**Proposal Full View**

### APPLICANT INFORMATION

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<th>Irvine Ranch Water District *</th>
<th>Kern Fan Groundwater Storage Project</th>
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<tr>
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<tr>
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<td><strong>Last Name</strong></td>
<td>Welch</td>
</tr>
<tr>
<td><strong>Email</strong></td>
<td><a href="mailto:welch@irwd.com">welch@irwd.com</a></td>
</tr>
<tr>
<td><strong>Phone (Direct)</strong></td>
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**Position Title**: Water Resources Manager

**Proposal Name**: Kern Fan Groundwater Storage Project

**Proposal Objective**

The Kern Fan Project (Project) will significantly contribute to attainment of the three objectives of the California Water Action Plan: (1) more reliable water supplies; (2) improved habitat conditions of important species, and (3) more resilient and sustainably managed water infrastructure. Specifically, the Project will cost-effectively recharge and store groundwater for subsequent recovery to address the following project objectives: - Enhance water supply reliability; - Reduce imported water demands on the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Delta) to benefit spring and winter-run Chinook salmon; - Provide water supply during drought conditions; - Provide water supply for emergency response benefits; - Establish temporary wetlands through intermittent recharge events that will attract migratory and other water birds in Kern County; - Benefit the water levels in the Kern County Groundwater Sub-basin; - Manage water in a resilient and sustainable manner; and - Be integrated into other water storage projects and storage reservoirs to provide greater statewide benefits. The Project will offer opportunities to further improve the operation of the State water system through the integration of operations with other projects funded through the Water Storage Investment Program. For example, Sites Reservoir participants could be offered the opportunity to store water in the Project under mutually beneficial terms that would avoid...
reservoir spills. Such integration efforts could improve the yield of the State water system, improve water supply reliability, reduce competition for water supplies during dry periods and reduce stresses on ecosystems. The Project will provide additional operating flexibility for Rosedale's existing and future programs, and will be a critical element of the IRWD water supply reliability portfolio that supports groundwater recharge and recovery for regional conjunctive use and groundwater banking partnerships.

### BUDGET

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### GEOGRAPHIC INFORMATION

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### LEGISLATIVE INFORMATION

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## Project Information

**PROJECT NAME:** KERN FAN GROUNDWATER STORAGE PROJECT

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## Project Benefits Information

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## Budget

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<td>Hydrologic Region</td>
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Section: ELIGIBILITY AND GENERAL PROJECT INFORMATION

ELIGIBILITY AND GENERAL PROJECT INFORMATION TAB

Q.1 Applicant Type:

Specify which of the following describes the applicant:

- Public agency

Q.2 Project Type:

Please identify the appropriate project type for the application:

- Groundwater Storage

Q.3 Public Benefits:

Please identify the public benefit categories for which Program funding is requested:

- ☑ Ecosystem Improvements (must be included)
- □ Water Quality Improvements
- □ Flood Control Benefit
- ☑ Emergency Response
- □ Recreational Purposes

Q.4:

Explain why the proposed project does not adversely affect any river afforded protection pursuant to the California or Federal Wild and Scenic Rivers Act. See section 6003(a)(1)(I) of the regulations.

The Kern Fan Integrated Groundwater Storage Project (Project) will have no impact on any river that is afforded protection pursuant to the California or Federal Wild and Scenic Rivers Act. The Project is located approximately six miles west of Bakersfield in Kern County near the southernmost reach of Kern River in the alluvial fan area, where surface water seeps into the South Valley Floor.
The Project is located within the Kern County Subbasin (Bulletin 118 Basin 5.22-14) ("Basin") and is anticipated to have a beneficial impact upon the groundwater basin. The California Statewide Groundwater Elevation Monitoring ("CASGEM") system has identified the Basin as having an overall basin priority of "High" as well as being subject to overdraft, subsidence, and water quality degradation. The Kern Groundwater Authority ("KGA") is the exclusive Groundwater Sustainability Agency (GSA) for the area served by Rosedale-Rio Bravo Water Storage District ("Rosedale"). The Project site is contained within the Rosedale service area. Pursuant to an agreement with the KGA, Rosedale shall prepare a Groundwater Sustainability Plan for its service area. Rosedale, in partnership with other members of the KGA, shall coordinate their respective GSPs into one GSP for the boundary of the KGA's GSA. The Project is a critical component of Rosedale's GSP in that it will augment existing surface water supplies and reduce Rosedale's dependence upon groundwater. Reduced dependence upon groundwater will address conditions of overdraft as well as subsidence within the region. Hydrologic variability between local (Kern River), state (SWP) and federal (Friant Kern) water supplies will likely present additional water management opportunities. Rosedale anticipates that the Project facilities, through development of agreements with other GSA's within the Basin, may be used to capture and store these other water sources for future use.
supplies with the goal of integrated regional water management and Basin wide benefits. To achieve sustainability at the Basin level, Rosedale and Irvine Ranch Water District ("Irvine") would seek to develop both state wide and local partnerships to leverage the use of the Project facilities when not needed for Project purposes. Examples include partnerships with local water interests with access to Kern River water. The Project facilities, when not used to meet the primary Project objective, could be made available for the recharge and storage of Kern River water which may have otherwise left the groundwater basin. Kern River water recharged and stored in the Project would improve and address Basin overdraft, subsidence as well as water quality conditions. Additionally, the Project facilities may be used to help reregulate other SWP supplies, such as carry-over water at risk of spill. Rosedale and Irvine may develop unbalanced exchange agreements with other SWP contractors for access to Project facilities to capture and reregulate SWP water supplies which may otherwise be lost. These unbalanced exchange agreements, typical of both Rosedale and Irvine water management, require that for every two (2) acre-feet ("AF") of water banked that only one is obligated for future return. As a result of these unbalanced exchange programs, the Basin benefits and overdraft and subsidence impacts are mitigated.

