9	12.00		0.00	0.24	7.40	7.44	5.33	4.30		7.40	7.40	2.60	0.00	0.56	233.51	9.40	4.80	4.80
9/27/2012	2012	2012	9	8.50		0.00	0.44	7.40	7.44	5.33	4.70		7.40	7.40	2.58	0.00	0.56	231.91	5.92	4.82	4.82
9/28/2012	2012	2012	9	9.40		0.00	0.44	7.40	7.44	5.33	5.20		7.40	7.40	2.60	0.00	0.56	233.51	6.80	4.80	4.80
9/29/2012	2012	2012	9	7.40		0.00	0.44	7.40	7.44	5.33	6.70		8.15	8.15	2.45	0.00	0.53	220.30	4.95	5.70	5.70
9/30/2012	2012	2012	9	6.20		0.00	0.44	7.40	7.44	5.33	6.90		8.34	8.34	2.29	0.00	0.49	205.47	3.91	6.05	6.05
10/1/2012	2012	2013	10	7.60		0.00	0.32	6.26	6.64	4.78	5.10		6.26	6.26	2.48	0.00	0.54	222.53	5.12	3.78	3.78
10/2/2012	2012	2013	10	9.10		0.00	0.31	0.97	6.89	5.04	8.70	e	4.31	4.31	2.60	0.00	0.56	233.51	6.50	1.71	0.97
10/3/2012	2012	2013	10	12.00		0.00	0.31	5.37	6.53	2.91	13.00	e	14.37	14.37	2.60	0.00	0.56	233.51	9.40	11.77	5.37
10/4/2012	2012	2013	10	11.00		0.00	0.29	5.37	6.53	2.91	7.00	e	8.79	8.79	2.60	0.00	0.56	233.51	8.40	6.19	5.37
10/5/2012	2012	2013	10	9.40		0.00	0.31	3.30	6.27	0.00	0.83	e	3.84	3.84	2.60	0.00	0.56	233.51	6.80	1.24	1.24
10/6/2012	2012	2013	10	7.70		0.00	0.31	3.30	6.27	0.00	1.40	e	4.37	4.37	2.49	0.00	0.54	223.63	5.21	1.88	1.88
10/7/2012	2012	2013	10	8.50		0.00	0.31	3.30	6.27	0.00	5.40	e	8.09	8.09	2.58	0.00	0.56	231.91	5.92	5.50	3.30
10/8/2012	2012	2013	10	8.70		0.00	0.32	7.18	6.49	0.00	1.80	e	8.35	8.35	2.60	0.00	0.56	233.51	6.10	5.75	5.75
10/9/2012	2012	2013	10	9.80		0.00	0.29	8.13	7.35	0.00	0.59	e	8.13	8.13	2.60	0.00	0.56	233.51	7.20	5.53	5.53
10/10/2012	2012	2013	10	8.80		0.00	0.31	7.28	6.82	0.00	0.53		7.28	7.28	2.60	0.00	0.56	233.51	6.20	4.68	4.68

Existing Condition — **With Project Diversion**

								San Joaquin Marsh Operations					0.93	20.00 cfs		PROJ. Div	39.7 ppb 39.7 ppb	16.5 ppm 16.5 ppm			
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
10/11/2012	2012	2013	10	10.00		0.00	0.31	7.69	6.99	0.00	0.53	e	7.69	7.69	2.60	0.00	0.56	233.51	7.40	5.09	5.09
10/12/2012	2012	2013	10	11.00		0.00	0.33	7.69	6.99	0.00	0.53	e	7.69	7.69	2.60	0.00	0.56	233.51	8.40	5.09	5.09
10/13/2012	2012	2013	10	7.70		0.00	0.33	7.69	6.99	0.00	0.53	e	7.69	7.69	2.49	0.00	0.54	223.63	5.21	5.20	5.20
10/14/2012	2012	2013	10	7.70		0.00	0.33	7.69	6.99	0.00	0.52		7.69	7.69	2.49	0.00	0.54	223.63	5.21	5.20	5.20
10/15/2012	2012	2013	10	8.40		0.00	0.37	6.91	6.52	0.06	0.52		6.91	6.91	2.57	0.00	0.56	230.92	5.83	4.34	4.34
10/16/2012	2012	2013	10	9.00		0.00	0.26	7.64	7.57	0.13	0.46		7.64	7.64	2.60	0.00	0.56	233.51	6.40	5.04	5.04
10/17/2012	2012	2013	10	9.40		0.00	0.37	7.64	7.57	0.13	0.43		7.64	7.64	2.60	0.00	0.56	233.51	6.80	5.04	5.04
10/18/2012	2012	2013	10	11.00		0.00	0.38	0.00	6.95	0.00	5.40	e	5.02	5.02	2.60	0.00	0.56	233.51	8.40	2.42	0.00
10/19/2012	2012	2013	10	8.70		0.00	0.41	7.10	7.09	0.00	9.80	e	15.72	15.72	2.60	0.00	0.56	233.51	6.10	13.12	7.10
10/20/2012	2012	2013	10	5.60		0.00	0.41	7.10	7.09	0.00	2.70	e	9.12	9.12	2.19	0.00	0.47	196.95	3.41	6.92	6.92
10/21/2012	2012	2013	10	4.90		0.00	0.41	7.10	7.09	0.00	0.55	e	7.12	7.12	2.07	0.00	0.45	185.76	2.83	5.05	5.05
10/22/2012	2012	2013	10	8.10		0.00	0.40	8.74	8.29	0.00	0.49		8.74	8.74	2.54	0.00	0.55	227.87	5.56	6.21	6.21
10/23/2012	2012	2013	10	9.40		0.00	0.37	7.42	8.11	0.00	0.48	e	7.42	7.42	2.60	0.00	0.56	233.51	6.80	4.82	4.82
10/24/2012	2012	2013	10	7.00		0.00	0.37	7.42	8.11	0.00	0.60	e	7.46	7.46	2.40	0.00	0.52	215.64	4.60	5.06	5.06
10/25/2012	2012	2013	10	8.60		0.00	0.38	7.96	8.24	0.00	0.62		7.98	7.98	2.59	0.00	0.56	232.89	6.01	5.38	5.38
10/26/2012	2012	2013	10	10.00		0.00	0.39	3.64	6.69	0.01	4.90		7.93	7.93	2.60	0.00	0.56	233.51	7.40	5.33	3.64
10/27/2012	2012	2013	10	5.60		0.00	0.40	3.64	6.69	0.01	2.60		5.79	5.79	2.19	0.00	0.47	196.95	3.41	3.60	3.60
10/28/2012	2012	2013	10	4.50		0.00	0.40	3.64	6.69	0.01	0.45		3.79	3.79	1.99	0.00	0.43	178.62	2.51	1.80	1.80
10/29/2012	2012	2013	10	4.30		0.00	0.41	3.64	6.69	0.01	0.47		3.81	3.81	1.95	0.00	0.42	174.81	2.35	1.86	1.86
10/30/2012	2012	2013	10	5.00		0.00	0.34	3.64	6.69	0.01	5.50		8.49	8.49	2.09	0.00	0.45	187.45	2.91	6.40	3.64
10/31/2012	2012	2013	10	5.00		0.00	0.37	3.64	6.69	0.01	6.60		9.51	9.51	2.09	0.00	0.45	187.45	2.91	7.42	3.64
11/1/2012	2012	2013	11	4.80		0.00	0.39	6.97	6.87	0.00	3.00		9.27	9.27	2.05	0.00	0.44	184.03	2.75	7.23	6.97
11/2/2012	2012	2013	11	5.40		0.00	0.32	6.48	7.54	0.01	0.43		6.48	6.48	2.16	0.00	0.47	193.90	3.24	4.32	4.32
11/3/2012	2012	2013	11	4.90		0.00	0.32	6.48	7.54	0.01	0.42		6.48	6.48	2.07	0.00	0.45	185.76	2.83	4.41	4.41
11/4/2012	2012	2013	11	4.80		0.00	0.32	6.48	7.54	0.01	0.42		6.48	6.48	2.05	0.00	0.44	184.03	2.75	4.43	4.43
11/5/2012	2012	2013	11	8.90		0.00	0.36	13.40	11.41	7.72	1.10		13.40	13.40	2.60	0.00	0.56	233.51	6.30	10.80	10.80
11/6/2012	2012	2013	11	8.80		0.00	0.32	6.03	9.81	7.06	7.50		6.03	6.03	2.60	0.00	0.56	233.51	6.20	3.43	3.43
11/7/2012	2012	2013	11	5.40		0.00	0.45	6.84	10.62	9.08	7.70		6.84	6.84	2.16	0.00	0.47	193.90	3.24	4.69	4.69
11/8/2012	2012	2013	11	23.00		0.00	0.55	7.47	8.91	7.05	8.00		7.83	7.83	2.60	0.00	0.56	233.51	20.40	5.23	5.23
11/9/2012	2012	2013	11	43.00		0.00	0.32	7.47	8.91	7.05	27.00		25.50		0.00	0.00	0.00	0.00	43.00	25.50	7.47
11/10/2012	2012	2013	11	6.20		0.00	0.32	7.47	8.91	7.05	8.50		8.30	8.30	2.29	0.00	0.49	205.47	3.91	6.01	6.01
11/11/2012	2012	2013	11	4.10		(0.05)	0.32	7.47	8.91	7.05	5.90		7.47	7.47	1.90	(0.02)	0.41	168.66	2.22	5.60	5.60
11/12/2012	2012	2013	11	3.80		(0.16)	0.30	7.94	0.11	7.05	2.60		7.94	7.94	1.83	(0.07)	0.38	157.75	2.04	6.18	6.18
11/13/2012	2012	2013	11	8.80		0.00	0.09	7.38	5.65	2.84	0.72		7.38	7.38	2.60	0.00	0.56	233.51	6.20	4.78	4.78
11/14/2012	2012	2013	11	6.20		0.00	0.26	7.38	5.65	2.84	2.00		7.38	7.38	2.29	0.00	0.49	205.47	3.91	5.09	5.09
11/15/2012	2012	2013	11	5.30		0.00	0.80	7.38	5.65	2.84	2.00		7.38	7.38	2.14	0.00	0.46	192.33	3.16	5.23	5.23
11/16/2012	2012	2013	11	4.30		0.00	0.33	4.90	9.28	6.22	2.70		4.90	4.90	1.95	0.00	0.42	174.81	2.35	2.96	2.96
11/17/2012	2012	2013	11	89.00		0.00	0.33	4.90	9.28	6.22	51.00		46.20		0.00	0.00	0.00	0.00	89.00	46.20	4.90
11/18/2012	2012	2013	11	25.00		0.00	0.33	4.90	9.28	6.22	22.00		19.23		0.00	0.00	0.00	0.00	25.00	19.23	4.90
11/19/2012	2012	2013	11	4.10		(0.05)	0.32	6.51	11.19	9.58	16.00		12.03	12.03	1.90	(0.02)	0.41	168.66	2.22	10.15	6.51
11/20/2012	2012	2013	11	3.60		(0.24)	0.30	7.23	11.13	9.29	8.70		7.23	7.23	1.78	(0.11)	0.36	149.97	1.93	5.56	5.56
11/21/2012	2012	2013	11	4.00		(0.09)	0.24	7.23	11.13	9.29	8.90		7.23	7.23	1.88	(0.04)	0.40	165.12	2.16	5.39	5.39
11/22/2012	2012	2013	11	3.80		(0.16)	0.24	7.23	11.13	9.29	8.90		7.23	7.23	1.83	(0.07)	0.38	157.75	2.04	5.47	5.47
11/23/2012	2012	2013	11	3.30		(0.36)	0.24	7.23	11.13	9.29	8.90		7.23	7.23	1.70	(0.17)	0.33	137.48	1.77	5.70	5.70
11/24/2012	2012	2013	11	3.20		(0.41)	0.24	7.23	11.13	9.29	8.80		7.23	7.23	1.67	(0.19)	0.32	133.09	1.72	5.75	5.75
11/25/2012	2012	2013	11	3.00		(0.50)	0.24	7.23	11.13	9.29	8.80		7.23	7.23	1.61	(0.23)	0.30	123.97	1.62	5.85	5.85
11/26/2012	2012	2013	11	3.50		(0.28)	0.25	2.99	10.59	8.26	8.60		3.09	3.09	1.75	(0.13)	0.35	145.92	1.88	1.47	1.47
11/27/2012	2012	2013	11	6.00		0.00	0.83	7.55	9.60	7.72	7.50		7.55	7.55	2.26	0.00	0.49	202.73	3.74	5.30	5.30
11/28/2012	2012	2013	11	6.00		0.00	0.35	7.55	9.60	7.72	7.20		7.55	7.55	2.26	0.00	0.49	202.73	3.74	5.30	5.30
11/29/2012	2012	2013	11	101.00		0.00	0.27	7.34	9.36	7.82	52.00		47.91		0.00	0.00	0.00	0.00	101.00	47.91	7.34
11/30/2012	2012	2013	11	107.00		0.00	0.34	5.83	5.92	5.78	51.00		47.48		0.00	0.00	0.00	0.00	107.00	47.48	5.83
12/1/2012	2012	2013	12	14.00		0.00	0.21	5.83	5.92	5.78	39.00		36.32		0.00	0.00	0.00	0.00	14.00	36.32	5.83
12/2/2012	2012	2013	12	50.00		0.00	0.21	5.83	5.92	5.78	27.00		25.16		0.00	0.00	0.00	0.00	50.00	25.16	5.83
12/3/2012	2012	2013	12	202.00		0.00	0.33	11.34	7.41	4.78	156.00		151.18		0.00	0.00	0.00	0.00	202.00	151.18	11.34
12/4/2012	2012	2013	12	9.30		0.00	0.26	6.29	7.41	3.81	18.00		19.05		0.00	0.00	0.00	0.00	9.30	19.05	6.29
12/5/2012	2012	2013	12	5.00		0.00	0.36	6.29	7.41	3.81	7.00		8.82	8.82	2.09	0.00	0.45	187.45	2.91	6.74	6.29
12/6/2012	2012	2013	12	3.70		(0.20)	0.35	6.29	7.41	3.81	5.30		7.24	7.24	1.81	(0.09)	0.37	153.91	1.99	5.53	5.53
12/7/2012	2012	2013	12	3.70		(0.20)	0.36	6.29	7.41	3.81	3.10		6.29	6.29	1.81	(0.09)	0.37	153.91	1.99	4.58	4.58
12/8/2012	2012	2013	12	3.60		(0.24)	0.36	6.29	7.41	3.81	2.60		6.29	6.29	1.78	(0.11)	0.36	149.97	1.93	4.62	4.62
12/9/2012	2012	2013	12	3.40		(0.32)	0.36	6.29	7.41	3.81	2.30		6.29	6.29	1.73	(0.15)	0.34	141.76	1.82	4.72	4.72
12/10/2012	2012	2013	12	3.40		(0.32)	0.31	4.03	5.00	2.12	1.90		4.03	4.03	1.73	(0.15)	0.34	141.76	1.82	2.45	2.45
12/11/2012	2012	2013	12	3.90		(0.12)	0.30	4.03	5.00	2.12	1.60		4.03	4.03	1.86	(0.06)	0.39	161.49	2.10	2.23	2.23
12/12/2012	2012	2013	12	4.20		(0.02)	0.35	4.03	5.00	2.12	3.50		5.04	5.04	1.92	(0.01)	0.41	172.10	2.28	3.12	3.12
12/13/2012	2012	2013	12	192.00		0.00	0.31	5.27	3.66	1.54	230.00		217.37		0.00	0.00	0.00	0.00	192.00	217.37	5.27
12/14/2012	2012	2013	12	10.00		0.00	0.24	7.80	5.26	2.05	18.00		22.09		0.00	0.00	0.00	0.00	10.00	22.09	7.80
12/15/2012	2012	2013	12	18.00		0.00	0.24	7.80	5.26	2.05	14.00		18.37	18.37	2.60	0.00	0.56	233.51	15.40	15.77	7.80
12/16/2012	2012	2013	12	4.60		0.00	0.24	7.80	5.26	2.05	5.90		10.84	10.84	2.01	0.00	0.43	180.46	2.59	8.83	7.80
12/17/2012	2012	2013	12	5.40		0.00	0.24	7.80	5.26	2.05	5.90		10.84	10.84	2.16	0.00	0.47	193.90	3.24	8.68	7.80
12/18/2012	2012	2013	12	92.00		0.00	0.34	3.93	4.03	1.49	93.00		88.76		0.00	0.00	0.00	0.00	92.00	88.76	3.93
12/19/2012	2012	2013	12	9.40		0.00	0.31	7.05	5.17	2.42	18.00		21.05		0.00	0.00	0.00	0.00	9.40	21.05	7.05
12/20/2012	2012	2013	12	3.70		(0.20)	0.32	7.05	5.17	2.42	3.50		7.56	7.56	1.81	(0.09)	0.37	153.91	1.99	5.85	5.85

