

Kern Fan Groundwater Storage Project

RESPONSE TO DEC REVIEW FINDINGS

Addendum No. 3: Project Contingency

July 1, 2020



Addendum No. 3 – Project Contingency

Design Estimating and Construction (DEC) Review

Finding #3:

Project Contingency Cost Low: Contingency appears low for current level of design. 20% only applied to construction, but not to rest of project. Should be in range of 20-30% for entire project. Recommend updating in final feasibility report.

Response to Finding #3

I. Project Contingency

- The project contingency was estimated based on the guidelines of Reclamation Manual FAC 09-01 Directives and Standards for Cost Estimating that recommends the project contingency be applied to the contract cost and not applied to non-contract costs. The recommended allowance for construction contingency normally ranges from 20 to 25 percent of the subtotal of all listed pay items including the allowance for design contingencies and allowance for procurement strategies. The contingency amount applied to the Kern Fan Groundwater Storage Project is in line with the normal contingency range, however it is near the low end of this range as a result of cost information from recent bids, as well as the experience that Irvine Ranch Water District and Rosedale-Rio Bravo Water Storage District have with turnouts, conveyance facilities, lift stations, and recharge and recovery facilities and their general knowledge of the site conditions.
- The project costs include the design features for the intermittent wetlands such as dry land berms or islands and raptor boxes. The costs for dry land berms or islands are included in the line item for levee embankment fill. The costs for raptor boxes are included in the interbasin structure line item for miscellaneous steel and weir boards.
- The unit price level for the estimate is from December 2018. A construction cost escalator has been included since the project will be developed over an extended period of time. The first phases of construction are estimated to begin around the fall of 2021 and all remaining aspects of the project will be bid by December 2023. Therefore, a five-year escalation (2018 to 2023) has been factored in at an approximate inflation rate of 2.0% per year based upon recent CPI estimates. The escalator has been applied to the Construction Cost while excluding the Land Acquisition and Rights of Way (\$226,000,000 - \$37,000,000 = \$189,000,000). The reason for this is that the Land Acquisition and Rights of Way are expected to be completed within the next 12 months. The escalator increases the Construction Cost for the project to approximately \$246,000,000.
- The modification to the contingency resulted in an increase to the overall Project cost, and therefore changes the benefit-cost ratio for the preferred alternative to 1.23. Revised Benefit-Cost spreadsheet for all of the alternatives are provided as Exhibits B, C and D. The increased Project Cost also increases the eligible federal funding for the Project to \$70.4 million.

II. Project Costs

The project costs presented in the March 27, 2020 30% Design report have been updated so that the construction contingency is applied to the Contract Costs (listed pay items) as well as the allowances for design contingencies. In addition, a Construction Cost Escalator has been applied to account for the bidding phases of the project ending around December 2023. Table 1 presents a summary of the Original and Revised Costs that have increased from \$225,000,000 to \$246,000,000. The following sections describe the Project Cost updates in more detail.

Table 1
Project Summary Costs

	<i>Original Costs</i>	<i>Updated Costs</i>
Capital Cost (without Project Mobilization):	\$127,785,592	\$128,165,797
Project Mobilization (1.4% / 1.4%):	\$1,820,000	\$1,820,000
Capital Cost:	\$129,605,592	\$129,985,797
Design Contingency (2.0% / 2.3%):	\$2,592,112	\$3,014,203
Contract Cost:	\$133,000,000	\$133,000,000
Construction Contingency (20.0% / 20.3%):	\$26,000,000	\$27,000,000
Field Cost:	\$159,000,000	\$160,000,000
Non-Contract Costs:	\$66,000,000	\$66,000,000
Construction Cost (Unit Price Level Dec 2018):	\$225,000,000	\$226,000,000
Escalation at 2.0% for 5 years to Dec 2023 on Construction Cost less Land Acquisition and Rights of Way	NA	\$20,000,000
Construction Cost (with Escalation to Dec 2023):	NA	\$246,000,000

Capital Cost: The Capital Cost including mobilization was refined from an original amount of \$129,605,592 to an updated amount of 129,985,797.