A.1 Executive Summary:

Last Uploaded Attachments: Tab3-A1 Executive Summary_FINAL.pdf

A.2 Resolution:

Attach the Resolution, as required by regulations section 6003(a)(1)(C). See Program website for an example resolution.
Last Uploaded Attachments: A2_IRWD_SignedResolution_FINAL.pdf,A2-IRWD_RosedaleResolution of Financing.pdf

A.3 Project Description:

Project Description. Attach a description of the project that meets the requirements of section 3.3 of the TR. If a full project description is included in another attachment, identify the attachment name and beginning page number in this attachment.
Last Uploaded Attachments: Tab3- A3 IRWD_Project Description_FINAL.pdf

A.4 Project Description Support:

Attach maps, schematics and engineering design drawings that support the project description, if not already available in other attached documents. See section 6003(a)(1)(B) of the regulations.
Last Uploaded Attachments: Tab 3-A4_IRWD_Maps and Schematics_2017-08-09.pdf

A.5 Attestation:

Attach a statement, under penalty of perjury pursuant to the laws of the State of California, attesting that the information provided in the full application is true and correct to the best of the applicant's knowledge. Scanned uploaded documents containing a scanned signature are sufficient. See section 6003(a)(1)(Y) of the regulations.
A.6 Other Application Information:

OPTIONAL: Attach any other information that would support the application which does not fit easily in another category: for example, other studies or an index of the submitted application documents.


Section : PHYSICAL PUBLIC BENEFITS

PHYSICAL PUBLIC BENEFITS

A.1 Ecosystem Benefits:

Attach completed Ecosystem Priorities worksheets. Be sure to include the general information worksheet as well as worksheets for each priority being claimed for which funds are being requested. Identify at least one Program ecosystem priority for any ecosystem public benefit quantified. See section 6003(a)(1)(Q) of the regulations.

Last Uploaded Attachments: IRWD_Tab 4_Attach 1_Priority 14_FINAL.pdf,IRWD_Tab 4_Attach 1_Priority 12_FINAL.pdf,IRWD_Tab 4_Attach 1_Priority 2_FINAL.pdf,Tab 4_A1_IRWD_Ecosystem_General_Info_FINAL.pdf

A.2 Ecosystem Benefits:

Attach supporting documentation requested in Ecosystem Priorities worksheets such as maps or other information not already provided elsewhere in the application.

Last Uploaded Attachments: IRWD_Tab 4-A2-Ecosystem_CFS_TechMemo_FINAL.pdf,IRWD_TAB 4_A2_Ecosystem_Priority 14_FINAL.xlsx,IRWD_FeatherRiverMaps.pdf

A.1 Water Quality Benefits:

Attach completed Water Quality Priorities table(s). If the project is claiming water quality benefits that meet the water quality priorities, be sure to include the general application questions table as well as tables for each priority being claimed for which funds are being requested. Identify at least one Program water quality priority for any water quality public benefit quantified. See section 6003(a)(1)(Q) of the regulations.

A.2 Water Quality Benefits:

Attach supporting documentation requested in Water Quality Priorities tables such as maps or other information not already provided elsewhere in the application.

Q.1 Flood Control Benefits: If the proposed project is not claiming flood control benefits, leave the following questions blank.
If applicable, how will the project provide flood control benefits? If some project operations will be for flood control purposes, explain. Are the flood control benefits realized locally and/or throughout the larger flood control system? (TR section 4.9.2.1) Describe any negative impacts of providing the flood control benefit. (TR section 4.9.2.4)

Q.2 Flood Control Benefits: If the proposed project is not claiming flood control benefits, leave the following questions blank.