Existing Condition | **San Joaquin Marsh Operations** | **With Project Diversion**

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
12/21/2012	2012	2013	12	3.80		(0.16)	0.31	7.05	5.17	2.42	2.90		7.05	7.05	1.83	(0.07)	0.38	157.75	2.04	5.29	5.29
12/22/2012	2012	2013	12	3.60		(0.24)	0.31	7.05	5.17	2.42	1.60		7.05	7.05	1.78	(0.11)	0.36	149.97	1.93	5.38	5.38
12/23/2012	2012	2013	12	3.70		(0.20)	0.31	7.05	5.17	2.42	1.70		7.05	7.05	1.81	(0.09)	0.37	153.91	1.99	5.33	5.33
12/24/2012	2012	2013	12	153.00		0.00	0.31	7.05	5.17	2.42	211.00		200.54		0.00	0.00	0.00	0.00	153.00	200.54	7.05
12/25/2012	2012	2013	12	8.40		0.00	0.31	7.05	5.17	2.42	20.00		22.91		0.00	0.00	0.00	0.00	8.40	22.91	7.05
12/26/2012	2012	2013	12	85.00		0.00	0.30	5.02	6.57	3.25	77.00		73.26		0.00	0.00	0.00	0.00	85.00	73.26	5.02
12/27/2012	2012	2013	12	9.00		0.00	0.30	7.72	7.15	4.20	15.00		17.22	17.22	2.60	0.00	0.56	233.51	6.40	14.62	7.72
12/28/2012	2012	2013	12	7.90		0.00	0.86	6.72	7.07	4.24	6.00		7.89	7.89	2.51	0.00	0.54	225.78	5.39	5.38	5.38
12/29/2012	2012	2013	12	90.00		0.00	0.86	6.72	7.07	4.24	75.00		72.06		0.00	0.00	0.00	0.00	90.00	72.06	6.72
12/30/2012	2012	2013	12	74.00		0.00	0.86	6.72	7.07	4.24	73.00		70.20		0.00	0.00	0.00	0.00	74.00	70.20	6.72
12/31/2012	2012	2013	12	12.00		0.00	0.86	6.72	7.07	4.24	34.00		33.93		0.00	0.00	0.00	0.00	12.00	33.93	6.72
1/1/2013	2013	2013	1	4.20		(0.02)	0.30	6.72	7.07	4.24	6.80		8.64	8.64	1.92	(0.01)	0.41	172.10	2.28	6.72	6.72
1/2/2013	2013	2013	1	5.20		0.00	0.30	7.51	7.21	3.89	4.20		7.51	7.51	2.12	0.00	0.46	190.74	3.08	5.39	5.39
1/3/2013	2013	2013	1	5.60		0.00	0.35	7.51	7.21	3.89	3.30		7.51	7.51	2.19	0.00	0.47	196.95	3.41	5.32	5.32
1/4/2013	2013	2013	1	6.10		0.00	0.28	7.51	7.21	3.89	3.50		7.51	7.51	2.27	0.00	0.49	204.11	3.83	5.24	5.24
1/5/2013	2013	2013	1	5.80		0.00	0.28	7.51	7.21	3.89	3.90		7.51	7.51	2.23	0.00	0.48	199.89	3.57	5.29	5.29
1/6/2013	2013	2013	1	31.00		0.00	0.28	7.51	7.21	3.89	16.00		18.25	18.25	2.60	0.00	0.56	233.51	28.40	15.65	7.51
1/7/2013	2013	2013	1	11.00		0.00	0.31	7.40	7.06	4.43	13.00		14.85	14.85	2.60	0.00	0.56	233.51	8.40	12.25	7.40
1/8/2013	2013	2013	1	6.40		0.00	0.29	7.40	7.06	4.43	6.90		9.18	9.18	2.32	0.00	0.50	208.13	4.08	6.86	6.86
1/9/2013	2013	2013	1	5.70		0.00	0.33	8.09	7.86	5.08	5.20		8.09	8.09	2.21	0.00	0.48	198.43	3.49	5.88	5.88
1/10/2013	2013	2013	1	5.50		0.00	0.27	6.42	6.21	3.25	4.60		7.23	7.23	2.18	0.00	0.47	195.44	3.32	5.05	5.05
1/11/2013	2013	2013	1	4.50		0.00	0.30	7.44	7.53	4.13	3.60		7.44	7.44	1.99	0.00	0.43	178.62	2.51	5.45	5.45
1/12/2013	2013	2013	1	6.00		0.00	0.30	7.44	7.53	4.13	3.60		7.44	7.44	2.26	0.00	0.49	202.73	3.74	5.18	5.18
1/13/2013	2013	2013	1	5.10		0.00	0.30	7.44	7.53	4.13	4.00		7.44	7.44	2.11	0.00	0.46	189.11	2.99	5.33	5.33
1/14/2013	2013	2013	1	4.10		(0.05)	0.28	7.14	8.08	4.74	4.80		7.14	7.14	1.90	(0.02)	0.41	168.66	2.22	5.27	5.27
1/15/2013	2013	2013	1	4.10		(0.05)	0.31	8.20	9.68	6.73	5.50		8.20	8.20	1.90	(0.02)	0.41	168.66	2.22	6.32	6.32
1/16/2013	2013	2013	1	12.00		0.00	0.24	6.78	10.27	7.88	6.40		6.78	6.78	2.60	0.00	0.56	233.51	9.40	4.18	4.18
1/17/2013	2013	2013	1	6.10		0.00	0.19	6.78	10.27	7.88	8.20		6.78	6.78	2.27	0.00	0.49	204.11	3.83	4.51	4.51
1/18/2013	2013	2013	1	4.10		(0.05)	0.31	6.78	10.27	7.88	8.20		6.78	6.78	1.90	(0.02)	0.41	168.66	2.22	4.90	4.90
1/19/2013	2013	2013	1	4.10		(0.05)	0.31	6.78	10.27	7.88	8.90		7.25	7.25	1.90	(0.02)	0.41	168.66	2.22	5.37	5.37
1/20/2013	2013	2013	1	4.00		(0.09)	0.31	6.78	10.27	7.88	8.70		7.06	7.06	1.88	(0.04)	0.40	165.12	2.16	5.23	5.23
1/21/2013	2013	2013	1	4.30		0.00	0.28	5.53	10.13	8.98	8.90		5.53	5.53	1.95	0.00	0.42	174.81	2.35	3.59	3.59
1/22/2013	2013	2013	1	5.60		0.00	0.01	5.53	10.13	8.98	9.30		5.53	5.53	2.19	0.00	0.47	196.95	3.41	3.34	3.34
1/23/2013	2013	2013	1	7.10		0.00	0.27	5.53	10.13	8.98	9.50		5.63	5.63	2.41	0.00	0.52	216.83	4.69	3.22	3.22
1/24/2013	2013	2013	1	216.00		0.00	0.33	5.53	10.13	8.98	283.00	e	259.99		0.00	0.00	0.00	0.00	216.00	259.99	5.53
1/25/2013	2013	2013	1	130.00		0.00	0.29	4.77	10.91	7.15	155.00	e	141.93		0.00	0.00	0.00	0.00	130.00	141.93	4.77
1/26/2013	2013	2013	1	176.00		0.00	0.29	4.77	10.91	7.15	233.00		214.47		0.00	0.00	0.00	0.00	176.00	214.47	4.77
1/27/2013	2013	2013	1	11.00		0.00	0.29	4.77	10.91	7.15	30.00		25.68		0.00	0.00	0.00	0.00	11.00	25.68	4.77
1/28/2013	2013	2013	1	8.70		0.00	0.28	7.40	10.32	7.52	13.00		11.98	11.98	2.60	0.00	0.56	233.51	6.10	9.38	7.40
1/29/2013	2013	2013	1	7.40		0.00	0.27	7.40	10.32	7.52	11.00		10.12	10.12	2.45	0.00	0.53	220.30	4.95	7.66	7.40
1/30/2013	2013	2013	1	5.00		0.00	0.28	8.64	12.19	9.13	9.60		8.64	8.64	2.09	0.00	0.45	187.45	2.91	6.56	6.56
1/31/2013	2013	2013	1	7.40		0.00	0.31	8.64	12.19	9.13	7.90		8.64	8.64	2.45	0.00	0.53	220.30	4.95	6.19	6.19
2/1/2013	2013	2013	2	11.00		0.00	0.39	7.04	8.25	7.12	11.00		10.16	10.16	2.60	0.00	0.56	233.51	8.40	7.56	7.04
2/2/2013	2013	2013	2	6.20		0.00	0.39	7.04	8.25	7.12	12.00		11.09	11.09	2.29	0.00	0.49	205.47	3.91	8.80	7.04
2/3/2013	2013	2013	2	3.70		(0.20)	0.39	7.04	8.25	7.12	8.50		7.83	7.83	1.81	(0.09)	0.37	153.91	1.99	6.12	6.12
2/4/2013	2013	2013	2	4.10		(0.05)	0.30	7.04	8.25	7.12	5.10		7.04	7.04	1.90	(0.02)	0.41	168.66	2.22	5.16	5.16
2/5/2013	2013	2013	2	7.80		0.00	0.33	7.04	8.25	7.12	5.40		7.04	7.04	2.50	0.00	0.54	224.71	5.30	4.53	4.53
2/6/2013	2013	2013	2	9.00		0.00	0.36	7.04	8.25	7.12	9.90		9.13	9.13	2.60	0.00	0.56	233.51	6.40	6.53	6.53
2/7/2013	2013	2013	2	7.30		0.00	0.37	6.92	7.43	4.88	11.00		12.13	12.13	2.44	0.00	0.53	219.16	4.86	9.69	6.92
2/8/2013	2013	2013	2	78.00		0.00	0.37	7.49	7.18	4.44	49.00	e	48.40		0.00	0.00	0.00	0.00	78.00	48.40	7.49
2/9/2013	2013	2013	2	17.00		0.00	0.37	7.49	7.18	4.44	35.00	e	35.38		0.00	0.00	0.00	0.00	17.00	35.38	7.49
2/10/2013	2013	2013	2	10.00		0.00	0.37	7.49	7.18	4.44	13.00	e	14.92	14.92	2.60	0.00	0.56	233.51	7.40	12.32	7.49
2/11/2013	2013	2013	2	16.00		0.00	0.34	7.73	7.94	4.67	12.00	e	14.01	14.01	2.60	0.00	0.56	233.51	13.40	11.41	7.73
2/12/2013	2013	2013	2	20.00		0.00	0.40	7.10	7.26	4.42	12.00	e	13.66	13.66	2.60	0.00	0.56	233.51	17.40	11.06	7.10
2/13/2013	2013	2013	2	12.00		0.00	0.38	7.10	7.26	4.42	11.00	e	12.72	12.72	2.60	0.00	0.56	233.51	9.40	10.12	7.10
2/14/2013	2013	2013	2	18.00		0.00	0.40	7.71	7.76	5.49	11.00		12.29	12.29	2.60	0.00	0.56	233.51	15.40	9.69	7.71
2/15/2013	2013	2013	2	13.00		0.00	0.40	7.71	7.76	5.49	14.00		15.08	15.08	2.60	0.00	0.56	233.51	10.40	12.48	7.71
2/16/2013	2013	2013	2	11.00		0.00	0.40	7.71	7.76	5.49	12.00		13.22	13.22	2.60	0.00	0.56	233.51	8.40	10.62	7.71
2/17/2013	2013	2013	2	10.00		0.00	0.40	7.71	7.76	5.49	12.00		13.22	13.22	2.60	0.00	0.56	233.51	7.40	10.62	7.71
2/18/2013	2013	2013	2	12.00		0.00	0.40	7.71	7.76	5.49	11.00		12.29	12.29	2.60	0.00	0.56	233.51	9.40	9.69	7.71
2/19/2013	2013	2013	2	23.00		0.00	0.36	5.31	7.48	5.00	15.00		14.24	14.24	2.60	0.00	0.56	233.51	20.40	11.64	5.31
2/20/2013	2013	2013	2	55.00		0.00	0.33	8.00	8.37	5.63	82.00		78.46		0.00	0.00	0.00	0.00	55.00	78.46	8.00
2/21/2013	2013	2013	2	7.70		0.00	0.33	8.00	8.37	5.63	13.00		14.30	14.30	2.49	0.00	0.54	223.63	5.21	11.81	8.00
2/22/2013	2013	2013	2	7.50		0.00	0.33	7.71	12.45	5.61	8.00		9.39	9.39	2.47	0.00	0.53	221.42	5.03	6.93	6.93
2/23/2013	2013	2013	2	7.70		0.00	0.33	7.71	12.45	5.61	7.40		8.83	8.83	2.49	0.00	0.54	223.63	5.21	6.34	6.34
2/24/2013	2013	2013	2	5.60		0.00	0.33	7.71	4.85	5.61	7.00		8.46	8.46	2.19	0.00	0.47	196.95	3.41	6.27	6.27
2/25/2013	2013	2013	2	9.50		0.00	0.98	7.71	4.85	5.61	7.30		8.74	8.74	2.60	0.00	0.56	233.51	6.90	6.14	6.14
2/26/2013	2013	2013	2	8.80		0.00	0.34	6.30	7.24	5.39	12.00		12.01	12.01	2.60	0.00	0.56	233.51	6.20	9.41	6.30
2/27/2013	2013	2013	2	4.20		(0.02)	0.47	7.41	8.60	6.41	7.50		7.91	7.91	1.92	(0.01)	0.41	172.10	2.28	5.99	5.99
2/28/2013	2013	2013	2	4.20		(0.02)	0.80	7.41	8.60	6.41	6.50		7.41	7.41	1.92	(0.01)	0.41	172.10	2.28	5.50	5.50
3/1/2013	2013	2013	3	5.20		0.00	0.22	7.54	8.13	5.14	6.00		7.82	7.82	2.12	0.00	0.46	190.74	3.08	5.69	5.69

