STEVEN M. TORIGIANI, ESQ., SBN 166773
BRETT A. STROUD, ESQ., SBN 301777
THE LAW OFFICES OF YOUNG WOOLDRIDGE, LLP
1800 30th Street, Fourth Floor
Bakersfield, CA 93301
Telephone: (661) 327-9661
Facsimile: (661) 327-0720
Email: storigiani@youngwooldridge.com
bstroud@youngwooldridge.com

Attorneys for Petitioner JAMES IRRIGATION DISTRICT

EXEMPT FROM FILING FEE [GOV. CODE §6103]

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF FRESNO

JAMES IRRIGATION DISTRICT, a California Irrigation District;

Petitioner,

v.

WESTLANDS WATER DISTRICT, a California Water District;

Respondent.

MENDOTA POOL GROUP, an unincorporated association; and DOES 1 through 100, inclusive;

Real Parties in Interest

Case No. 20CECG00688

PETITION FOR WRIT OF MANDATE AND COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF

([CEQA – Pub. Resources Code, §§ 21000 et seq.; Code Civ. Proc., §§ 1085, 1094.5, 1060, 526.)

Petitioner and Plaintiff, James Irrigation District ("Petitioner," "James," or "JID") brings this Petition for Writ of Mandate and Complaint for Declaratory and Injunctive Relief ("Petition") and alleges as follows:

INTRODUCTION

1. This action is commenced pursuant to the California Environmental Quality Act ("CEQA"), Public Resources Code sections 21000 et seq., and its implementing regulations in California Code of Regulations, title 14, chapter 3, section 15000 and following ("CEQA Guidelines"). This Petition challenges certain actions taken and determinations made by Respondent Westlands Water District ("Respondent" or "Westlands") on January 21, 2020, including approval and/or adoption of a defective Final Environmental Impact Statement / Environmental Impact Report ("EIR"), including associated findings and mitigation measures, and approval the Mendota Pool Group 20-Year Exchange Program ("Project") based on that EIR.

2. The EIR is a joint document prepared under both CEQA and the National Environmental Policy Act, 42 U.S.C. §§ 4321 et seq. ("NEPA"), with the United States Department of Interior, Bureau of Reclamation ("Reclamation") as the NEPA lead agency. In this action, JID is challenging the EIR under CEQA, not NEPA.

3. Among other things, the Project approves the continuation, for twenty years, of annual water exchanges that deprive Petitioner and its agricultural water users of the high quality surface water it has contracted to receive from Reclamation as part of the Central Valley Project ("CVP"), and in lieu of such supplies force Petitioner to receive poor quality groundwater. All told, over the course of two decades or 20 years the Project would transfer up to 400,000 acre-feet ("AF")[1] of Petitioner's high quality surface supplies to landowners in Westlands and replace it with up to 421,053 AF (or up to 26,316 AF a year) of highly saline native groundwater discharged by Project groundwater wells of the Mendota Pool Group ("MPG") into the Mendota Pool upstream of Petitioner's point of diversion. That groundwater would have detrimental levels of salinity equaling or exceeding 1,600 milligrams per liter ("mg/L") of total dissolved

[1] An acre-foot is the volume of one acre of surface area to a depth of one foot, or approximately 325,851 US gallons. (*O.W.L. Foundation v. City of Rohnert Park* (2008) 168 Cal.App.4th 568, 576 fn.2.)

solids ("TDS"), in addition to high concentrations of boron, that result in surface water degradation and exceedances of applicable water quality standards and standards of significance. These exchanges, like the same or substantially similar past exchanges of similar projects, will cause continuing environmental harm and result in significant adverse impacts and cause irreversible environmental damage to the Petitioner and the lands within its boundaries that are not properly considered in the EIR, including without limitation impacts on surface water quality, prime farmland, crop yields, soil characteristics, groundwater quality, and irrigation infrastructure within JID. Due to Petitioner's and its water users' location downstream of the groundwater discharges they will bear the brunt of the environmental damage wrought by the Project, yet the Project fails to include any mitigation or alternatives whatsoever that would reduce, minimize, or avoid causing these significant and irreversible environmental effects. In addition to Petitioner, the State of California, by and through its California Department of Water Resources ("DWR") and California Department of Fish and Wildlife ("CDFW"), and others, submitted comment letters contending that the EIR for the Project does not comply with CEQA.

PARTIES

4. Petitioner is presently, and at all times relevant hereto has been, a public entity formed and existing pursuant to the California Irrigation District Law, Water Code sections 20510 et seq. Petitioner's boundaries consisting of approximately 25,000 acres are located exclusively within the County of Fresno.