What methods were used to calculate flood damage reduction? Identify which of the following methods was used to quantify physical flood control benefits:

1. Modeling provided with feasibility study
2. New modeling using historical flood events or historical hydrology
3. New modeling using the climate change hydrology data set provided

If 1 or 2 is used, explain how benefits might be different under the provided future climate and sea levels projections. Provide justification for any methods not identified in section 5.4.3 of the TR. See also regulations section 6004(a)(1)(F).

A.1 Flood Control Benefits: If the proposed project is not claiming flood control benefits, leave the following questions blank.

Attach any relevant flood damage reduction supporting documentation, such as hydraulic and hydrologic modeling studies, and property flood damage analysis (TR section 4.9.4). If information to support this question is located in another attachment, provide the location.

Q.1 Emergency Response Benefits: If the proposed project is not claiming emergency response benefits, leave the following questions blank.

If applicable, how will the project be operated to provide emergency response benefits? Identify the types of emergency benefits the proposed project could provide. (TR section 4.11.1). If additional information to support this question is located in another attachment, provide the location.

For the proposed Kern Fan Groundwater Storage Project, project proponents IRWD, Rosedale and DRWD plan to operate the project to provide multiple benefits included Emergency Response. The Project will be operated to provide water for Emergency Response under an extended drought and for Emergency Response under a Delta Failure. Detailed information on the proposed Kern Fan Groundwater Storage Project operating plan to provide emergency response benefits for the extended drought and the Delta Failure is included under the Benefit Calculation, Monetization and Resiliency Tab, Attachment 2 of the WSIP funding application. Detailed information for the basis for the quantification of available water for the emergency response Delta Failure is included under the Feasibility and Implementation Risk Tab, Attachment 1 ? Technical Feasibility (MBK Engineers, 2017) of the WSIP funding application. Detailed information for the basis for the monetized benefits for the emergency response for the extended drought and the emergency response for the Delta Failure is included under the Benefit Calculation, Monetization and Resiliency Tab, Attachment 3 and Attachment 5 of the WSIP funding application.
A.1 Emergency Response Benefits: If the proposed project is not claiming emergency response benefits, leave the following questions blank.

Attach a description of the amount or share of stored water to be provided for the emergency benefits and define the conditions under which water would be made available. Describe how the applicant can commit to the conditions under which the emergency benefits would be made available. (TR section 4.11.2)

Last Uploaded Attachments: IRWD_Tab 4 A1 IRWD_Emergency Response Benefits_FINAL.pdf

Q.1 Recreation Benefits: If the proposed project is not claiming recreation benefits, leave the following questions blank.

If applicable, how will the project be operated to provide recreation benefits? If additional information to support this question is located in another attachment, provide the location.

Q.2 Recreation Benefits: If the proposed project is not claiming recreation benefits, leave the following questions blank.

By providing new recreation benefits, does the proposed project negatively affect any existing recreation activities either at the proposed project site, at another facility, or nearby recreation area? (TR section 4.10.1.1)

Q.3 Recreation Benefits: If the proposed project is not claiming recreation benefits, leave the following questions blank.

Describe the proposed recreation physical benefits including the size of the facility, recreation activities allowed, recreation facilities associated with these activities, and their capacities and seasonal closures and conditions in which facilities are not usable or activities cannot occur. Any supporting analysis should be attached in A.1 below. (TR section 4.10.1.2)

A.1 Recreation Benefits: If the proposed project is not claiming recreation benefits, leave the following questions blank.

Attach recreation visitation estimates including documentation of estimation methodology.

A.2 Recreation Benefits: If the proposed project is not claiming recreation benefits, leave the following questions blank.

Attach or provide links to any relevant recreation studies associated with the proposed project.

Section : FEASIBILITY & IMPLEMENTATION RISK

FEASIBILITY & IMPLEMENTATION RISK

A.1 Feasibility Documentation:
Attach feasibility studies or documentation that demonstrates the proposed project’s technical, environmental, economic, and financial feasibility as described in TR section 3.5. See also regulations section 6003(a)(1)(O).

Last Uploaded Attachments: IRWD_Attach 1_Combined Feasibility.pdf, IRWD_Attach 1_MBK_Model_KernFan.xlsm

A.2 Permit List:

Provide a listing and status of all local, state, and federal permits, certifications, and other approval necessary for the construction and operation of the project. See section 6003(a)(1)(W) of the regulations.

Last Uploaded Attachments: Tab5-A2_IRWD_Permits_FINAL.pdf

A.3 Schedule:

Attach an estimated schedule for the proposed project until the first year of operation. If the schedule is included in another attachment, identify the location. See section 6003(a)(1)(G) of the regulations.