Existing Condition / **With Project Diversion**

San Joaquin Marsh Operations

0.93 | 20.00 cfs | PROJ. Div | 39.7 ppb | 16.5 ppm | 39.7 ppb | 16.5 ppm

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	**Adjusted San Diego Cr (SDC) at Campus (cfs)	**Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
3/2/2013	2013	2013	3	4.80		0.00	0.22	7.54	8.13	5.14	5.20		7.54	7.54	2.05	0.00	0.44	184.03	2.75	5.49	5.49
3/3/2013	2013	2013	3	4.50		0.00	0.22	7.54	8.13	5.14	5.10		7.54	7.54	1.99	0.00	0.43	178.62	2.51	5.55	5.55
3/4/2013	2013	2013	3	4.30		0.00	0.79	8.27	8.90	5.62	5.10		8.27	8.27	1.95	0.00	0.42	174.81	2.35	6.32	6.32
3/5/2013	2013	2013	3	8.70		0.00	0.33	7.63	8.23	5.18	5.10		7.63	7.63	2.60	0.00	0.56	233.51	6.10	5.03	5.03
3/6/2013	2013	2013	3	12.00		0.00	0.24	7.63	8.23	5.18	5.10		7.63	7.63	2.60	0.00	0.56	233.51	9.40	5.03	5.03
3/7/2013	2013	2013	3	9.50		0.00	0.42	4.58	6.59	4.15	7.10		7.00	7.00	2.60	0.00	0.56	233.51	6.90	4.40	4.40
3/8/2013	2013	2013	3	176.00		0.00	0.33	6.30	8.35	5.36	239.00		223.14		0.00	0.00	0.00	0.00	176.00	223.14	6.30
3/9/2013	2013	2013	3	21.00		0.00	0.33	6.30	8.35	5.36	46.00		43.65		0.00	0.00	0.00	0.00	21.00	43.65	6.30
3/10/2013	2013	2013	3	4.20		(0.02)	0.33	6.30	8.35	5.36	9.10		9.34	9.34	1.92	(0.01)	0.41	172.10	2.28	7.42	6.30
3/11/2013	2013	2013	3	5.40		0.00	0.28	8.01	7.23	4.71	5.90		8.56	8.56	2.16	0.00	0.47	193.90	3.24	6.40	6.40
3/12/2013	2013	2013	3	7.70		0.00	0.34	8.01	7.23	4.71	6.20		8.84	8.84	2.49	0.00	0.54	223.63	5.21	6.35	6.35
3/13/2013	2013	2013	3	11.00		0.00	0.35	7.46	8.82	5.93	4.50		7.46	7.46	2.60	0.00	0.56	233.51	8.40	4.86	4.86
3/14/2013	2013	2013	3	8.40		0.00	0.32	7.46	8.82	5.93	7.90		8.77	8.77	2.57	0.00	0.56	230.92	5.83	6.20	6.20
3/15/2013	2013	2013	3	12.00		0.00	0.35	7.03	8.71	6.20	7.70		7.93	7.93	2.60	0.00	0.56	233.51	9.40	5.33	5.33
3/16/2013	2013	2013	3	4.40		0.00	0.35	7.03	8.71	6.20	7.50		7.75	7.75	1.97	0.00	0.43	176.74	2.43	5.78	5.78
3/17/2013	2013	2013	3	3.80		(0.16)	0.35	7.03	8.71	6.20	6.60		7.03	7.03	1.83	(0.07)	0.38	157.75	2.04	5.27	5.27
3/18/2013	2013	2013	3	7.30		0.00	0.23	7.40	8.89	5.90	6.30		7.40	7.40	2.44	0.00	0.53	219.16	4.86	4.96	4.96
3/19/2013	2013	2013	3	4.60		0.00	0.28	7.40	8.89	5.90	6.10		7.40	7.40	2.01	0.00	0.43	180.46	2.59	5.40	5.40
3/20/2013	2013	2013	3	8.30		0.00	0.28	7.77	9.44	6.24	5.80		7.77	7.77	2.56	0.00	0.55	229.92	5.74	5.21	5.21
3/21/2013	2013	2013	3	6.90		0.00	0.28	7.77	9.44	6.24	5.70		7.77	7.77	2.39	0.00	0.52	214.44	4.51	5.38	5.38
3/22/2013	2013	2013	3	7.30		0.00	0.28	7.32	9.84	6.77	5.90		7.32	7.32	2.44	0.00	0.53	219.16	4.86	4.88	4.88
3/23/2013	2013	2013	3	4.60		0.00	0.28	7.32	9.84	6.77	6.40		7.32	7.32	2.01	0.00	0.43	180.46	2.59	5.31	5.31
3/24/2013	2013	2013	3	4.10		(0.05)	0.28	7.32	9.84	6.77	6.90		7.32	7.32	1.90	(0.02)	0.41	168.66	2.22	5.44	5.44
3/25/2013	2013	2013	3	5.90		0.00	0.27	6.56	10.08	7.04	7.10		6.56	6.56	2.24	0.00	0.48	201.32	3.66	4.32	4.32
3/26/2013	2013	2013	3	6.60		0.00	0.23	0.08	10.08	7.01	7.20		0.25	0.25	2.35	0.00	0.51	210.71	4.25	0.00	0.00
3/27/2013	2013	2013	3	5.40		0.00	0.29	0.08	10.08	7.01	11.00		3.78	3.78	2.16	0.00	0.47	193.90	3.24	1.62	0.08
3/28/2013	2013	2013	3	5.00		0.00	0.27	7.51	10.31	7.36	11.00		10.37	10.37	2.09	0.00	0.45	187.45	2.91	8.28	7.51
3/29/2013	2013	2013	3	4.90		0.00	0.27	7.51	10.31	7.36	7.60		7.51	7.51	2.07	0.00	0.45	185.76	2.83	5.45	5.45
3/30/2013	2013	2013	3	6.70		0.00	0.27	7.51	10.31	7.36	7.60		7.51	7.51	2.36	0.00	0.51	211.97	4.34	5.15	5.15
3/31/2013	2013	2013	3	4.50		0.00	0.27	7.51	10.31	7.36	7.90		7.51	7.51	1.99	0.00	0.43	178.62	2.51	5.53	5.53
4/1/2013	2013	2013	4	4.10		(0.05)	0.29	6.21	8.57	6.23	7.10		6.58	6.58	1.90	(0.02)	0.41	168.66	2.22	4.71	4.71
4/2/2013	2013	2013	4	4.20		(0.02)	0.23	5.21	8.22	5.58	6.30		5.52	5.52	1.92	(0.01)	0.41	172.10	2.28	3.60	3.60
4/3/2013	2013	2013	4	4.10		(0.05)	0.30	5.21	8.22	5.58	6.30		5.52	5.52	1.90	(0.02)	0.41	168.66	2.22	3.64	3.64
4/4/2013	2013	2013	4	4.90		0.00	0.25	5.21	8.22	5.58	5.90		5.21	5.21	2.07	0.00	0.45	185.76	2.83	3.14	3.14
4/5/2013	2013	2013	4	7.10		0.00	0.25	7.45	7.27	4.67	5.00		7.45	7.45	2.41	0.00	0.52	216.83	4.69	5.04	5.04
4/6/2013	2013	2013	4	5.50		0.00	0.25	7.45	7.27	4.67	4.60		7.45	7.45	2.18	0.00	0.47	195.44	3.32	5.28	5.28
4/7/2013	2013	2013	4	4.50		0.00	0.25	7.45	7.27	4.67	4.60		7.45	7.45	1.99	0.00	0.43	178.62	2.51	5.47	5.47
4/8/2013	2013	2013	4	7.10		0.00	0.31	5.99	7.60	4.67	4.40		5.99	5.99	2.41	0.00	0.52	216.83	4.69	3.58	3.58
4/9/2013	2013	2013	4	8.20		0.00	0.25	6.76	7.00	4.57	4.50		6.76	6.76	2.55	0.00	0.55	228.90	5.65	4.21	4.21
4/10/2013	2013	2013	4	7.00		0.00	0.23	5.73	8.97	6.12	5.20		5.73	5.73	2.40	0.00	0.52	215.64	4.60	3.33	3.33
4/11/2013	2013	2013	4	6.70		0.00	0.23	5.73	8.97	6.12	5.50		5.73	5.73	2.36	0.00	0.51	211.97	4.34	3.37	3.37
4/12/2013	2013	2013	4	6.20		0.00	0.23	5.73	8.97	6.12	5.50		5.73	5.73	2.29	0.00	0.49	205.47	3.91	3.44	3.44
4/13/2013	2013	2013	4	6.50		0.00	0.23	5.73	8.97	6.12	5.50		5.73	5.73	2.33	0.00	0.50	209.43	4.17	3.40	3.40
4/14/2013	2013	2013	4	7.50		0.00	0.23	5.73	8.97	6.12	5.70		5.73	5.73	2.47	0.00	0.53	221.42	5.03	3.26	3.26
4/15/2013	2013	2013	4	10.00		0.00	0.21	6.99	8.43	6.08	5.90		6.99	6.99	2.60	0.00	0.56	233.51	7.40	4.39	4.39
4/16/2013	2013	2013	4	8.90		0.00	0.20	6.99	8.43	6.08	5.80		6.99	6.99	2.60	0.00	0.56	233.51	6.30	4.39	4.39
4/17/2013	2013	2013	4	6.80		0.00	0.22	6.99	8.43	6.08	5.90		6.99	6.99	2.37	0.00	0.51	213.21	4.43	4.62	4.62
4/18/2013	2013	2013	4	12.00		0.00	0.24	6.99	8.43	6.08	6.00		6.99	6.99	2.60	0.00	0.56	233.51	9.40	4.39	4.39
4/19/2013	2013	2013	4	8.20		0.00	0.26	6.72	8.27	5.78	5.80		6.72	6.72	2.55	0.00	0.55	228.90	5.65	4.17	4.17
4/20/2013	2013	2013	4	6.60		0.00	0.26	6.72	8.27	5.78	5.70		6.72	6.72	2.35	0.00	0.51	210.71	4.25	4.37	4.37
4/21/2013	2013	2013	4	5.40		0.00	0.26	6.72	8.27	5.78	5.90		6.72	6.72	2.16	0.00	0.47	193.90	3.24	4.56	4.56
4/22/2013	2013	2013	4	5.10		0.00	0.25	6.02	8.23	5.90	5.70		6.02	6.02	2.11	0.00	0.46	189.11	2.99	3.92	3.92
4/23/2013	2013	2013	4	6.20		0.00	0.29	6.00	8.48	5.78	5.60		6.00	6.00	2.29	0.00	0.49	205.47	3.91	3.71	3.71
4/24/2013	2013	2013	4	6.00		0.00	0.27	5.58	7.68	5.38	5.60		5.58	5.58	2.26	0.00	0.49	202.73	3.74	3.32	3.32
4/25/2013	2013	2013	4	8.40		0.00	0.15	5.89	8.29	5.67	5.30		5.89	5.89	2.57	0.00	0.56	230.92	5.83	3.32	3.32
4/26/2013	2013	2013	4	4.90		0.00	0.26	5.89	8.29	5.67	5.20		5.89	5.89	2.07	0.00	0.45	185.76	2.83	3.82	3.82
4/27/2013	2013	2013	4	5.20		0.00	0.26	5.89	8.29	5.67	5.20		5.89	5.89	2.12	0.00	0.46	190.74	3.08	3.77	3.77
4/28/2013	2013	2013	4	4.70		0.00	0.26	5.89	8.29	5.67	5.10		5.89	5.89	2.03	0.00	0.44	182.26	2.67	3.86	3.86
4/29/2013	2013	2013	4	5.70		0.00	0.39	5.89	8.29	5.67	5.20		5.89	5.89	2.21	0.00	0.48	198.43	3.49	3.68	3.68
4/30/2013	2013	2013	4	7.70		0.00	0.46	5.54	8.38	6.05	5.50		5.54	5.54	2.49	0.00	0.54	223.63	5.21	3.05	3.05
5/1/2013	2013	2013	5	6.80		0.00	0.34	5.32	8.82	6.27	5.90		5.32	5.32	2.37	0.00	0.51	213.21	4.43	2.94	2.94
5/2/2013	2013	2013	5	11.00		0.00	0.38	5.32	8.82	6.27	6.20		5.32	5.32	2.60	0.00	0.56	233.51	8.40	2.72	2.72
5/3/2013	2013	2013	5	9.80		0.00	0.40	6.27	9.25	6.60	6.60		6.27	6.27	2.60	0.00	0.56	233.51	7.20	3.67	3.67
5/4/2013	2013	2013	5	9.90		0.00	0.40	6.27	9.25	6.60	7.50		6.67	6.67	2.60	0.00	0.56	233.51	7.30	4.07	4.07
5/5/2013	2013	2013	5	4.50		0.00	0.40	6.27	9.25	6.60	6.80		6.27	6.27	1.99	0.00	0.43	178.62	2.51	4.28	4.28
5/6/2013	2013	2013	5	161.00		0.00	0.41	6.50	8.34	5.90	162.00		151.22		0.00	0.00	0.00	0.00	161.00	151.22	6.50
5/7/2013	2013	2013	5	90.00		0.00	0.32	6.50	8.34	5.90	106.00		99.14		0.00	0.00	0.00	0.00	90.00	99.14	6.50
5/8/2013	2013	2013	5	7.30		0.00	0.46	6.50	8.34	5.90	19.00		18.23	18.23	2.44	0.00	0.53	219.16	4.86	15.78	6.50
5/9/2013	2013	2013	5	5.60		0.00	0.38	6.50	8.34	5.90	6.10		6.50	6.50	2.19	0.00	0.47	196.95	3.41	4.31	4.31
5/10/2013	2013	2013	5	7.40		0.00	0.43	7.28	8.12	5.44	4.70		7.28	7.28	2.45	0.00	0.53	220.30	4.95	4.83	4.83
5/11/2013	2013	2013	5	6.60		0.00	0.43	7.28	8.12	5.44	4.70		7.28	7.28	2.35	0.00	0.51	210.71	4.25	4.93	4.93