5. Petitioner brings this action against Westlands in its capacity as the CEQA Lead Agency for the Project. Westlands is a public entity formed and existing pursuant to the California Water District Law, Water Code sections 34010 et seq. Westlands' boundaries encompass lands in the County of Fresno and the County of Kings.

6. Petitioner is informed and believes that Real Party in Interest Mendota Pool Group ("MPG") is presently, and at all times relevant hereto has been, an unincorporated association with its office and/or principal place of business in Fresno County.

7. Petitioner is unaware of the true names and capacities of Real Parties in Interest, sued herein as DOES 1-100, and therefore sues such persons, entities, and organizations by these

fictitious names. Petitioner is informed and believes that each of said DOES has an interest in the Project or matters alleged in this action. When their true identifies and capacities have been determined, Petitioner will amend this Petition, with leave of court if necessary, to insert such identities and capacities.

JURISDICTION AND VENUE

8. This Court has jurisdiction over the matters alleged herein and this Petition is authorized by and arises under Public Resources Code section 21168 and/or 21168.5 and Code of Civil Procedure section 1085 and/or 1094.5.

9. The action is appropriately filed in Fresno County pursuant to Code of Civil Procedure section 393, because the Project is located partially or wholly in Fresno County and the environmental effects of the Project and associated actions, including resulting potentially significant water quality degradation impacts, will be felt in Fresno County. Petitioner reserves the right to seek transfer of this action to a neutral county under Code of Civil Procedure section 394.

EXHAUSTION OF ADMINISTRATIVE REMEDIES

10. Petitioner has performed or is excused from performing any and all conditions precedent to filing the instant action and has exhausted any and all administrative remedies to the extent required by law, including as required by Public Resources Code section 21177.

11. Petitioner presented its specific objections to the Project and to Respondent's EIR and approval of the Project in written comments and at Respondent's public meetings.

12. This action is brought within thirty days of the filing of the Notice of Determination as required by Public Resources Code section 21167(c).

13. Pursuant to Government Code section 905(i), this action is not subject to the Government Claims Act.

NOTICE OF PROCEEDING

14. Petitioner has complied with the requirements of Public Resources Code section 21167.5 in mailing a notice of commencement of this action to Respondent, prior to filing this Petition, a copy of said notice and proof of service is attached as Exhibit "A" hereto and

incorporated herein by this reference.

15. Petitioner will comply with the requirements of Public Resources Code section 21167.7 and Code of Civil Procedure section 388 by mailing a copy of this Petition to the Attorney General of the State of California.

FACTUAL AND PROCEDURAL HISTORY

Background

16. Mendota Pool is a small reservoir created by Mendota Dam at the confluence of the San Joaquin River and the Fresno Slough. It is also located at the terminus of the Delta-Mendota Canal ("DMC"), a conveyance facility of the Central Valley Project ("CVP") that conveys water from the Sacramento-San Joaquin Delta to irrigate lands on the west side of the San Joaquin Valley as well as to replace San Joaquin River water impounded at Friant Dam.

17. Petitioner James Irrigation District has riparian water rights on the San Joaquin River that were impaired by the impoundment of the San Joaquin River at Friant Dam. In exchange for those water rights, Petitioner receives up to 9,700 acre-feet per year under a Settlement Contract with Reclamation. Those deliveries are made through the DMC, through Mendota Pool, and into Fresno Slough, where they enter the James Bypass, a canal that carries water from Fresno Slough into James Irrigation District's distribution system. Petitioner also has a Water Supply Contract with USBR for up to 35,300 acre-feet of CVP water, to be delivered in the same manner. In contrast to Project groundwater, the quality of the surface water Petitioner is entitled to receive under said long-term contracts is suitable for agricultural crop production within Petitioners' boundaries,

18. The Settlement Contract also contains water quality criteria for the water delivered under that contract, specifically limits on the salinity of the deliveries measured as total dissolved solids ("TDS"). Those criteria are as follows:

a. "Daily: The quality of water shall not exceed a mean daily value of eight hundred (800) parts per million of total dissolved solids."

b. "Monthly: The quality of water shall not exceed a mean monthly value of six hundred (600) parts per million of total dissolved solids."

c. "Annual: The quality of water shall not exceed a mean annual value during the year of four hundred and fifty (450) parts per million of total dissolved solids."

d. "Five-year: The average quality of water for any five (5) consecutive years shall not exceed a mean value of four hundred (400) parts per million of total dissolved solids."