Last Uploaded Attachments: Tab5_A3_IRWD_Schedule_Text_FINAL.pdf, Tab5_A3_IRWD_Schedule_FINAL.pdf

A.4 Environmental Document:

Attach the most recent publicly available environmental document for the proposed project. If the document is available on a website, provide a link to the document(s). See section 6003(a)(1)(S) of the regulations.

Last Uploaded Attachments: Tab5_A4_IRWD_Final EIR Stockdale.pdf, Tab5_A4_IRWD_ScopeforEnviro_ESA_FINAL.pdf

A.5 Impacts and Consultation:

Summarize the project’s impacts on environmental or cultural resources and how the project will mitigate or minimize impacts to those resources, or identify where in the CEQA document this information can be found. If any environmental or cultural impacts will not be fully mitigated, explain. See regulations section 6003(a)(1)(T).

If applicable, identify whether Tribal consultation has been initiated for the project. If it has, provide supporting documentation, or identify the location in the CEQA document. If consultation has not been initiated, state whether consultation is expected and when consultation is expected to be initiated. See regulations section 6003(a)(1)(U).

Last Uploaded Attachments: Tab 5_A5_IRWD_Proj Impacts_FINAL.pdf

Section : BENEFIT CALCULATION, MONETIZATION, and RESILIENCY

Q.1:

Did the applicant use the model products and assumptions described in section 6004(a)(1) of the regulations? See regulations section 6003(a)(1)(CC). If no, provide a description of the models and assumptions used to determine the without-project future conditions for years 2030 and 2070.
The Kern Fan Groundwater Storage Project’s water supply and public benefits used the products developed by the Water Storage Investment Program (WSIP) for years 2030 (WSIP 2030) and 2070 (WSIP 2070) that were published on November 2, 2016.

### A.1 Project Conditions:

Attach description and assumptions of with-project conditions for years 2030 and 2070, as defined in section 6004(a)(2) of the regulations, as well as a description of the with- and without-project current conditions. See also regulations section 6003(a)(1)(BB).

Last Uploaded Attachments: Tab 6-A1_IRWD_With and Without Project Conditions_FINAL.pdf

### A.2 Preliminary Operations Plan:

Attach the preliminary operations plan for the proposed project. See regulations section 6003(a)(1)(H) for details. If the preliminary operations plan is located in another attachment, identify the attachment and provide the location.

Last Uploaded Attachments: Tab 6-A2_IRWD Preliminary Operations Plan_FINAL.pdf, Tab 6-A2_IRWD Preliminary Operations Excel_FINAL.xlsx

### A.3 Monetized Benefits Analysis:

Attach the analysis of all public and non-public monetized benefits. Identify at least one Program ecosystem or water quality priority for any ecosystem or water quality public benefit quantified. For each public and non-public benefit, describe the methods used to derive the physical and economic benefits and impacts at a level of detail that allows reviewers to verify your analysis.

Description must include:

- The physical changes that are being monetized, consistent with information requested in the Physical Public Benefits Tab, and describing linkages between physical benefits and monetized benefits. See regulations sections 6004(a)(3) and 6004(a)(4); and

- The monetization method and sources for data used. See regulations section 6004(a)(4).

Last Uploaded Attachments: Tab 6-A3_IRWD_MCubed_WSIP Project Economic Benefits Techmemo_FINAL.pdf

### A.4 Mitigation and Compliance Obligation:
For each net public benefit claimed, where applicable, identify any existing environmental mitigation or compliance obligations that are accounted for in each net public benefit as of the date of the CalSim-II model product in section 6004 (a)(1).

- Applicants that use the CalSim-II and DSM2 models to analyze their projects can indicate “within models” for any existing environmental mitigation and compliance obligations contained in those models.
- If applicable to their claimed net public benefit such projects shall also list and account for the non-flow related mitigation and compliance obligations of the State Water Project and Central Valley Project.

Last Uploaded Attachments: Tab 6-A4_IRWD_EnviroMitigation__FINAL.pdf

A.5 Quantification Support:

Provide additional information that supports the physical and monetary quantification of the public and non-public benefits and impacts of the project as required by subsection 6004(a)(4) of the regulations. This includes data, assumptions, analytical methods and modeling results, calculations and relevant sources of information. For reference documents or studies relied upon, applicants may provide links to an existing website in lieu of attaching those documents to the application.

Last Uploaded Attachments: Tab 6-A5 IRWD_WSIP_Econ Benefits_081117_FINAL.xlsx

A.6 Monetization Table:

Attach a table displaying each future economic benefit in 2015 dollars for each year of the planning horizon as required by section 6004(a)(4)(A) of the regulations.

Last Uploaded Attachments: Tab 6-A6_IRWD_Future Annual Economic Benefit_FINAL.pdf

A.7 Non-Monetized Benefits:

If applicable, provide a summary of public benefits that cannot be monetized. Provide the following information for each non-monetized benefit.