Existing Condition | With Project Diversion

													0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
						Est. Loss,		San Joaquin Marsh Operations					**Adjusted	**Adjusted		Est. Loss,	39.7 ppb	16.5 ppm		**Adjusted	using SDC at Can
DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	San Diego Cr (SDC) at Campus (cfs)	San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	San Diego Cr (SDC) at Campus (cfs)	SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversi	Project - PCW Ba	Project - Diversi	Project - Diversi	Project - PCW Ba	Project - SDC Ca	Project - SJM In
5/12/2013	2013	2013	5	5.00		0.00	0.43	7.28	8.12	5.44	4.90		7.28	7.28	2.09	0.00	0.45	187.45	2.91	5.19	5.19
5/13/2013	2013	2013	5	3.60		(0.24)	0.41	5.45	7.87	5.41	4.70		5.45	5.45	1.78	(0.11)	0.36	149.97	1.93	3.78	3.78
5/14/2013	2013	2013	5	5.50		0.00	0.40	6.15	6.99	4.65	4.90		6.15	6.15	2.18	0.00	0.47	195.44	3.32	3.97	3.97
5/15/2013	2013	2013	5	4.80		0.00	0.43	5.26	7.49	4.58	3.70		5.26	5.26	2.05	0.00	0.44	184.03	2.75	3.21	3.21
5/16/2013	2013	2013	5	4.60		0.00	0.44	5.90	9.01	5.49	5.30		5.90	5.90	2.01	0.00	0.43	180.46	2.59	3.89	3.89
5/17/2013	2013	2013	5	5.60		0.00	0.44	6.08	9.04	5.93	5.50		6.08	6.08	2.19	0.00	0.47	196.95	3.41	3.89	3.89
5/18/2013	2013	2013	5	5.20		0.00	0.44	6.08	9.04	5.93	5.70		6.08	6.08	2.12	0.00	0.46	190.74	3.08	3.96	3.96
5/19/2013	2013	2013	5	15.00		0.00	0.44	6.08	9.04	5.93	9.60		9.07	9.07	2.60	0.00	0.56	233.51	12.40	6.47	6.08
5/20/2013	2013	2013	5	4.80		0.00	0.43	5.41	8.43	5.36	6.50		6.10	6.10	2.05	0.00	0.44	184.03	2.75	4.05	4.05
5/21/2013	2013	2013	5	7.80		0.00	0.42	5.41	8.43	5.36	6.30		5.91	5.91	2.50	0.00	0.54	224.71	5.30	3.41	3.41
5/22/2013	2013	2013	5	5.40		0.00	0.29	5.60	7.49	5.20	6.20		6.13	6.13	2.16	0.00	0.47	193.90	3.24	3.97	3.97
5/23/2013	2013	2013	5	7.10		0.00	0.37	5.60	7.49	5.20	4.30		5.60	5.60	2.41	0.00	0.52	216.83	4.69	3.18	3.18
5/24/2013	2013	2013	5	9.20		0.00	0.34	5.60	7.49	5.20	6.30		6.22	6.22	2.60	0.00	0.56	233.51	6.60	3.62	3.62
5/25/2013	2013	2013	5	6.70		0.00	0.41	5.60	7.49	5.20	6.70		6.60	6.60	2.36	0.00	0.51	211.97	4.34	4.24	4.24
5/26/2013	2013	2013	5	5.20		0.00	0.41	5.60	7.49	5.20	6.30		6.22	6.22	2.12	0.00	0.46	190.74	3.08	4.10	4.10
5/27/2013	2013	2013	5	5.30		0.00	0.41	5.60	7.49	5.20	6.10		6.04	6.04	2.14	0.00	0.46	192.33	3.16	3.90	3.90
5/28/2013	2013	2013	5	5.70		0.00	0.43	5.60	7.49	5.20	3.10		5.60	5.60	2.21	0.00	0.48	198.43	3.49	3.39	3.39
5/29/2013	2013	2013	5	6.60		0.00	0.44	1.34	10.38	6.25	5.60		1.34	1.34	2.35	0.00	0.51	210.71	4.25	0.00	0.00
5/30/2013	2013	2013	5	7.80		0.00	0.43	5.06	9.20	5.53	14.00		12.58	12.58	2.50	0.00	0.54	224.71	5.30	10.08	5.06
5/31/2013	2013	2013	5	6.30		0.00	0.46	6.07	9.91	6.95	14.00		12.21	12.21	2.30	0.00	0.50	206.81	4.00	9.90	6.07
6/1/2013	2013	2013	6	6.40		0.00	0.36	6.07	9.91	6.95	8.80		7.37	7.37	2.32	0.00	0.50	208.13	4.08	5.05	5.05
6/2/2013	2013	2013	6	6.10		0.00	0.36	6.07	9.91	6.95	7.60		6.25	6.25	2.27	0.00	0.49	204.11	3.83	3.98	3.98
6/3/2013	2013	2013	6	7.40		0.00	0.47	0.41	0.70	0.53	5.80		5.29	5.29	2.45	0.00	0.53	220.30	4.95	2.83	0.41
6/4/2013	2013	2013	6	12.00		0.00	0.42	5.36	9.31	6.18	10.00		8.53	8.53	2.60	0.00	0.56	233.51	9.40	5.93	5.36
6/5/2013	2013	2013	6	5.00		0.00	0.45	5.36	9.31	6.18	11.00		9.46	9.46	2.09	0.00	0.45	187.45	2.91	7.37	5.36
6/6/2013	2013	2013	6	3.80		(0.16)	0.42	5.36	9.31	6.18	8.40		7.04	7.04	1.83	(0.07)	0.38	157.75	2.04	5.29	5.29
6/7/2013	2013	2013	6	4.50		0.00	0.45	5.96	9.00	6.05	9.00		8.29	8.29	1.99	0.00	0.43	178.62	2.51	6.30	5.96
6/8/2013	2013	2013	6	4.70		0.00	0.45	5.96	9.00	6.05	8.10		7.45	7.45	2.03	0.00	0.44	182.26	2.67	5.42	5.42
6/9/2013	2013	2013	6	4.70		0.00	0.45	5.96	9.00	6.05	7.20		6.61	6.61	2.03	0.00	0.44	182.26	2.67	4.58	4.58
6/10/2013	2013	2013	6	5.20		0.00	0.47	4.85	3.98	2.67	7.20		8.72	8.72	2.12	0.00	0.46	190.74	3.08	6.60	4.85
6/11/2013	2013	2013	6	10.00		0.00	0.42	5.18	6.75	4.74	5.30		5.33	5.33	2.60	0.00	0.56	233.51	7.40	2.73	2.73
6/12/2013	2013	2013	6	6.40		0.00	0.48	3.86	6.75	4.06	8.70		7.90	7.90	2.32	0.00	0.50	208.13	4.08	5.58	3.86
6/13/2013	2013	2013	6	6.20		0.00	0.41	3.86	6.75	4.07	5.70		5.11	5.11	2.29	0.00	0.49	205.47	3.91	2.82	2.82
6/14/2013	2013	2013	6	9.40		0.00	0.46	4.57	6.61	4.25	6.10		5.97	5.97	2.60	0.00	0.56	233.51	6.80	3.37	3.37
6/15/2013	2013	2013	6	7.10		0.00	0.46	4.57	6.61	4.25	9.40		9.03	9.03	2.41	0.00	0.52	216.83	4.69	6.62	4.57
6/16/2013	2013	2013	6	5.70		0.00	0.46	4.57	6.61	4.25	7.40		7.17	7.17	2.21	0.00	0.48	198.43	3.49	4.96	4.57
6/17/2013	2013	2013	6	4.80		0.00	0.48	4.57	6.61	4.25	5.00		4.94	4.94	2.05	0.00	0.44	184.03	2.75	2.89	2.89
6/18/2013	2013	2013	6	5.30		0.00	0.36	4.57	6.61	4.25	6.50		6.34	6.34	2.14	0.00	0.46	192.33	3.16	4.20	4.20
6/19/2013	2013	2013	6	5.50		0.00	0.49	3.70	6.46	4.40	6.90		5.77	5.77	2.18	0.00	0.47	195.44	3.32	3.59	3.59
6/20/2013	2013	2013	6	7.30		0.00	0.43	3.68	6.70	4.35	8.00		6.81	6.81	2.44	0.00	0.53	219.16	4.86	4.37	3.68
6/21/2013	2013	2013	6	12.00		0.00	0.46	3.68	6.70	4.35	11.00		9.60	9.60	2.60	0.00	0.56	233.51	9.40	7.00	3.68
6/22/2013	2013	2013	6	6.00		0.00	0.46	3.68	6.70	4.35	9.20		7.93	7.93	2.26	0.00	0.49	202.73	3.74	5.67	3.68
6/23/2013	2013	2013	6	5.80		0.00	0.46	3.68	6.70	4.35	3.60		3.68	3.68	2.23	0.00	0.48	199.89	3.57	1.45	1.45
6/24/2013	2013	2013	6	6.60		0.00	0.44	3.68	6.70	4.35	12.00		10.53	10.53	2.35	0.00	0.51	210.71	4.25	8.19	3.68
6/25/2013	2013	2013	6	6.00		0.00	0.40	4.53	6.70	6.19	11.00		8.68	8.68	2.26	0.00	0.49	202.73	3.74	6.42	4.53
6/26/2013	2013	2013	6	6.80		0.00	0.49	4.53	6.70	6.19	6.70		4.68	4.68	2.37	0.00	0.51	213.21	4.43	2.31	2.31
6/27/2013	2013	2013	6	6.00		0.00	0.59	3.76	7.48	6.17	11.00		7.99	7.99	2.26	0.00	0.49	202.73	3.74	5.74	3.76
6/28/2013	2013	2013	6	6.20		0.00	0.41	6.20	6.78	5.08	8.40		8.85	8.85	2.29	0.00	0.49	205.47	3.91	6.57	6.20
6/29/2013	2013	2013	6	6.10		0.00	0.41	6.20	6.78	5.08	6.00		6.62	6.62	2.27	0.00	0.49	204.11	3.83	4.35	4.35
6/30/2013	2013	2013	6	5.20		0.00	0.41	6.20	6.78	5.08	4.90		6.20	6.20	2.12	0.00	0.46	190.74	3.08	4.08	4.08
7/1/2013	2013	2013	7	5.10	P	0.00	0.44	4.27	2.13	1.15	4.00	P	6.62	6.62	2.11	0.00	0.46	189.11	2.99	4.52	4.27
7/2/2013	2013	2013	7	4.90	P	0.00	0.38	6.66	9.64	6.38	7.10	P	6.86	6.86	2.07	0.00	0.45	185.76	2.83	4.79	4.79
7/3/2013	2013	2013	7	4.70	P	0.00	0.46	2.43	3.76	2.43	9.00	P	8.37	8.37	2.03	0.00	0.44	182.26	2.67	6.34	2.43
7/4/2013	2013	2013	7	4.70	P	0.00	0.46	2.43	3.76	2.43	5.60	P	5.21	5.21	2.03	0.00	0.44	182.26	2.67	3.18	2.43
7/5/2013	2013	2013	7	4.40	P	0.00	0.46	2.43	3.76	2.43	2.50	P	2.43	2.43	1.97	0.00	0.43	176.74	2.43	0.46	0.46
7/6/2013	2013	2013	7	4.80	P	0.00	0.46	2.43	3.76	2.43	9.20	P	8.56	8.56	2.05	0.00	0.44	184.03	2.75	6.51	2.43
7/7/2013	2013	2013	7	4.00	P	(0.09)	0.46	2.43	3.76	2.43	9.50	P	8.84	8.84	1.88	(0.04)	0.40	165.12	2.16	7.00	2.43
7/8/2013	2013	2013	7	4.80	P	0.00	0.43	0.24	3.21	4.66	11.00	P	6.12	6.12	2.05	0.00	0.44	184.03	2.75	4.07	0.24
7/9/2013	2013	2013	7	6.10	P	0.00	0.35	0.24	8.74	4.66	11.00	P	6.12	6.12	2.27	0.00	0.49	204.11	3.83	3.85	0.24
7/10/2013	2013	2013	7	5.40	P	0.00	0.38	6.51	10.34	10.28	13.00	P	8.58	8.58	2.16	0.00	0.47	193.90	3.24	6.42	6.42
7/11/2013	2013	2013	7	5.50	P	0.00	0.43	6.31	6.56	3.88	9.40	P	11.00	11.00	2.18	0.00	0.47	195.44	3.32	8.82	6.31
7/12/2013	2013	2013	7	5.70	P	0.00	0.40	6.31	6.56	3.88	4.90	P	6.81	6.81	2.21	0.00	0.48	198.43	3.49	4.60	4.60
7/13/2013	2013	2013	7	5.40	P	0.00	0.40	6.31	6.56	3.88	4.90	P	6.81	6.81	2.16	0.00	0.47	193.90	3.24	4.65	4.65
7/14/2013	2013	2013	7	3.70	P	(0.20)	0.40	6.31	6.56	3.88	2.70	P	6.31	6.31	1.81	(0.09)	0.37	153.91	1.99	4.59	4.59
7/15/2013	2013	2013	7	4.00	P	(0.09)	0.50	5.20	5.68	3.00	2.10	P	5.20	5.20	1.88	(0.04)	0.40	165.12	2.16	3.36	3.36
7/16/2013	2013	2013	7	4.90	P	0.00	0.52	5.20	5.68	3.00	3.40	P	5.20	5.20	2.07	0.00	0.45	185.76	2.83	3.14	3.14
7/17/2013	2013	2013	7	5.40	P	0.00	0.38	5.20	5.68	3.00	4.20	P	5.95	5.95	2.16	0.00	0.47	193.90	3.24	3.79	3.79
7/18/2013	2013	2013	7	7.10	P	0.00	0.47	5.20	5.68	3.00	7.70	P	9.20	9.20	2.41	0.00	0.52	216.83	4.69	6.79	5.20
7/19/2013	2013	2013	7	7.40	P	0.00	0.40	5.20	5.68	3.00	9.60	P	10.97	10.97	2.45	0.00	0.53	220.30	4.95	8.52	5.20
7/20/2013	2013	2013	7	6.00	P	0.00	0.40	5.20	5.68	3.00	6.90	P	8.46	8.46	2.26	0.00	0.49	202.73	3.74	6.20	5.20
7/21/2013	2013	2013	7	5.70	P	0.00	0.40	5.20	5.68	3.00	5.50	P	7.16	7.16	2.21	0.00	0.48	198.43	3.49	4.95	4.95

Existing Condition | **With Project Diversion**

DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	San Joaquin Marsh Operations: SJ Marsh Inflow (from SDC) (cfs)	San Joaquin Marsh Operations: SJ Marsh Outflow (#002A) (cfs)	San Joaquin Marsh Operations: SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	0.93 **Adjusted San Diego Cr (SDC) at Campus (cfs)	20.00 cfs **Adjusted San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	PROJ. Div Est. Loss, Peters Canyon Wash (PCW) at Barranca (cfs)	39.7 ppb 39.7 ppb Daily Se Load, Est. PROJ. Diversion (lbs)	16.5 ppm 16.5 ppm Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	**Adjusted San Diego Cr (SDC) at Campus (cfs)	using SDC at Can SJ Marsh Inflow (from SDC) (cfs)
DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
7/22/2013	2013	2013	7	6.00	P	0.00	1.40	5.20	5.68	3.00	6.50	P	8.09	8.09	2.26	0.00	0.49	202.73	3.74	5.83	5.20
7/23/2013	2013	2013	7	5.40	P	0.00	0.42	0.00	8.34	0.00	11.00	P	10.23	10.23	2.16	0.00	0.47	193.90	3.24	8.07	0.00
7/24/2013	2013	2013	7	4.40	P	0.00	0.38	0.00	8.34	0.00	12.00	P	11.16	11.16	1.97	0.00	0.43	176.74	2.43	9.19	0.00
7/25/2013	2013	2013	7	5.20	P	0.00	0.42	0.00	10.66	0.00	11.00	P	10.23	10.23	2.12	0.00	0.46	190.74	3.08	8.11	0.00
7/26/2013	2013	2013	7	7.80	P	0.00	0.45	0.78	7.45	1.19	13.00	P	11.71	11.71	2.50	0.00	0.54	224.71	5.30	9.20	0.78
7/27/2013	2013	2013	7	5.30	P	0.00	0.45	0.78	7.45	1.19	11.00	P	9.85	9.85	2.14	0.00	0.46	192.33	3.16	7.70	0.78
7/28/2013	2013	2013	7	4.10	P	(0.05)	0.45	0.78	7.45	1.19	8.40	P	7.43	7.43	1.90	(0.02)	0.41	168.66	2.22	5.55	0.78
7/29/2013	2013	2013	7	4.30	P	0.00	0.33	0.78	7.45	1.19	11.00	P	9.85	9.85	1.95	0.00	0.42	174.81	2.35	7.90	0.78
7/30/2013	2013	2013	7	4.20	P	(0.02)	0.40	3.29	8.00	5.76	12.00	P	8.86	8.86	1.92	(0.01)	0.41	172.10	2.28	6.94	3.29
7/31/2013	2013	2013	7	5.00	P	0.00	0.29	3.57	7.19	5.58	9.30	P	6.78	6.78	2.09	0.00	0.45	187.45	2.91	4.70	3.57
8/1/2013	2013	2013	8	6.30	P	0.00	0.29	4.50	7.33	5.39	8.70	P	7.26	7.26	2.30	0.00	0.50	206.81	4.00	4.96	4.50
8/2/2013	2013	2013	8	7.00	P	0.00	0.34	4.50	7.33	5.39	7.70	P	6.33	6.33	2.40	0.00	0.52	215.64	4.60	3.93	3.93
8/3/2013	2013	2013	8	5.20	P	0.00	0.22	4.50	7.33	5.39	8.70	P	7.26	7.26	2.12	0.00	0.46	190.74	3.08	5.14	4.50
8/4/2013	2013	2013	8	6.40	P	0.00	0.22	4.50	7.33	5.39	7.50	P	6.14	6.14	2.32	0.00	0.50	208.13	4.08	3.83	3.83
8/5/2013	2013	2013	8	5.70	P	0.00	0.22	3.32	7.13	4.51	6.90	P	5.31	5.31	2.21	0.00	0.48	198.43	3.49	3.10	3.10
8/6/2013	2013	2013	8	5.70	P	0.00	0.20	3.56	7.20	5.39	5.30	P	3.56	3.56	2.21	0.00	0.48	198.43	3.49	1.35	1.35
8/7/2013	2013	2013	8	7.40	P	0.00	0.20	3.56	7.20	5.39	8.50	P	6.20	6.20	2.45	0.00	0.53	220.30	4.95	3.75	3.56
8/8/2013	2013	2013	8	6.60	P	0.00	0.23	3.56	7.20	5.39	8.60	P	6.29	6.29	2.35	0.00	0.51	210.71	4.25	3.95	3.56
8/9/2013	2013	2013	8	6.90	P	0.00	0.19	6.18	7.55	5.38	8.40	P	8.55	8.55	2.39	0.00	0.52	214.44	4.51	6.17	6.17
8/10/2013	2013	2013	8	6.40	P	0.00	0.18	6.18	7.55	5.38	9.20	P	9.30	9.30	2.32	0.00	0.50	208.13	4.08	6.98	6.18
8/11/2013	2013	2013	8	4.70	P	0.00	0.18	6.18	7.55	5.38	7.70	P	7.90	7.90	2.03	0.00	0.44	182.26	2.67	5.87	5.87
8/12/2013	2013	2013	8	5.40	P	0.00	0.18	3.95	6.69	4.58	6.60	P	5.55	5.55	2.16	0.00	0.47	193.90	3.24	3.39	3.39
8/13/2013	2013	2013	8	6.30	P	0.00	0.30	3.95	6.69	4.58	6.70	P	5.64	5.64	2.30	0.00	0.50	206.81	4.00	3.34	3.34
8/14/2013	2013	2013	8	5.30	P	0.00	0.15	3.95	6.69	4.58	8.00	P	6.85	6.85	2.14	0.00	0.46	192.33	3.16	4.71	3.95
8/15/2013	2013	2013	8	5.00	P	0.00	0.23	7.44	7.65	5.40	7.10	P	8.50	8.50	2.09	0.00	0.45	187.45	2.91	6.41	6.41
8/16/2013	2013	2013	8	5.60	P	0.00	0.16	7.44	7.65	5.40	7.50	P	8.87	8.87	2.19	0.00	0.47	196.95	3.41	6.68	6.68
8/17/2013	2013	2013	8	4.50	P	0.00	0.22	7.44	7.65	5.40	9.00	P	10.27	10.27	1.99	0.00	0.43	178.62	2.51	8.28	7.44
8/18/2013	2013	2013	8	4.10	P	(0.05)	0.22	7.44	7.65	5.40	9.10	P	10.36	10.36	1.90	(0.02)	0.41	168.66	2.22	8.48	7.44
8/19/2013	2013	2013	8	5.20	P	0.00	0.22	3.28	6.23	4.06	6.80	P	5.60	5.60	2.12	0.00	0.46	190.74	3.08	3.48	3.28
8/20/2013	2013	2013	8	4.20	P	(0.02)	0.18	3.28	6.23	4.06	6.30	P	5.14	5.14	1.92	(0.01)	0.41	172.10	2.28	3.22	3.22
8/21/2013	2013	2013	8	3.80	P	(0.16)	0.20	5.08	2.23	1.78	8.10	P	10.60	10.60	1.83	(0.07)	0.38	157.75	2.04	8.85	5.08
8/22/2013	2013	2013	8	4.30	P	0.00	0.20	4.93	5.99	3.57	4.00	P	4.99	4.99	1.95	0.00	0.42	174.81	2.35	3.04	3.04
8/23/2013	2013	2013	8	6.00	P	0.00	0.19	6.63	8.43	5.32	6.50	P	7.26	7.26	2.26	0.00	0.49	202.73	3.74	5.00	5.00
8/24/2013	2013	2013	8	4.80	P	0.00	0.09	6.63	8.43	5.32	7.80	P	8.47	8.47	2.05	0.00	0.44	184.03	2.75	6.42	6.42
8/25/2013	2013	2013	8	4.90	P	0.00	0.10	6.63	8.43	5.32	7.60	P	8.28	8.28	2.07	0.00	0.45	185.76	2.83	6.21	6.21
8/26/2013	2013	2013	8	4.90	P	0.00	0.10	6.63	8.43	5.32	5.50	P	6.63	6.63	2.07	0.00	0.45	185.76	2.83	4.56	4.56
8/27/2013	2013	2013	8	4.30	P	0.00	0.26	5.09	6.90	4.57	5.50	P	5.60	5.60	1.95	0.00	0.42	174.81	2.35	3.65	3.65
8/28/2013	2013	2013	8	4.00	P	(0.09)	0.26	5.09	6.90	4.57	6.40	P	6.43	6.43	1.88	(0.04)	0.40	165.12	2.16	4.60	4.60
8/29/2013	2013	2013	8	3.80	P	(0.16)	0.21	5.09	6.90	4.57	6.80	P	6.81	6.81	1.83	(0.07)	0.38	157.75	2.04	5.05	5.05
8/30/2013	2013	2013	8	4.00	P	(0.09)	0.16	3.73	8.52	6.08	8.30	P	5.53	5.53	1.88	(0.04)	0.40	165.12	2.16	3.69	3.69
8/31/2013	2013	2013	8	4.30	P	0.00	0.18	3.73	8.52	6.08	15.00	P	11.76	11.76	1.95	0.00	0.42	174.81	2.35	9.82	3.73
9/1/2013	2013	2013	9	4.00	P	(0.09)	0.83	3.73	8.52	6.08	13.00	P	9.90	9.90	1.88	(0.04)	0.40	165.12	2.16	8.06	3.73
9/2/2013	2013	2013	9	3.90	P	(0.12)	0.67	3.73	8.52	6.08	12.00	P	8.97	8.97	1.86	(0.06)	0.39	161.49	2.10	7.18	3.73
9/3/2013	2013	2013	9	4.00	P	(0.09)	0.67	1.74	5.79	4.22	14.00	P	10.72	10.72	1.88	(0.04)	0.40	165.12	2.16	8.88	1.74
9/4/2013	2013	2013	9	4.20	P	(0.02)	0.34	5.75	6.66	4.79	14.00	P	13.91	13.91	1.92	(0.01)	0.41	172.10	2.28	11.99	5.75
9/5/2013	2013	2013	9	3.70	P	(0.20)	0.50	5.75	6.66	4.79	6.70	P	7.12	7.12	1.81	(0.09)	0.37	153.91	1.99	5.41	5.41
9/6/2013	2013	2013	9	3.70	P	(0.20)	0.41	6.57	5.80	3.44	2.90	P	6.57	6.57	1.81	(0.09)	0.37	153.91	1.99	4.85	4.85
9/7/2013	2013	2013	9	3.90	P	(0.12)	0.50	6.57	5.80	3.44	3.50	P	6.57	6.57	1.86	(0.06)	0.39	161.49	2.10	4.77	4.77
9/8/2013	2013	2013	9	3.40	P	(0.32)	0.50	6.57	5.80	3.44	3.30	P	6.57	6.57	1.73	(0.15)	0.34	141.76	1.82	4.99	4.99
9/9/2013	2013	2013	9	3.40	P	(0.32)	0.50	4.81	4.24	2.25	1.30	P	4.81	4.81	1.73	(0.15)	0.34	141.76	1.82	3.23	3.23
9/10/2013	2013	2013	9	3.20	P	(0.41)	0.45	5.89	5.24	2.68	1.90	P	5.89	5.89	1.67	(0.19)	0.32	133.09	1.72	4.40	4.40
9/11/2013	2013	2013	9	3.20	P	(0.41)	0.48	5.89	5.24	2.68	1.80	P	5.89	5.89	1.67	(0.19)	0.32	133.09	1.72	4.40	4.40
9/12/2013	2013	2013	9	4.20	P	(0.02)	0.48	5.38	4.68	3.13	2.00	P, e	5.38	5.38	1.92	(0.01)	0.41	172.10	2.28	3.46	3.46
9/13/2013	2013	2013	9	4.60	P	0.00	0.44	5.38	4.68	3.13	2.20	P, e	5.38	5.38	2.01	0.00	0.43	180.46	2.59	3.37	3.37
9/14/2013	2013	2013	9	3.80	P	(0.16)	0.48	5.38	4.68	3.13	7.50	P, e	9.06	9.06	1.83	(0.07)	0.38	157.75	2.04	7.31	5.38
9/15/2013	2013	2013	9	3.70	P	(0.20)	0.48	5.38	4.68	3.13	5.90	P, e	7.58	7.58	1.81	(0.09)	0.37	153.91	1.99	5.86	5.38
9/16/2013	2013	2013	9	5.10	P	0.00	0.48	5.41	7.16	4.86	8.80	P, e	8.70	8.70	2.11	0.00	0.46	189.11	2.99	6.59	5.41
9/17/2013	2013	2013	9	4.60	P	0.00	0.43	5.41	7.16	4.86	4.80	P, e	5.41	5.41	2.01	0.00	0.43	180.46	2.59	3.40	3.40
9/18/2013	2013	2013	9	3.20	P	(0.41)	0.46	5.41	7.16	4.86	5.70	P, e	5.81	5.81	1.67	(0.19)	0.32	133.09	1.72	4.33	4.33
9/19/2013	2013	2013	9	3.60	P	(0.24)	0.45	5.41	7.16	4.86	6.50	P, e	6.56	6.56	1.78	(0.11)	0.36	149.97	1.93	4.89	4.89
9/20/2013	2013	2013	9	3.50	P	(0.28)	0.45	5.57	6.78	4.84	8.50	P	8.59	8.59	1.75	(0.13)	0.35	145.92	1.88	6.96	5.57
9/21/2013	2013	2013	9	3.70	P	(0.20)	0.48	5.57	6.78	4.84	12.00	P	11.84	11.84	1.81	(0.09)	0.37	153.91	1.99	10.13	5.57
9/22/2013	2013	2013	9	3.60	P	(0.24)	0.48	5.57	6.78	4.84	11.00	P	10.91	10.91	1.78	(0.11)	0.36	149.97	1.93	9.24	5.57
9/23/2013	2013	2013	9	3.50	P	(0.28)	0.48	5.57	6.78	4.84	5.90	P	6.17	6.17	1.75	(0.13)	0.35	145.92	1.88	4.54	4.54
9/24/2013	2013	2013	9	3.80	P	(0.16)	0.46	5.78	5.31	3.64	8.60	P	9.98	9.98	1.83	(0.07)	0.38	157.75	2.04	8.23	5.78
9/25/2013	2013	2013	9	4.30	P	0.00	0.42	1.21	1.33	0.97	6.70	P	6.45	6.45	1.95	0.00	0.42	174.81	2.35	4.51	1.21
9/26/2013	2013	2013	9	4.40	P	0.00	0.46	5.84	8.42	6.82	9.90	P	8.29	8.29	1.97	0.00	0.43	176.74	2.43	6.32	5.84
9/27/2013	2013	2013	9	4.30	P	0.00	0.45	6.25	9.58	7.66	9.40	P	7.43	7.43	1.95	0.00	0.42	174.81	2.35	5.48	5.48
9/28/2013	2013	2013	9	4.30	P	0.00	0.41	6.25	9.58	7.66	12.00	P	9.85	9.85	1.95	0.00	0.42	174.81	2.35	7.90	6.25
9/29/2013	2013	2013	9	4.30	P	0.00	0.41	6.25	9.58	7.66	12.00	P	9.85	9.85	1.95	0.00	0.42	174.81	2.35	7.90	6.25
9/30/2013	2013	2013	9	4.90	P	0.00	0.41	5.33	6.76	4.65	7.00	P	7.14	7.14	2.07	0.00	0.45	185.76	2.83	5.07	5.07