Design Contingency: The design contingency for unlisted items was originally 2% of the Capital Cost and totaled \$2,600,000. The design contingency has been revised to 2.3% and amounts to \$3,014,203. This increase is a Special Allowance for Design Contingencies as listed under Section 5.E of the Reclamation Manual FAC 09-01 Directives and Standards for Cost Estimating. This is to account for minor items required to construct the project for which it is not practical to develop designs and quantities during the early stages of the project. The allowance for design contingency normally ranges from 2 to 20 percent of the subtotal of all listed pay items. The low end of this range has been used for the contingency due to the significant experience that Irvine Ranch Water District and Rosedale-Rio Bravo Water Storage District have with turnouts, conveyance facilities, lift stations, and recharge and recovery facilities, as well as information from recent bids. Recent bid documents are provided as Exhibits E and F. These are the same documents that were provided to the DEC team in response to questions.

Contract Cost: The Contract Cost for the project is \$133,000,000 including mobilization costs and design contingencies. See Exhibit G for the detailed cost breakdown. In addition, Exhibit H provides back-up documentation for the preparation of the project costs and unit prices including recently bid projects and material quotes.

Construction Contingency: A construction contingency of twenty-percent (20.0%) of the Contract Cost or approximately \$26,000,000 was originally applied to the Kern Fan Groundwater Storage Project. This construction contingency has been increased to approximately \$27,000,000 as a result of including the Design Contingencies. The \$27,000,000 contingency divided by the Contract Cost of \$133,000,000 is a contingency of 20.3%.

The allowance for construction contingency normally ranges from 20 to 25 percent of the subtotal of all listed pay items including the allowance for design contingencies and allowance for procurement strategies. The contingency amount applied to the Kern Fan Groundwater Storage Project is in line with the normal contingency range, however it is near the low end of this range as a result of the experience that Irvine Ranch Water District and Rosedale-Rio Bravo Water Storage District have with turnouts, conveyance facilities, lift stations, and recharge and recovery facilities, their understanding of the site conditions, and recent bid documents.

Field Cost: The field cost is an estimate of the capital costs from award to construction close-out and includes construction contingency. The total Field Cost for the project is \$160,000,000.

Non-Contract Costs: The non-contract costs equate to approximately \$66,000,000 and are comprised of the costs outlined in Table 2 below.

Table 2
Non-Contract Costs

Land Acquisition and Rights of Way:	\$37,000,000
HCP Fees:	\$3,200,000
Project Management:	\$6,500,000
Engineering & Design:	\$6,900,000
Environmental:	\$600,000
Permitting:	\$600,000
Labor Compliance:	\$500,000
PG&E Electrical Service:	\$1,500,000
Bid Advertisement & Legal:	\$250,000
Project Surveying:	\$1,600,000
Construction Management & Inspection:	\$7,800,000
Non-Contract Costs (rounded):	\$66,000,000

Land Purchase, Easements and Right of Way (R/W) costs represent about \$37 million (56%) of the of the Project’s Non-Contract cost. In accordance with Reclamation standards, they are included as part of the Non-Contract Costs. They do not include a contingency, since the land acquisition process has been initiated and is expected to occur within the next 12

months. Exhibit I shows recent property sales in the Rosedale-Rio Bravo Water Storage District service area from 2013 to 2019. As shown, the average cost is about \$24,700 per acre. This estimate is consistent with the \$26,500 and \$21,500 per acre used to estimate land purchase costs for the Project.

Construction Cost: The total Construction Cost for the Kern Fan Groundwater Storage Project was previously \$225,000,000. The total Construction Cost has been revised to \$226,000,000. It is important to note that future design efforts will include additional value engineering efforts.

Construction Cost Escalator: The Project's unit price level for the construction cost estimate is from December 2018. A construction cost escalator has been included since the project will be developed over an extended period of time. It has been estimated that the first phases of construction will begin around the fall of 2021 and that all aspects of the project will be bid by December 2023. Therefore, a five-year escalation (2018 to 2023) has been factored in at an approximate inflation rate of 2.0% per year based upon recent CPI estimates. The escalator has been applied to the Construction Cost without the Land Acquisition and Rights of Way cost ($\$226,000,000 - \$37,000,000 = \$189,000,000$). The reason for this is that the Land Acquisition and Rights of Way are expected to be completed within the next 12 months. The Construction Cost with the construction cost escalator is approximately \$246,000,000.