- Justification why benefit cannot be monetized,
- Qualitative description of importance of benefit (who is affected, how and how often),
- Evidence to show how the physical change is beneficial and important to Californians.

A.8 Total Project Cost Estimate:
Attach an estimate of the total project costs that includes construction cost, interest during construction, land acquisition, monitoring, environmental mitigation or compliance obligations, operations and maintenance, repair, and replacement costs during the planning horizon using methods described in TR section 6. If the project costs are located in another attachment, identify the location.

The project cost estimates must be reviewed, approved and signed by an engineer licensed by the California Board for Professional Engineers, Land Surveyors, and Geologists.

Last Uploaded Attachments: Tab 6-A8_IRWD_Total Project Cost_FINAL.pdf

**A.9 Benefit and Cost Analysis:**

Attach the benefit and cost analysis for the proposed project. If the analysis is located in another document, identify the location. See regulations section 6004(a)(6).

Last Uploaded Attachments: Tab 6-A9-A10_IRWD_Benefit-Cost_Analysis_Cost_Allocation.xlsx

**A.10 Cost Allocation:**

Provide a proposed allocation of total project costs to all project beneficiaries, including the Program, and an explanation of how the allocation was calculated, consistent with TR section 8 and section 6004(a)(7) of the regulations. If this information is included in another attachment, identify the location.

Last Uploaded Attachments: Tab 6-A10_IRWD_Allocation of Cost_FINAL.pdf

**A.11 Physical and Economic Summary Table:**

Attach the Physical and Economic Benefits Summary tables. These tables can be downloaded from the Commission website and uploaded with the application. See regulations section 6003(a)(1)(N).

Last Uploaded Attachments: Tab 6-A11_IRWD_Physical and Economic Benefits Summary Tables_FINAL.xlsx

**A.12 Uncertainty Analysis:**

Attach the uncertainty analysis. See regulations section 6004(a)(8).

Last Uploaded Attachments: Tab 6-A12_IRWD_Uncertainty Analysis_FINAL.pdf

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**Section : PROGRAM REQUIREMENTS**

**PROGRAM REQUIREMENTS**

**Q.1:**

Describe how the project improves the operation of the state water system. See regulations section 6003(a)(1)(M).

The Kern Fan Integrated Groundwater Storage Project (Project) will improve the operation of the State water system by storing up to 100,000 acre-feet (AF) of SWP unallocated Article 21 water during wet periods that would otherwise be lost to the ocean. The water would be stored for use during dry periods. The recharge and recovery of water from the Project would be expected to occur...
numerous times over the life of the Project and would improve the yield of the State water system, improve the water supply reliability of Rosedale, IRWD and DRWD and would provide ecosystem benefits at the Delta and its tributaries. Located in Kern County near the California Aqueduct, the Project will receive, recharge, and store unallocated SWP Article 21 water in the Kern County Groundwater Sub-basin west of Bakersfield. Article 21 water would be available in accordance with long-term Water Supply Contracts for State Water Contractors. Article 21 water is available when there is water in excess of SWP Table A needs. Unallocated Article 21 water will be delivered to the Project utilizing available capacity in the California Aqueduct to an existing or new turnout near the Cross Valley Canal. The turnout diversions would be to a new 500 cubic feet per second (cfs) lined canal that would be constructed as part of the Project that will provide dedicated conveyance capacity to move water from the California Aqueduct through multiple pump stations to the Project spreading basins. The lined canal would also facilitate the delivery by gravity of water recovered from Project wells back to the aqueduct. This new ten-mile long canal will convey water to approximately 1,200 acres of spreading basins with a recharge rate of up to 26,000 AF per month. During droughts or times of need when available supplies are reduced, stored groundwater will be recovered from the Project via 12 new extraction wells, each with a capacity of 5 cfs, and conveyed to points of use in DRWD, IRWD and Rosedale?s service areas. Some water recovered from the Project would be used within Rosedale?s service area and some would be delivered through the dedicated lined canal or the Cross Valley Canal to the California Aqueduct. Water deliveries to DRWD would occur via operational exchange and deliveries into IRWD?s service area would be made through the extension of existing exchange agreements between DRWD and Metropolitan Water District of Southern California. Approximately 25 percent of the stored water would be held as SWP system water that would be used for ecosystem benefits purposes. This 25 percent of the water would be made available for ecosystem benefits through 1-for-1 exchanges which would be facilitated through a Coordinated Operating Agreement that would executed between the project partners and DWR as described in Tab 7, A1. The Project offers exceptional flexibility to better manage available supplies, utilizing the groundwater basin as storage and existing infrastructure for conveyance of water, all of which supports improved operations of the State water system. The Project will support sustainable water management on a statewide basis and offer noteworthy, measurable ecosystem benefits. By banking unallocated Article 21 water, the Project will be operated to alleviate stress on the sensitive species in the Delta, while providing increased supply reliability. The Kern Fan Groundwater Storage Project will offer opportunities to further improve the operation of the State water system through the integration of operations with other projects funded through the Water Storage Investment Program. For example, Sites Reservoir participants could be offered the opportunity to store water in the Project under mutually beneficial terms that would avoid reservoir spills. Such integration efforts could improve the yield of the State water system, improve water supply reliability, reduce competition for water supplies during dry periods and reduce stresses on ecosystems.