										Existing Condition									With Project Diversion			
														0.93	20.00 cfs		PROJ. Div	39.7 ppb	16.5 ppm			
							Est. Loss,		San Joaquin Marsh Operations					**Adjusted	**Adjusted		Est. Loss,	39.7 ppb	16.5 ppm		**Adjusted	using SDC at Can
	DATE	Year	Water Year	Month	Peters Canyon Wash (PCW) at Barranca (cfs)	QC	Peters Canyon Wash (PCW) at Barranca (cfs)	MWRP Dewatering Discharge (cfs)	SJ Marsh Inflow (from SDC) (cfs)	SJ Marsh Outflow (#002A) (cfs)	SJ Marsh Outflow (to SDC, #002B) (cfs)	San Diego Cr (SDC) at Campus (cfs)	QC	San Diego Cr (SDC) at Campus (cfs)	San Diego Cr (SDC) at Campus, Base (cfs)	Est. PROJECT Diversion (cfs)	Peters Canyon Wash (PCW) at Barranca (cfs)	Daily Se Load, Est. PROJ. Diversion (lbs)	Daily NO3 Load, Est. PROJ. Diversion (lbs)	Peters Canyon Wash (PCW) at Barranca (cfs)	San Diego Cr (SDC) at Campus (cfs)	SJ Marsh Inflow (from SDC) (cfs)
	DATE	Year	WY	Month	PCW Bar	PCW	PCW Bar (Loss)	MWRP Dewtr	SJM In	SJM Out (2A)	SJM Out (SDC)	SDC Campus	SDC	SDC Campus **	SDC Campus, Ba	Project - Diversio	Project - PCW Ba	Project - Diversio	Project - Diversio	Project - PCW Ba	Project - SDC Ca	Project - SJM In
					80359.40		(121.39)		23627.85		23929.23	192488.99		182765.74	44696.72	9234.01				71181.00	158876.26	20736.47
Max.					1970.00				13.40	15.05	11.70	7950.00				2.60				1970.00	7389.68	12.42
AVG					16.98			0.38	4.98	6.98	4.38	35.24		33.46	9.20	1.95		0.42		15.04	33.57	4.38
Median					5.90			0.31	5.41	7.19	4.73	9.10				2.16				3.66	7.03	4.68
25th Percentile					4.60				4.50	5.47	2.86	6.30				1.95				2.75	4.68	3.45
Min.					2.60				0.00	0.00	0.00	0.35		0.25		0.00				1.44	0.00	0.00
Total																		1983.41				
Percentage of time mdQ is less than or equal to 4.2 cfs					13.10%																	
Percentage of time Project Diversion is "ON"																11.52%						
		million gallons per year (on average):									1,104									3,284	7,331	957

Sum (WY 2009-2013) 319,700

lbs/yr (WY 2009-2013) 63,940

APPENDIX E

Cross-Section Geometry Analysis

SECTION: **PCW, ESA XS-4 (4/1/2014)**
SOURCE: ESA Survey (April 2014)

Existing Conditions, Calibration of the *S^0.5/n* term

** Max. D based on matching surveyed max. flow depth and provisional, measured discharge for PCW at Barranca (provided by OCPW)* main ch.

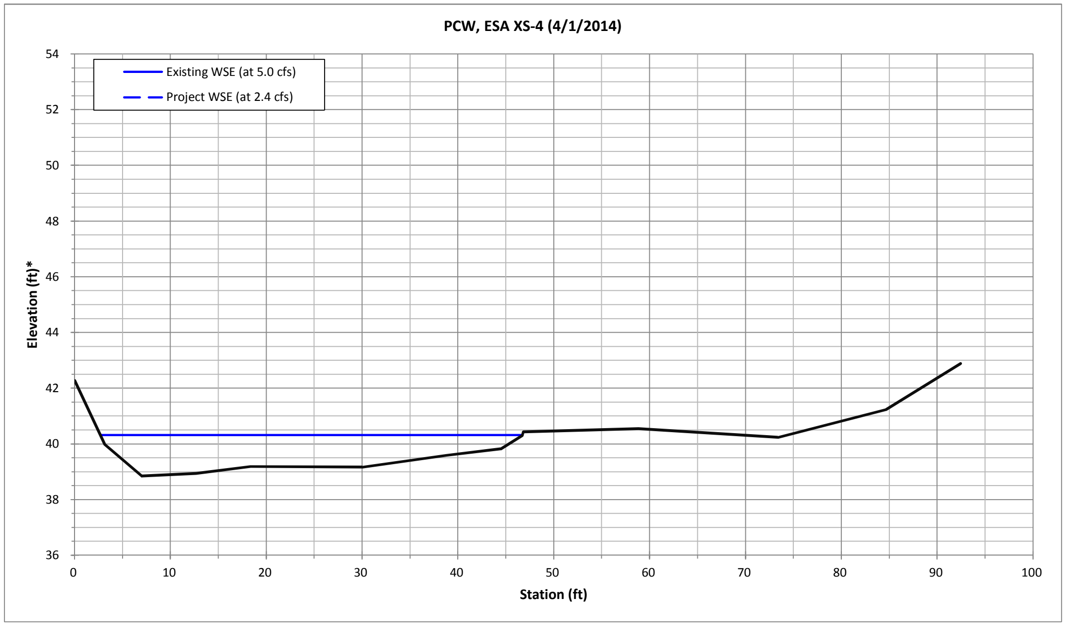
As-Built		*Existing*	
STA	**Elev**	**STA**	**Elev**
(ft)	**(ft) ***	**(ft)**	**(ft) ***
		0.00	42.28
		3.15	39.98
		7.02	38.84
		12.65	38.93
		18.34	39.19
		30.03	39.17
		38.78	39.59
		44.46	39.82
		46.70	40.31
		46.79	40.43
		58.82	40.55
		73.39	40.24
		84.66	41.24
		92.44	42.88

Hydraulics

Max. D (ft):	1.47
WSE (ft):	40.31
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	0.1896
Q Area (ft2):	44.22
Q Perim. (ft):	48.81
Q Width (ft):	71.56
Hyd. R (ft):	0.91
Velocity (ft/s):	0.26
Discharge (cfs):	11.70

Hydraulics (w/Project)

Max. D (ft):	--
WSE (ft):	#VALUE!
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	0.1896
Q Area (ft2):	#VALUE!
Q Perim. (ft):	#VALUE!
Q Width (ft):	#VALUE!
Hyd. R (ft):	#VALUE!
Velocity (ft/s):	#VALUE!
Discharge (cfs):	#VALUE!



Hydraulics

main ch.	Q Width (ft):	44.01

Hydraulics (w/Project)

main ch.	Q Width (ft):	#VALUE!

SECTION: **PCW, ESA XS-3 (4/1/2014)**

SOURCE: ESA Survey (April 2014)

Existing Conditions, Calibration of the *S^0.5/n* term

** Max. D based on matching surveyed max. flow depth and provisional, measured discharge for PCW at Barranca (provided by OCPW)*

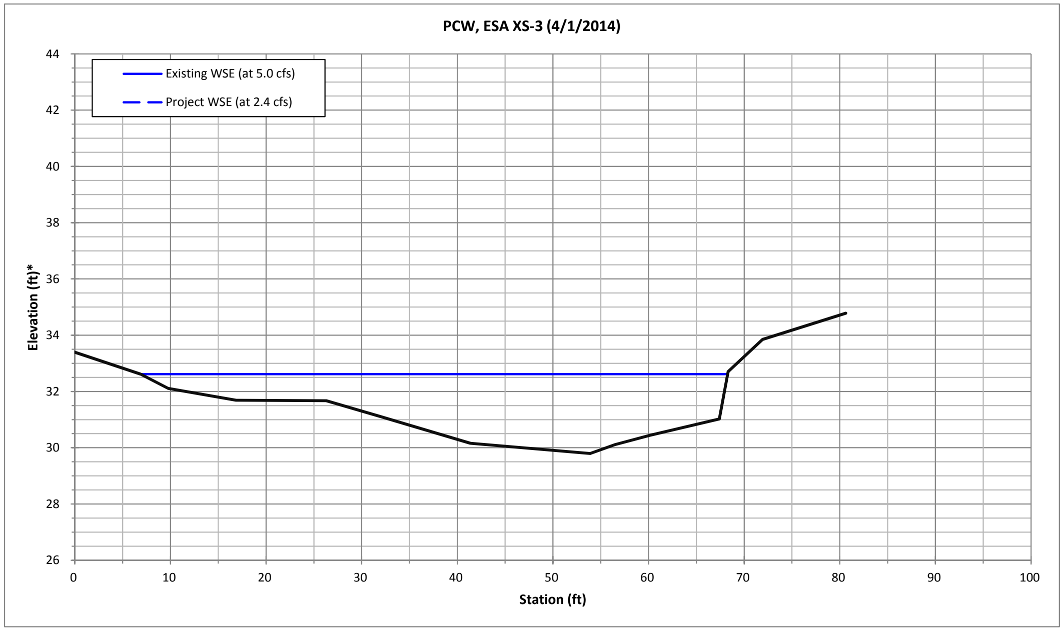
As-Built		*Existing*	
STA	**Elev**	**STA**	**Elev**
(ft)	**(ft) ***	**(ft)**	**(ft) ***
		0.00	33.40
		6.87	32.62
		9.76	32.11
		16.86	31.69
		26.30	31.68
		32.02	31.10
		41.37	30.16
		53.91	29.80
		56.48	30.11
		60.15	30.45
		67.40	31.03
		68.32	32.71
		71.91	33.85
		80.62	34.79

Hydraulics

Max. D (ft):	2.82
WSE (ft):	32.62
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	0.0710
Q Area (ft2):	103.02
Q Perim. (ft):	62.51
Q Width (ft):	61.37
Hyd. R (ft):	1.65
Velocity (ft/s):	0.15
Discharge (cfs):	15.20

Hydraulics (w/Project)

Max. D (ft):	--
WSE (ft):	#VALUE!
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	0.0710
Q Area (ft2):	#VALUE!
Q Perim. (ft):	#VALUE!
Q Width (ft):	#VALUE!
Hyd. R (ft):	#VALUE!
Velocity (ft/s):	#VALUE!
Discharge (cfs):	#VALUE!