Q.2:

Describe how the project provides a net improvement in ecosystem and water quality conditions required by Water Code section 79750.

Analyses of the public benefits of the Kern Fan Groundwater Storage Project (Project) were conducted that show measurable ecosystem benefits for the Sacramento-San Joaquin Delta (Delta), Sacramento River, and Feather River, consistent with the requirements of Water Code Section 79750. The Project will be located in Kern County and operated to support the State Water Project (SWP). During wet years, the Project will recharge and store, using Project facilities, up to 100,000
acre-feet per year (AFY) of unallocated SWP Article 21 water into the Kern County groundwater basin. These deliveries would be made on behalf of Irvine Ranch Water District (IRWD) as a landowner in Dudley Ridge Water District (DRWD) and Rosedale-Rio Bravo Water Storage District (Rosedale) as a sub-unit of the Kern County Water agency. Approximately 25 percent of the stored water would be held as SWP system water that would be used for public ecosystem benefits. This 25 percent of the water would be made available for ecosystem benefits through 1-for-1 exchanges that would occur when the water is extracted from the ground. The 1-for-1 exchanges would result in Table A water, that is held in Lake Oroville, being reclassified as SWP system water and the SWP system water being extracted from the ground, being reclassified as Table A water. The SWP system water left in Oroville Reservoir would then be used to provide short-term ecosystem pulse flows to generate ecosystem benefits by improving habitat for fish in the Feather and Sacramento Rivers and Delta. Results of water modeling (MBK Engineers) indicate that in 2030 the Project would typically recharge unallocated Article 21 water on average in about 24 of 30 years. While Project storage will vary and be dependent upon water supply, demand and operations, the average annual Project storage is estimated at 18,000 AF at the end of October. During dry and critical periods, ecosystem pulses would be released from Oroville Reservoir to provide net improvements to the Delta ecosystem and its upstream tributaries. It is anticipated that the Project would apply six ecosystem pulses of 18,000 AF over 3.75-day periods in April at 2,400 cubic feet per second (cfs) during dry or critical years. April was selected as a period of high relative abundance for downstream migration and rearing of juvenile salmon, however, the Project operation offers flexibility to accommodate DWR’s operation of Oroville Reservoir and the SWP. The ecosystem pulses will improve habitat conditions for in-river rearing and downstream migration of juvenile salmonids. Overall for the 2030 condition, it is estimated that the spring-run of Chinook salmon would increase from 107 to 252 due to the ecosystem pulses. Winter-run Chinook salmon would also increase from 20 to 38 with the ecosystem pulses. Though April flow pulses are expected to benefit multiple fish species and life stages, the quantitative analysis focuses on assessing benefits to outmigrating juvenile spring-run and winter-run Chinook salmon. Project performance was also simulated under other projected conditions as part of the uncertainty analysis. The conclusions generally remain the same - operation of the Project and coordination with the SWP operation will support ecosystem pulse releases from Oroville Reservoir will yield a net increase in public benefits. Lastly, the Project will optimize public benefits by providing flexible water storage and recovery facilities that will improve the State’s water system in a cost effective manner. The Project’s water banking will build upon the success of other groundwater storage/recovery projects, demonstrating that collaboration with DWR can provide many public benefits, namely environmental improvements for habitat and fish at the Delta as well as water supply during droughts and other emergency situations.

Q.3:

If applicable, summarize how the applicant is coordinating with the owners and operators of water system facilities not owned or operated by the applicant or project partners that may be affected by the project. See regulations section 6003 (a)(1)(P).

The Kern Fan Integrated Groundwater Storage Project (Project) will be implemented through coordination between multiple agencies. Irvine Ranch Water District (IRWD) and Rosedale-Rio Bravo Water Storage District (Rosedale), thru a partnership agreement, will have primary responsibility for implementing the Project. Deliveries of unallocated Article 21 water will be made to the project in accordance with long-term Water Supply Contracts for State Water Contractors. These deliveries would be made on behalf of Irvine Ranch Water District (IRWD) as a landowner in Dudley Ridge Water District (DRWD) and Rosedale as a sub-unit of the Kern County Water...
agency. During droughts or times of need when available supplies are reduced, stored groundwater will be recovered from the Project via 12 new extraction wells and conveyed to points of use in DRWD, IRWD and Rosedale’s service areas. Some water recovered from the Project would be used within Rosedale’s service area and some would be delivered through a dedicated lined canal or the Cross Valley Canal (CVC) to the California Aqueduct. Any water conveyed through the CVC would occur via standard transaction requests to the Kern County Water Agency using capacity owned by Rosedale and IRWD and unused capacity. Water deliveries to DRWD would occur via operational exchange and deliveries into IRWD’s service area would be made through the extension of existing exchange agreements between DRWD and Metropolitan Water District of Southern California (Metropolitan) using aqueduct capacities available to DRWD and Metropolitan through their State Water Project Contracts. IRWD has an existing Coordinated, Operating and Exchange Agreement with Metropolitan and the Municipal Water District of Orange County (MWDOC) that would, with Metropolitan’s consent, facilitate the deliveries of water to IRWD’s service area through MWDOC. Should the CWC select the Project for grant funding, IRWD would seek Metropolitan’s consent to such deliveries to allowable areas consistent with provisions of the agreement. The California Department of Water Resources State Water Project Analysis Office (SWPAO) and SWP operations staff have been consulted with respect to the proposed 1-for-1 exchanges that would make water available for the public ecosystem benefits that would be derived from pulse flows as described in Tab 7, A1. SWPAO has identified that uncertainties and contractual issues would need to be worked through with the project partners. This work would begin immediately should the CWC select the Project for funding. It is expected that the efforts would result in a Coordinated Operating Agreement that would be executed between the project partners and DWR. The Project would not require any changes in water rights or State Water Project Contracts. The storage and recovery of water stored in the Project as described above would not impact groundwater rights or entitlements. As project proponents that are submitting this application for WSIP funding, IRWD and Rosedale are expressing their willingness to be a party to the Coordinated Operating Agreement with DWR. Attached with the application is a letter from DRWD expressing its support for the project and its willingness to consider terms for participating in the project as a party to the Coordinated Operating Agreement. The Kern Fan Groundwater Storage Project will offer opportunities to further improve the operation of the State water system through the integration of operations with other projects funded through the Water Storage Investment Program. For example, Sites Reservoir participants could be offered the opportunity to store water in the Project under mutually beneficial terms that would avoid reservoir spills. Such integration efforts could improve the yield of the State water system, improve water supply reliability, reduce competition for water supplies during dry periods and reduce stresses on ecosystems.

Q.4:

Describe how the project advances the long-term objectives of restoring the ecological health and improving water management for beneficial uses of the Delta. See regulations section 6003(a)(1)(R).

The Kern Fan Integrated Groundwater Storage Project (Project) will improve water management in California and benefit the environment at the Sacramento-San Joaquin Delta (Delta) and Sacramento and Feather Rivers. The Project will store up to 100,000 acre-feet (AF) of State Water Project (SWP) Article 21 water in the Kern County groundwater basin during normal-wet years. These deliveries would be made on behalf of Irvine Ranch Water District (IRWD) as a landowner in Dudley Ridge Water District (DRWD) and Rosedale-Rio Bravo Water Storage District (Rosedale) as a sub-unit of the Kern County Water agency. During dry years and critical dry years,
IRWD as a land owner in DRWD, DRWD and Rosedale would rely on the stored flows to provide non-public water supply benefits that improve water supply reliability. Approximately 25 percent of the stored water would be held as SWP system water that would be used for ecosystem benefits purposes. This 25 percent of the water would be made available for ecosystem benefits through 1-for-1 exchanges that would occur when the water is extracted from the ground. The 1-for-1 exchanges would result in Table A water, that is held in Lake Oroville, being reclassified as SWP system water and the SWP system water being extracted from the ground, being reclassified as Table A water. The Table A water would be used to meet DRWD and Rosedale SWP Table A demands either directly or through operational exchanges. The SWP system water left in Oroville Reservoir would then be used to provide short-term ecosystem pulse flows to generate ecosystem benefits by improving habitat for fish in the Feather and Sacramento Rivers and Delta. The 1-for-1 exchanges would result in the water extracted from the ground and used by DRWD and Rosedale being classified as Table A water and the water left in Oroville Reservoir for use in providing ecosystem benefits being classified as SWP system water. Irvine Ranch Water District (IRWD), and its partner, Rosedale-Rio Bravo Water Storage District (Rosedale) have successfully implemented two prior water banking projects as part of Rosedale’s Conjunctive Use Program and understand the benefits of regional cooperation and integration to optimize water management. Studies have been prepared to document the operation of the Project and confirm how it will achieve the goal of improving water use at the Delta. The first three are included in the Feasibility and Implementation Tab within Attachment 1. The ACWA Study is provided in the Eligibility and General Project Tab, Attachment 6, Other Application Information.: MBK Engineers, 2017. Analysis of Kern Fan Groundwater Storage Project for Water Storage Investment Program? This technical memorandum presents modeling demonstrating how the Project will be operated to provide both public and non-public benefits by storing additional water in the aquifers in the Kern River Fan in wet years, and by providing up to 18,000 AF of water in dry years to provide both ecosystem and water supply benefits.