SECTION: **PCW, ESA XS-2 (4/1/2014)**

SOURCE: ESA Survey (April 2014)

Existing Conditions, Calibration of the *S^0.5/n* term

** Max. D based on matching surveyed max. flow depth and provisional, measured discharge for PCW at Barranca (provided by OCPW)*

As-Built		*Existing*	
STA (ft)	**Elev (ft) ***	**STA (ft)**	**Elev (ft) ***
		0.00	29.80
		1.22	29.19
		4.37	28.93
		14.35	28.90
		23.54	28.59
		35.52	28.49
		44.83	28.42
		49.55	28.46
		58.37	28.41
		65.16	28.83
		73.80	28.56
		84.56	29.20
		99.19	29.28
		117.15	29.12
		118.49	28.94
		120.75	28.49
		123.13	28.28
		124.86	29.36

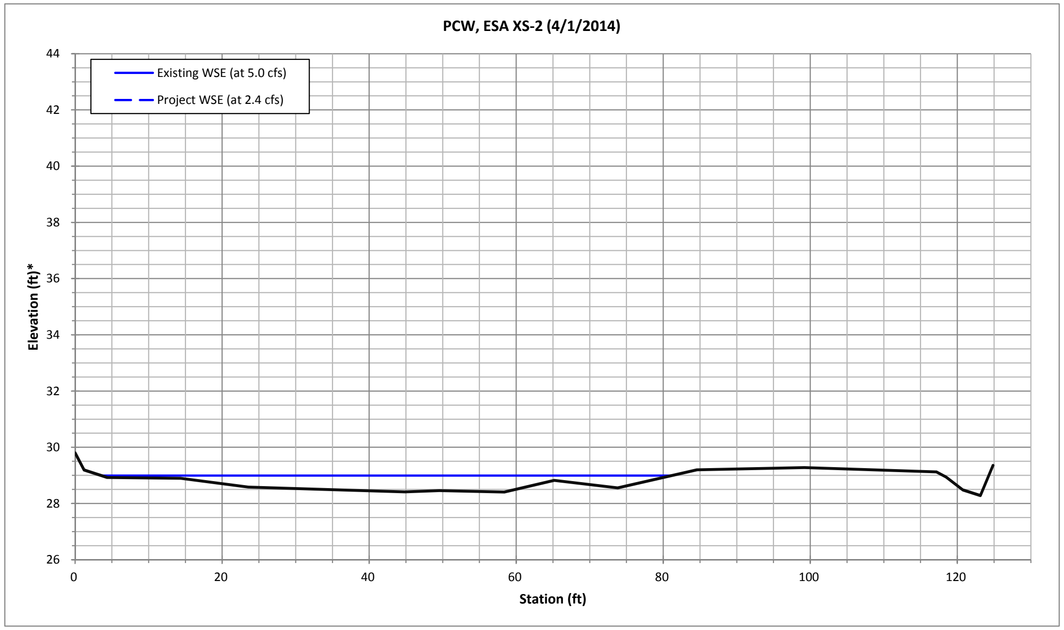
Hydraulics

Max. D (ft):	**0.71**
WSE (ft):	28.99
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	**1.1635**
Q Area (ft2):	30.50
Q Perim. (ft):	84.02
Q Width (ft):	120.71
Hyd. R (ft):	0.36
Velocity (ft/s):	0.88
Discharge (cfs):	26.90

Hydraulics (w/Project)

Max. D (ft):	--
WSE (ft):	#VALUE!
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	**1.1635**
Q Area (ft2):	#VALUE!
Q Perim. (ft):	#VALUE!
Q Width (ft):	#VALUE!
Hyd. R (ft):	#VALUE!
Velocity (ft/s):	#VALUE!
Discharge (cfs):	#VALUE!

main ch.



Hydraulics

main ch.	Q Width (ft):	77.54

Hydraulics (w/Project)

main ch.	Q Width (ft):	#VALUE!

SECTION: SDC, ESA XS-1 (4/1/2014)
SOURCE: ESA Survey (April 2014)

Existing Conditions, Calibration of the *S^0.5/n* term

** Max. D based on matching surveyed max. flow depth and provisional, measured discharge for PCW at Barranca (provided by OCPW)* main ch.

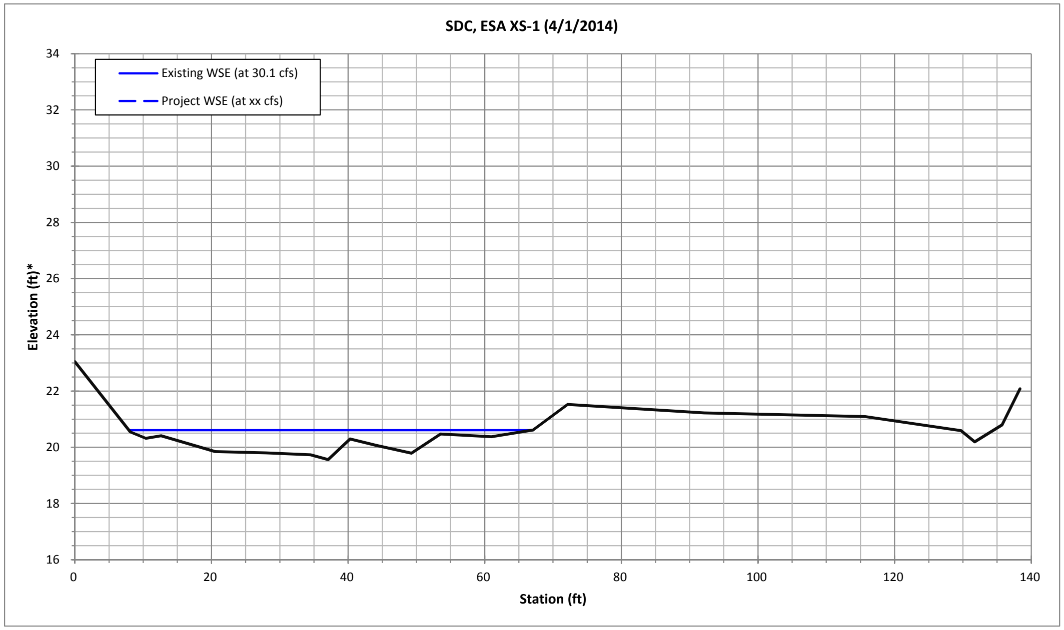
As-Built		*Existing*	
STA	**Elev**	**STA**	**Elev**
(ft)	**(ft) ***	**(ft)**	**(ft) ***
		0.00	23.05
		8.10	20.55
		10.38	20.32
		12.62	20.41
		20.56	19.85
		27.95	19.80
		34.50	19.74
		37.06	19.56
		40.29	20.30
		44.10	20.07
		49.28	19.79
		53.54	20.47
		60.98	20.38
		67.07	20.61
		72.13	21.53
		92.11	21.22
		115.67	21.10
		129.72	20.59
		131.72	20.20
		135.72	20.80
		138.36	22.09

Hydraulics

Max. D (ft):	**1.05**
WSE (ft):	20.61
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	**1.3370**
Q Area (ft2):	31.09
Q Perim. (ft):	64.70
Q Width (ft):	126.59
Hyd. R (ft):	0.48
Velocity (ft/s):	1.22
Discharge (cfs):	38.00

Hydraulics (w/Project)

Max. D (ft):	--
WSE (ft):	#VALUE!
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	**1.3370**
Q Area (ft2):	#VALUE!
Q Perim. (ft):	#VALUE!
Q Width (ft):	#VALUE!
Hyd. R (ft):	#VALUE!
Velocity (ft/s):	#VALUE!
Discharge (cfs):	#VALUE!



Hydraulics

main ch.	Q Width (ft):	59.12

Hydraulics (w/Project)

main ch.	Q Width (ft):	#VALUE!

SECTION: **SDC (Basin No. 3), XS 11900 (2013)**
SOURCE: OCFC Surveys (2013)

Existing Conditions, Calibration of the *S^0.5/n* term

** Max. D based on matching observed flow width (GoogleEarth) and mdQ (SDC at Campus, adjusted) for 4/16/2013*

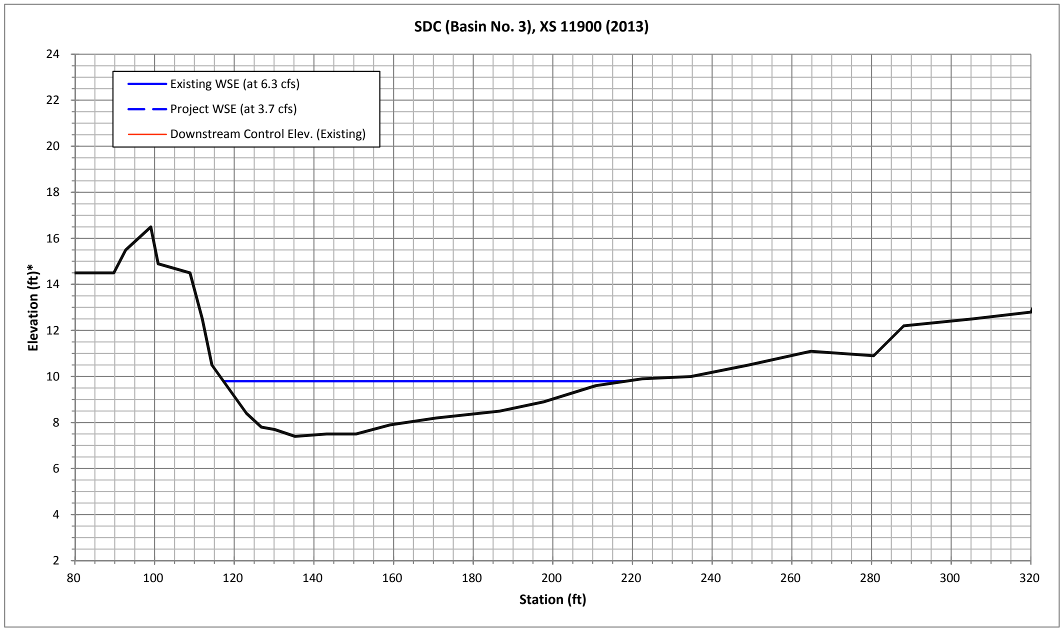
As-Built		*Existing*	
STA (ft)	**Elev (ft) ***	**STA (ft)**	**Elev (ft) ***
		0.00	28.00
		5.67	28.60
		19.18	28.80
		26.37	25.80
		35.85	21.60
		44.99	18.00
		54.22	16.60
		63.31	16.60
		71.17	15.50
		75.79	14.50
		81.58	14.50
		89.76	14.50
		92.72	15.50
		99.01	16.50
		100.88	14.90
		108.87	14.50
		111.96	12.50
		114.38	10.50
		123.07	8.40
		126.78	7.80
		130.14	7.70
		135.27	7.40
		143.16	7.50
		150.59	7.50
		159.13	7.90
		170.70	8.20
		186.65	8.50
		197.69	8.90
		210.73	9.60
		222.43	9.90
		234.61	10.00
		249.11	10.50
		264.80	11.10
		280.53	10.90
		288.08	12.20
		305.24	12.50
		320.03	12.80
		324.95	14.70
		332.50	16.00
		343.03	19.20
		355.61	22.60
		367.16	26.60

Hydraulics *

Max. D (ft):	**2.40**
WSE (ft):	9.80
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	**0.0228**
Q Area (ft2):	145.83
Q Perim. (ft):	101.53
Q Width (ft):	101.26
Hyd. R (ft):	1.44
Velocity (ft/s):	0.04
Discharge (cfs):	6.30

Hydraulics (w/Project)

Max. D (ft):	--
WSE (ft):	#VALUE!
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	**0.0228**
Q Area (ft2):	#VALUE!
Q Perim. (ft):	#VALUE!
Q Width (ft):	#VALUE!
Hyd. R (ft):	#VALUE!
Velocity (ft/s):	#VALUE!
Discharge (cfs):	#VALUE!



Downstream control elev (ft) = 7.20

SECTION: **SDC (Basin No. 2), XS 8800 (2013)**
SOURCE: OCFC Surveys (2013)

Existing Conditions, Calibration of the *S^0.5/n* term

** Max. D based on matching observed flow width (GoogleEarth) and mdQ (SDC at Campus) for 4/16/2013*

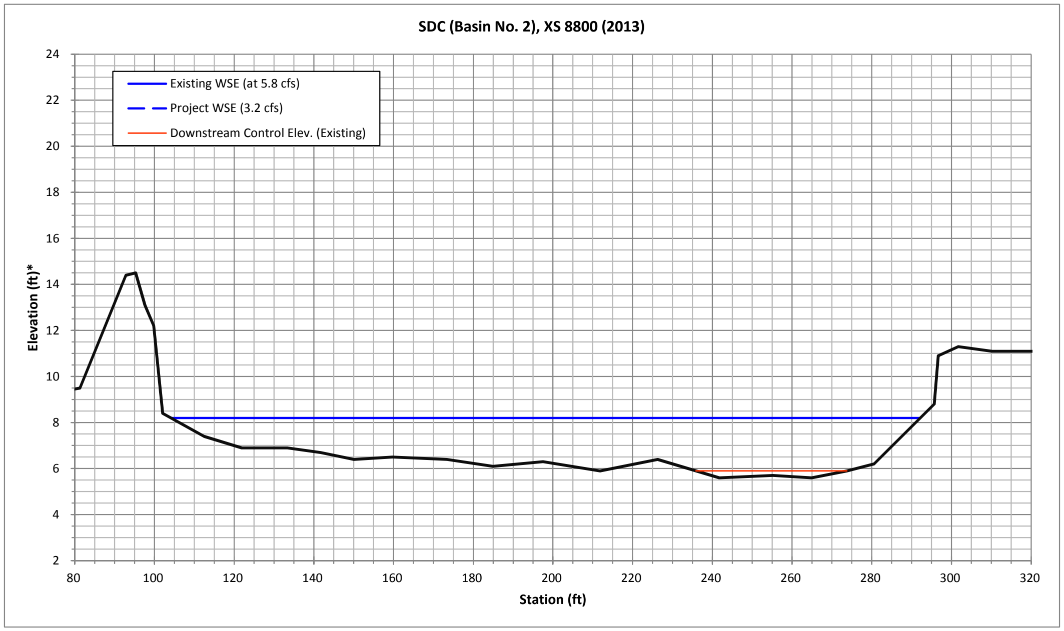
As-Built		*Existing*	
STA (ft)	**Elev (ft) ***	**STA (ft)**	**Elev (ft) ***
		0.00	29.70
		7.09	26.00
		20.83	25.60
		30.85	22.10
		38.95	19.30
		44.98	18.60
		51.91	17.80
		64.58	9.40
		71.82	9.20
		81.28	9.50
		92.78	14.40
		95.26	14.50
		97.59	13.10
		99.78	12.20
		102.06	8.40
		112.46	7.40
		121.90	6.90
		133.32	6.90
		141.69	6.70
		150.07	6.40
		159.73	6.50
		173.40	6.40
		184.91	6.10
		197.48	6.30
		211.79	5.90
		226.23	6.40
		241.72	5.60
		255.18	5.70
		264.88	5.60
		273.75	5.90
		280.55	6.20
		295.66	8.80
		296.67	10.90
		301.70	11.30
		310.18	11.10
		322.28	11.10
		330.48	12.20
		338.90	15.30
		349.58	18.90

Hydraulics *

Max. D (ft):	2.60
WSE (ft):	8.20
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	0.0076
Q Area (ft2):	342.81
Q Perim. (ft):	188.32
Q Width (ft):	188.03
Hyd. R (ft):	1.82
Velocity (ft/s):	0.02
Discharge (cfs):	5.80

Hydraulics (w/Project)

Max. D (ft):	--
WSE (ft):	#VALUE!
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	0.0076
Q Area (ft2):	#VALUE!
Q Perim. (ft):	#VALUE!
Q Width (ft):	#VALUE!
Hyd. R (ft):	#VALUE!
Velocity (ft/s):	#VALUE!
Discharge (cfs):	#VALUE!



Downstream control elev (ft) = 5.90

SECTION: **SDC (Basin No. 1), XS 5700 (2013)**

SOURCE: OCFC Surveys (2013)

Existing Conditions, Calibration of the *S^0.5/n* term

** Max. D based on matching observed flow width (GoogleEarth) and mdQ (SDC at Campus) for 4/16/2013*

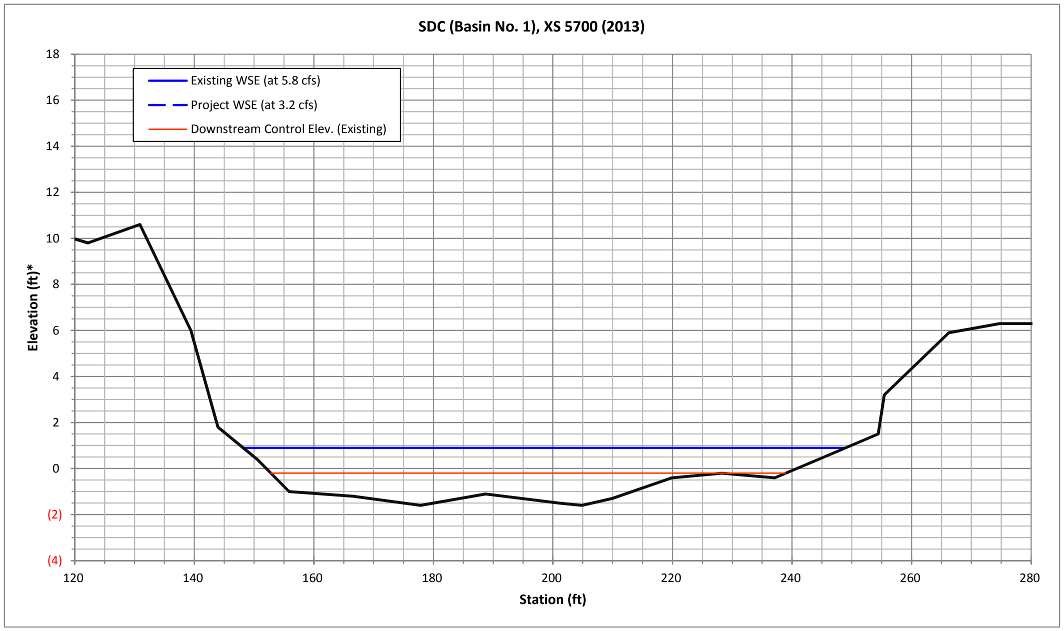
As-Built		*Existing*	
STA	**Elev**	**STA**	**Elev**
(ft)	**(ft) ***	**(ft)**	**(ft) ***
		0.00	23.10
		18.33	23.10
		28.27	19.80
		36.27	16.50
		44.77	13.60
		55.00	12.50
		63.22	10.00
		74.56	9.40
		90.24	10.60
		94.29	11.70
		109.48	10.80
		122.23	9.80
		130.89	10.60
		139.40	6.00
		143.93	1.80
		150.52	0.40
		155.86	(1.00)
		166.54	(1.20)
		177.85	(1.60)
		188.71	(1.10)
		201.04	(1.50)
		204.83	(1.60)
		209.89	(1.30)
		219.92	(0.40)
		228.24	(0.20)
		237.10	(0.40)
		245.35	0.50
		254.41	1.50
		255.43	3.20
		266.23	5.90
		274.73	6.30
		283.03	6.30
		284.90	7.00
		293.73	8.80
		298.38	9.60
		303.19	9.20

Hydraulics *

Max. D (ft):	**2.50**
WSE (ft):	0.90
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	**0.0157**
Q Area (ft2):	173.01
Q Perim. (ft):	101.19
Q Width (ft):	100.80
Hyd. R (ft):	1.71
Velocity (ft/s):	0.03
Discharge (cfs):	5.80

Hydraulics (w/Project)

Max. D (ft):	--
WSE (ft):	#VALUE!
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	**0.0157**
Q Area (ft2):	#VALUE!
Q Perim. (ft):	#VALUE!
Q Width (ft):	#VALUE!
Hyd. R (ft):	#VALUE!
Velocity (ft/s):	#VALUE!
Discharge (cfs):	#VALUE!



Downstream control elev (ft) = (0.20)

SECTION: **PCW, ESA XS-4**
SOURCE: ESA Survey (April 2014)

	reduction in velocity (%):	14.3%
	reduction in Max. D (ft):	0.18
	reduction in Max. D (%):	16.8%
main ch.	reduction in Q width (%):	7.9%

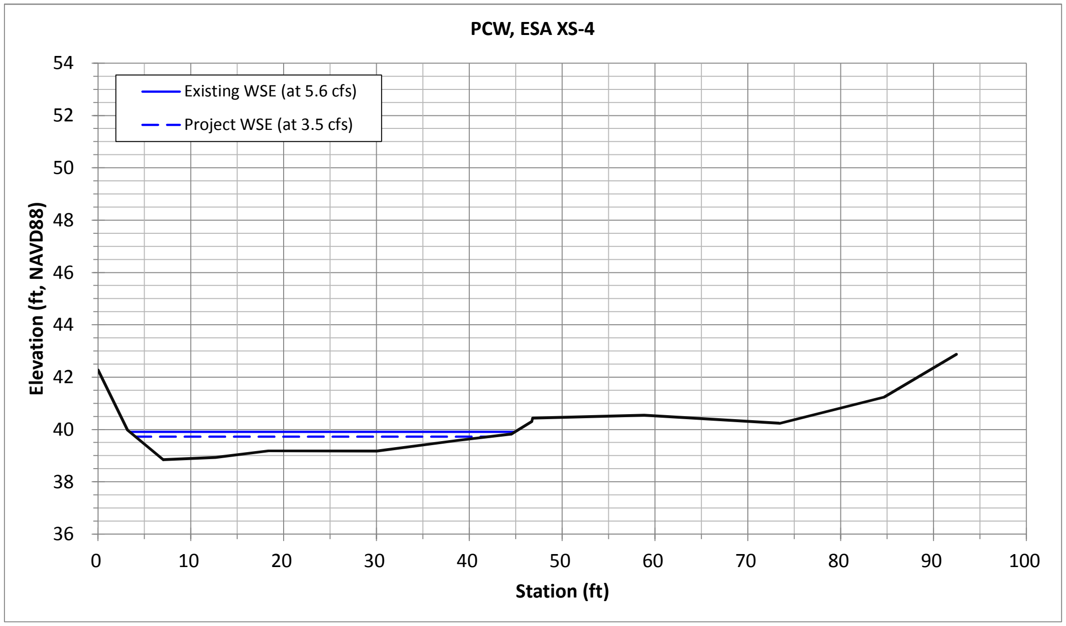
As-Built		*Existing*	
STA (ft)	**Elev (ft) ***	**STA (ft)**	**Elev (ft) ***
		0.00	42.28
		3.15	39.98
		7.02	38.84
		12.65	38.93
		18.34	39.19
		30.03	39.17
		38.78	39.59
		44.46	39.82
		46.70	40.31
		46.79	40.43
		58.82	40.55
		73.39	40.24
		84.66	41.24
		92.44	42.88

Hydraulics

Max. D (ft):	1.06
WSE (ft):	39.91
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	0.1896
Q Area (ft2):	26.67
Q Perim. (ft):	41.64
Q Width (ft):	41.46
Hyd. R (ft):	0.64
Velocity (ft/s):	0.21
Discharge (cfs):	5.60

Hydraulics (w/Project)

Max. D (ft):	0.89
WSE (ft):	39.73
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	0.1896
Q Area (ft2):	19.46
Q Perim. (ft):	38.32
Q Width (ft):	38.17
Hyd. R (ft):	0.51
Velocity (ft/s):	0.18
Discharge (cfs):	3.50



Hydraulics

main ch.	Q Width (ft):	41.46

Hydraulics (w/Project)

main ch.	Q Width (ft):	38.17

SECTION: **PCW, ESA XS-3**
SOURCE: ESA Survey (April 2014)

reduction in velocity (%):	5.7%
reduction in Max. D (ft):	0.43
reduction in Max. D (%):	22.1%
reduction in Q width (%):	27.4%

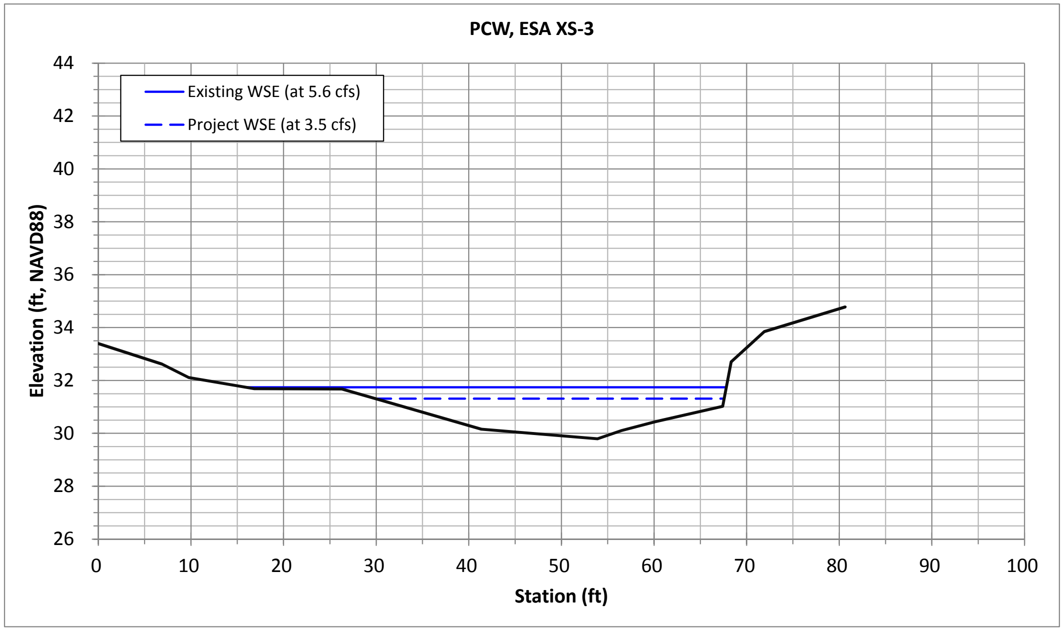
As-Built		*Existing*	
STA (ft)	**Elev (ft) ***	**STA (ft)**	**Elev (ft) ***
		0.00	33.40
		6.87	32.62
		9.76	32.11
		16.86	31.69
		26.30	31.68
		32.02	31.10
		41.37	30.16
		53.91	29.80
		56.48	30.11
		60.15	30.45
		67.40	31.03
		68.32	32.71
		71.91	33.85
		80.62	34.79

Hydraulics

Max. D (ft):	1.95
WSE (ft):	31.75
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	0.0710
Q Area (ft2):	52.79
Q Perim. (ft):	52.47
Q Width (ft):	51.90
Hyd. R (ft):	1.01
Velocity (ft/s):	0.11
Discharge (cfs):	5.60

Hydraulics (w/Project)

Max. D (ft):	1.52
WSE (ft):	31.32
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	0.0710
Q Area (ft2):	34.96
Q Perim. (ft):	37.95
Q Width (ft):	37.66
Hyd. R (ft):	0.92
Velocity (ft/s):	0.10
Discharge (cfs):	3.50



SECTION: **PCW, ESA XS-2**
SOURCE: ESA Survey (April 2014)

	reduction in velocity (%):	13.4%
	reduction in Max. D (ft):	0.05
	reduction in Max. D (%):	13.2%
main ch.	reduction in Q width (%):	4.5%

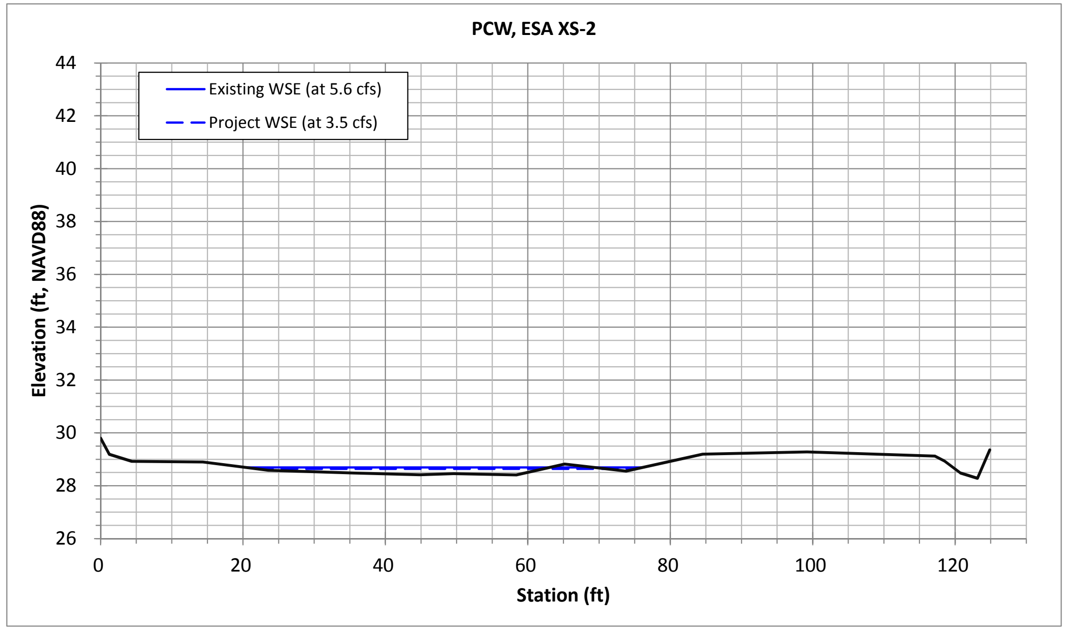
As-Built		*Existing*	
STA (ft)	**Elev (ft) ***	**STA (ft)**	**Elev (ft) ***
		0.00	29.80
		1.22	29.19
		4.37	28.93
		14.35	28.90
		23.54	28.59
		35.52	28.49
		44.83	28.42
		49.55	28.46
		58.37	28.41
		65.16	28.83
		73.80	28.56
		84.56	29.20
		99.19	29.28
		117.15	29.12
		118.49	28.94
		120.75	28.49
		123.13	28.28
		124.86	29.36

Hydraulics

Max. D (ft):	0.41
WSE (ft):	28.69
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	1.1635
Q Area (ft2):	9.94
Q Perim. (ft):	53.63
Q Width (ft):	103.43
Hyd. R (ft):	0.19
Velocity (ft/s):	0.56
Discharge (cfs):	5.60

Hydraulics (w/Project)

Max. D (ft):	0.36
WSE (ft):	28.64
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	1.1635
Q Area (ft2):	7.18
Q Perim. (ft):	48.09
Q Width (ft):	101.75
Hyd. R (ft):	0.15
Velocity (ft/s):	0.49
Discharge (cfs):	3.50



Hydraulics

main ch.	Q Width (ft):	55.73

Hydraulics (w/Project)

main ch.	Q Width (ft):	53.22

SECTION: **SDC, ESA XS-1**
SOURCE: ESA Survey (April 2014)

	reduction in velocity (%):	13.4%
	reduction in Max. D (ft):	0.07
	reduction in Max. D (%):	13.7%
main ch.	reduction in Q width (%):	4.3%

As-Built		*Existing*	
STA (ft)	**Elev (ft) ***	**STA (ft)**	**Elev (ft) ***
		0.00	23.05
		8.10	20.55
		10.38	20.32
		12.62	20.41
		20.56	19.85
		27.95	19.80
		34.50	19.74
		37.06	19.56
		40.29	20.30
		44.10	20.07
		49.28	19.79
		53.54	20.47
		60.98	20.38
		67.07	20.61
		72.13	21.53
		92.11	21.22
		115.67	21.10
		129.72	20.59
		131.72	20.20
		135.72	20.80
		138.36	22.09

Hydraulics

Max. D (ft):	**0.52**
WSE (ft):	20.09
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	**1.3370**
Q Area (ft2):	7.20
Q Perim. (ft):	29.55
Q Width (ft):	33.93
Hyd. R (ft):	0.24
Velocity (ft/s):	0.78
Discharge (cfs):	5.60

Hydraulics (w/Project)

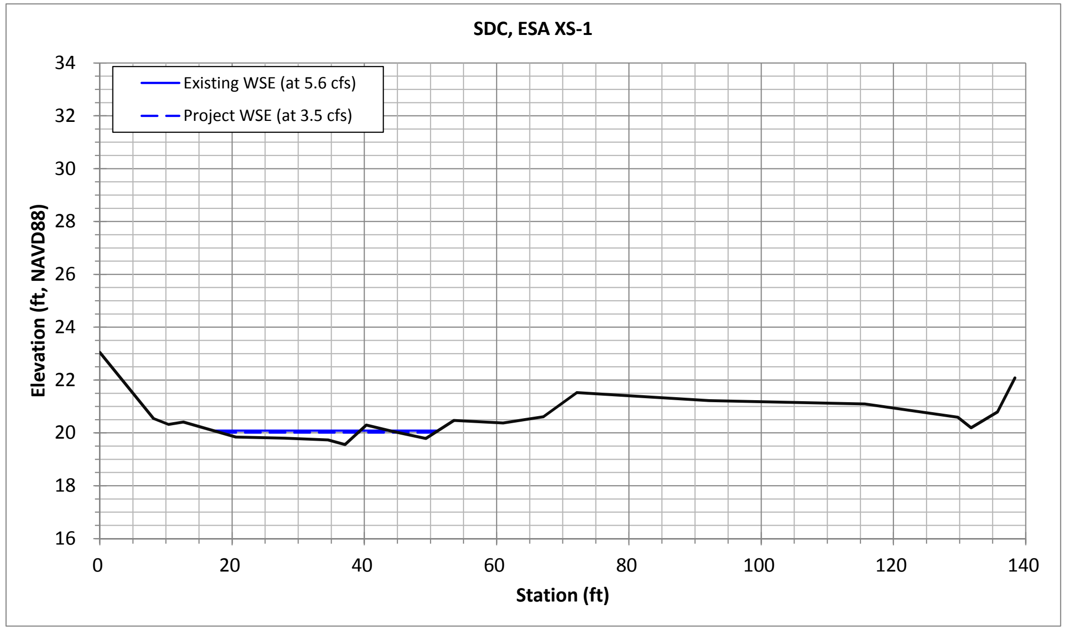
Max. D (ft):	**0.45**
WSE (ft):	20.01
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	**1.3370**
Q Area (ft2):	5.20
Q Perim. (ft):	26.45
Q Width (ft):	32.47
Hyd. R (ft):	0.20
Velocity (ft/s):	0.67
Discharge (cfs):	3.50