Q.5: Describe how the applicant will ensure that the proposed project will comply with and be consistent with all applicable local, state, and federal laws and regulations, including existing environmental mitigation or compliance obligation requirements. See regulations section 6003(a)(1)(V).

The Kern Fan Integrated Groundwater Storage Project (Project) will comply with and be consistent with all applicable local, state, and federal laws and regulations, including environmental compliance requirements. Irvine Ranch Water District (IRWD) and Rosedale-Rio Bravo Water Storage District (Rosedale) have successfully implemented two similar water banking projects in Kern County, and based on that experience, understand the regulatory requirements associated with the Project. Local permits may be required for encroachment, traffic control, and land use. The area is designated for agriculture with allowable uses of water storage and groundwater recharge sites and facilities. Kern County permits for grading, construction, and building should not be required because water facilities are considered exempt. An encroachment permit may be required for use and modification of the Cross Valley Canal. Permanent or temporary easements will be required for pipelines and the new canal. Well drilling permits will be required for construction of the extraction wells. Depending on the site, approvals may be required from the U.S. Army Corps of Engineers, California Department of Fish and Wildlife, and Regional Water Quality Control Board. The contractor will be required to obtain all permits for construction of the facilities, such as a storm water pollution prevention plan (SWPPP), and dust control per the San Joaquin Valley Air Pollution Control District. Specific permitting requirements will be evaluated in the environmental compliance documentation for the Project. In December 2015, IRWD and Rosedale certified the

https://grants.water.ca.gov/(S(pfjayvk3zyhiqv3n1fl2hdna))/Agency/ProposalFullView.aspx 8/15/2017
Stockdale Integrated Water Banking Project Final Environmental Impact Report (Final EIR) in compliance with the California Environmental Quality Act (CEQA). The Final EIR included a program-level analysis of the Stockdale East property, which will be used as the Project's Phase I site. Phase II of the Project will add another site in this vicinity. A supplemental EIR will be prepared, adding to the Final EIR, to specifically address the Project Phase I site and appurtenance conveyance facilities. The Project's Phase II site will be evaluated in the supplemental EIR on a program level. When the location of the Phase II site is confirmed, a second, more focused supplement EIR will be prepared. In conclusion, the Project will comply with all permit requirements and be consistent with all applicable regulations.

A.1 Delta or Tributary Measurable Improvement:

What measurable improvements to the Delta ecosystem or tributary to the Delta does the project provide? Where is the location of the improvement? If the project is not within the watershed of the Delta, what specific water rights or water contracts would be created or amended to ensure public benefits to the Delta ecosystem? Provide supporting documentation of the willingness of these water right or water contract holders to enter into such contracts or amendments. Explain how these changes would assure measurable improvements to the Delta ecosystem. See regulations section 6003(a)(1)(L).

Last Uploaded Attachments: Tab 7_A1_IRWD_Delta Improvements_FINAL.pdf, Tab 7_A1 Dudley Ridge Water District Letter.pdf

A.2 Cost Effectiveness:

Provide documentation indicating the proposed project is cost-effective. If there is at least one feasible alternative means of providing the same amount or more of the total public and non-public physical benefits as provided by the proposed project, calculate, display and document the least-cost of these alternative means and justify the proposed project by comparison.

Last Uploaded Attachments: Tab 7_A2_IRWD_Cost-Effectiveness_FINAL.pdf

Section : EARLY FUNDING REQUEST

Q.1:

Is early funding for completing environmental documentation and/or permits requested? If yes, answer the following question and provide the requested information. See regulations section 6003(a)(1)(X).

IRWD and Rosedale are not requesting early funding.

Q.2:

What is the requested amount?

Not Applicable

A.1 Early Funding Scope, Schedule, Budget:
Attach a schedule, scope of work, and budget.

- Keep in mind that the applicant must provide a 50 percent cost share and reimbursable costs can only go back to November 4, 2014.

- Scope of work must include an explanation of why early funding is critical to the project, the viability of the project in the absence of this funding and how the project will proceed once early funding is expended.

- The scope of work cannot include work performed prior to submittal of the application.

- The tasks in the schedule, scope of work and budget should match.