Hydraulics

main ch.	Q Width (ft):	33.93

Hydraulics (w/Project)

main ch.	Q Width (ft):	32.47



SECTION: **SDC (Basin No. 3), XS 119+00**
SOURCE: OCFC Surveys (2013)

reduction in velocity (%):	7.4%
reduction in Max. D (ft):	0.40
reduction in Max. D (%):	15.9%
reduction in Q width (%):	15.6%

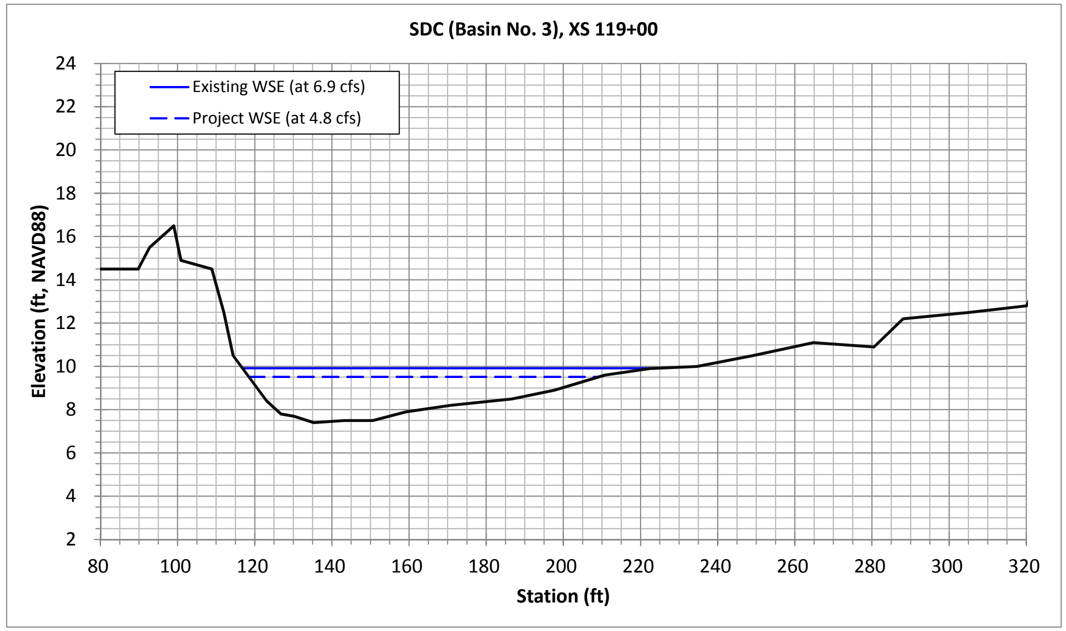
As-Built		*Existing*	
STA (ft)	**Elev (ft) ***	**STA (ft)**	**Elev (ft) ***
		0.00	28.00
		5.67	28.60
		19.18	28.80
		26.37	25.80
		35.85	21.60
		44.99	18.00
		54.22	16.60
		63.31	16.60
		71.17	15.50
		75.79	14.50
		81.58	14.50
		89.76	14.50
		92.72	15.50
		99.01	16.50
		100.88	14.90
		108.87	14.50
		111.96	12.50
		114.38	10.50
		123.07	8.40
		126.78	7.80
		130.14	7.70
		135.27	7.40
		143.16	7.50
		150.59	7.50
		159.13	7.90
		170.70	8.20
		186.65	8.50
		197.69	8.90
		210.73	9.60
		222.43	9.90
		234.61	10.00
		249.11	10.50
		264.80	11.10
		280.53	10.90
		288.08	12.20
		305.24	12.50
		320.03	12.80
		324.95	14.70
		332.50	16.00
		343.03	19.20
		355.61	22.60
		367.16	26.60

Hydraulics *

Max. D (ft):	2.52
WSE (ft):	9.92
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	0.0228
Q Area (ft2):	157.77
Q Perim. (ft):	107.74
Q Width (ft):	107.46
Hyd. R (ft):	1.46
Velocity (ft/s):	0.04
Discharge (cfs):	6.90

Hydraulics (w/Project)

Max. D (ft):	2.12
WSE (ft):	9.52
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	0.0228
Q Area (ft2):	118.65
Q Perim. (ft):	90.92
Q Width (ft):	90.69
Hyd. R (ft):	1.30
Velocity (ft/s):	0.04
Discharge (cfs):	4.80



Downstream control elev (ft) = 7.20

SECTION: **SDC (Basin No. 2), XS 88+00**
SOURCE: OCFC Surveys (2013)

reduction in velocity (%):	13.3%
reduction in Max. D (ft):	0.45
reduction in Max. D (%):	16.2%
reduction in Q width (%):	3.8%

As-Built		*Existing*	
STA (ft)	**Elev (ft) ***	**STA (ft)**	**Elev (ft) ***
		0.00	29.70
		7.09	26.00
		20.83	25.60
		30.85	22.10
		38.95	19.30
		44.98	18.60
		51.91	17.80
		64.58	9.40
		71.82	9.20
		81.28	9.50
		92.78	14.40
		95.26	14.50
		97.59	13.10
		99.78	12.20
		102.06	8.40
		112.46	7.40
		121.90	6.90
		133.32	6.90
		141.69	6.70
		150.07	6.40
		159.73	6.50
		173.40	6.40
		184.91	6.10
		197.48	6.30
		211.79	5.90
		226.23	6.40
		241.72	5.60
		255.18	5.70
		264.88	5.60
		273.75	5.90
		280.55	6.20
		295.66	8.80
		296.67	10.90
		301.70	11.30
		310.18	11.10
		322.28	11.10
		330.48	12.20
		338.90	15.30
		349.58	18.90

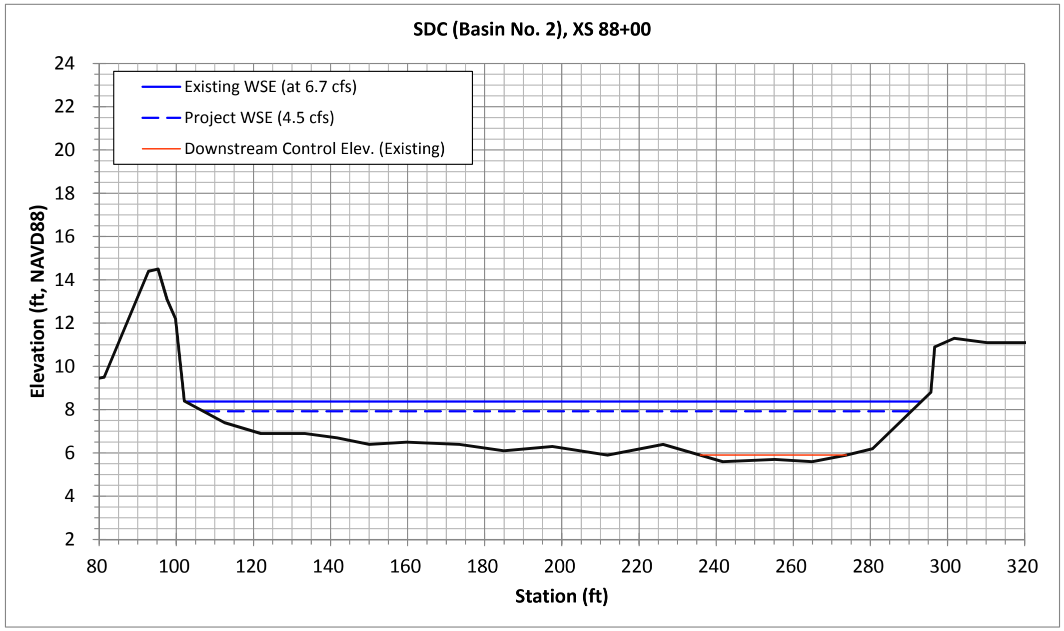
*Hydraulics **

Max. D (ft):	2.78
WSE (ft):	8.38
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	0.0076
Q Area (ft2):	376.15
Q Perim. (ft):	191.19
Q Width (ft):	190.89
Hyd. R (ft):	1.97
Velocity (ft/s):	0.02
Discharge (cfs):	6.70

Hydraulics (w/Project)

Max. D (ft):	2.33
WSE (ft):	7.93
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	0.0076
Q Area (ft2):	291.71
Q Perim. (ft):	183.82
Q Width (ft):	183.57
Hyd. R (ft):	1.59
Velocity (ft/s):	0.02
Discharge (cfs):	4.50

Downstream control elev (ft) = 5.90



SECTION: **SDC (Basin No. 1), XS 57+00**
SOURCE: OCFC Surveys (2013)

reduction in velocity (%):	12.6%
reduction in Max. D (ft):	0.44
reduction in Max. D (%):	16.4%
reduction in Q width (%):	5.9%

As-Built		*Existing*	
STA (ft)	**Elev (ft) ***	**STA (ft)**	**Elev (ft) ***
		0.00	23.10
		18.33	23.10
		28.27	19.80
		36.27	16.50
		44.77	13.60
		55.00	12.50
		63.22	10.00
		74.56	9.40
		90.24	10.60
		94.29	11.70
		109.48	10.80
		122.23	9.80
		130.89	10.60
		139.40	6.00
		143.93	1.80
		150.52	0.40
		155.86	(1.00)
		166.54	(1.20)
		177.85	(1.60)
		188.71	(1.10)
		201.04	(1.50)
		204.83	(1.60)
		209.89	(1.30)
		219.92	(0.40)
		228.24	(0.20)
		237.10	(0.40)
		245.35	0.50
		254.41	1.50
		255.43	3.20
		266.23	5.90
		274.73	6.30
		283.03	6.30
		284.90	7.00
		293.73	8.80
		298.38	9.60
		303.19	9.20

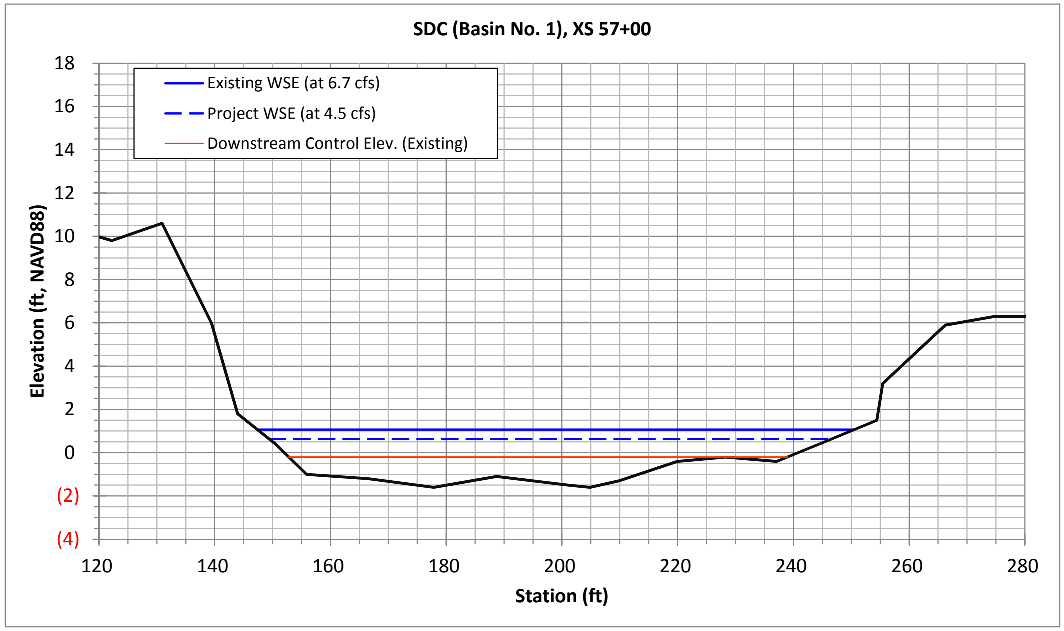
Hydraulics *

Max. D (ft):	2.67
WSE (ft):	1.07
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	0.0157
Q Area (ft2):	190.35
Q Perim. (ft):	103.56
Q Width (ft):	103.15
Hyd. R (ft):	1.84
Velocity (ft/s):	0.04
Discharge (cfs):	6.70

Hydraulics (w/Project)

Max. D (ft):	2.23
WSE (ft):	0.63
Manning's n:	--
Slope (ft/ft):	--
S^0.5/n	0.0157
Q Area (ft2):	146.39
Q Perim. (ft):	97.44
Q Width (ft):	97.10
Hyd. R (ft):	1.50
Velocity (ft/s):	0.03
Discharge (cfs):	4.50

Downstream control elev (ft) = (0.20)



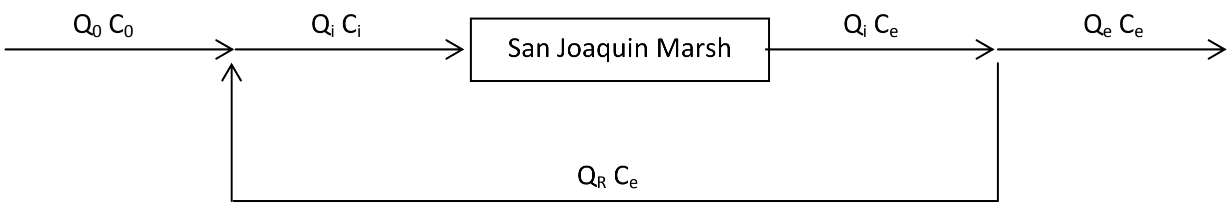
APPENDIX F

Selenium Recirculation – Removal Efficiency Formula and Derivation

Appendix F

The following summary shows the derivation of an equation to calculate the effluent Selenium concentration leaving San Joaquin Marsh from the influent concentration, the percent of flow recirculated, and the removal efficiency within the marsh.

The system is modeled according to the following diagram,



where Q_0 is the flow entering the system, Q_i is the flow entering the marsh, Q_R is the recirculated flow, and Q_e is the flow leaving the system. *C* represents the corresponding concentrations of Selenium at each location.

To conserve mass, the Selenium entering the marsh must be equal to the Selenium entering the system and the amount that is recirculated:

Equation 1

$$Q_i C_i = Q_0 C_0 + Q_R C_e$$

If *R* represents the percent of water recirculated, then,

Equation 2

$$R = \frac{Q_R}{Q_0}$$

and Equation 1 can be rewritten as

Equation 3

$$Q_i C_i = Q_0 C_0 + R Q_0 C_e$$

and simplified to give

$$Q_i C_i = Q_0 (C_0 + R C_e)$$

The continuity equation defines the flow into the marsh as the flow into the system plus the recirculated flow,

Equation 4

$$Q_i = Q_0 + Q_R$$

Equation 2 can be substituted into Equation 4 to provide,

Equation 5

$$Q_i = Q_0 + RQ_0$$

or

$$Q_i = Q_0(1 + R)$$

Equation 5 can then be substituted into Equation 3 to give,

Equation 6

$$Q_0(1 + R)C_i = Q_0(C_0 + RC_e)$$

or

$$(1 + R)C_i = C_0 + RC_e$$

A ratio of effluent to influent concentration, *E*, is described as,

Equation 7

$$E = \frac{C_e}{C_i}$$

Substituting Equation 7 into Equation 6 gives,

Equation 8

$$(1 + R)\frac{C_e}{E} = C_0 + RC_e$$

which simplifies to,

$$(1 + R)\frac{C_e}{E} - RC_e = C_0$$

and

$$C_e\left(\frac{1 + R}{E} - R\right) = C_0$$

and

$$C_e = C_0\left(\frac{E}{1 + R - RE}\right)$$

Equation 8 can be used to calculate the effluent concentration of Selenium based on the influent concentration, C_0, the effluent to influent concentration ratio, *E*, and the percent of water recirculated, *R*.

The ratio of effluent concentration, C_0, to effluent concentration, C_e, adjusted for re-circulation, R, is defined as:

$$E_R = \frac{C_e}{C_0} = \left(\frac{E}{1 + R - RE}\right)$$

APPENDIX D

Cultural Resources Technical Report (Confidential)