19. JID's irrigation operations rely on the higher quality water JID receives through the DMC, which it blends with other water sources, including groundwater, to achieve acceptable levels of salinity as well as other constituents of concern, such as boron.

Project Details

20. The Project involves the use of existing groundwater wells, operated by MPG, to pump poor quality groundwater and discharge it into Mendota Pool as part of an exchange agreement (or series of exchange agreements) over the course of 20 years. Similar exchanges were approved in 1998 (10-year program), 2005 (10-year program), and 2015 (4-year extension).

21. The Project would discharge up to 26,316 acre-feet per year as part of an exchange agreement (or series of exchange agreements) with USBR. Under the proposed exchange, USBR would reduce deliveries from the DMC into Mendota Pool by 25,000 acre-feet per year ("AFY"), which would be replaced by the groundwater plus a 5 percent "leave-in" quantity of groundwater to the Mendota Pool up to a maximum volume of 26,316 AFY pumped by the Project. In return, USBR would deliver 25,000 acre-feet of delta water to MPG lands in Westlands through the San Luis Canal.

22. The Project would also discharge up to 12,000 AFY for "Adjacent Overlying Use," meaning irrigation of lands near Mendota Pool, effectively using the pool as a conveyance facility.

23. The Project groundwater to be discharged into the pool by MPG and delivered downstream to Petitioner through James intake at the James Booster Plant (or P-Booster Station) exceeds applicable water quality standards and is significantly more saline than the DMC supplies upon which Petitioner and its water users rely, which will have adverse impacts and

cause irreversible damage to the physical environment including crop yields, soil characteristics, and infrastructure within Petitioner's boundaries and elsewhere.

CEQA Process

24. Petitioner is informed and believes that, in or about April 2013, Westlands submitted a Notice of Preparation ("NOP") for the Project to the State Clearinghouse, which received the notice on April 8, 2013.

25. Petitioner is informed and believes that, in or about November 2018, Westlands submitted a Notice of Completion and Environmental Document Transmittal to the State Clearinghouse, which received the notice on November 30, 2018. The notice indicated that the Draft Environmental Impact Statement / Environmental Impact Report ("DEIR") for the Project was completed.

26. On January 14, 2019, Petitioner submitted timely comments on the DEIR to Westlands and Reclamation.

27. Also on January 14, 2019, DWR submitted timely comments on the DEIR to Westlands and Reclamation.

28. On January 18, 2019, CDFW submitted comments on the DEIR to Westlands and Reclamation.

29. Other public agencies, including the United States Environmental Protection Agency, the Friant Water Authority, the San Joaquin River Exchange Contractors, and others, also submitted timely comments on the DEIR to Westlands and Reclamation.

30. Petitioner is informed and believes that, in or about October 2019, Westlands released the Final EIR.

31. Prior to Westlands' certification of the EIR and approval of the Project, Petitioner submitted further comments on November 18, 2019 and December 20, 2019 to Westlands and Reclamation.

32. Westlands approved and/or adopted the EIR in its Resolution No. 101-20 and approved the Project in its Resolution No. 102-20 on January 21, 2020 and filed a Notice of Determination ("NOD") with the Fresno County Clerk on January 23, 2020, which was received

by the State Clearinghouse on January 27, 2020. A copy of the NOD is attached hereto as Exhibit "B."

STANDARD OF REVIEW

33. CEQA was enacted to "[e]nsure that the long-term protection of the environment ... shall be the guiding criterion in public decisions." (Pub. Resources Code, § 21001(d).) CEQA's environmental review process is intended to provide the public with assurances that "the agency has, in fact, analyzed and considered the ecological implications of its actions." (*Laurel Heights Improvement Assn., supra,* (1988) 47 Cal.3d at 392 [quoting *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 86].) The function of the environmental review, then, is not merely to result in informed decision making on the part of the agency, it is also to inform the public so they can respond to an action with which they disagree. (*Id.*)

34. Accordingly, an EIR must fully disclose and analyze all of a project's potentially significant environmental effects. (Pub. Resources Code, § 21100(b)(1); CEQA Guidelines § 15151.) A CEQA lead agency must mitigate or avoid the significant effects of the projects it approves whenever it is feasible to do so. (Pub. Resources Code, § 21002.1(b).)

35. Abuse of discretion under CEQA is established if the agency has not proceeded in a manner required by law or if the agency's determination or decision is not supported by substantial evidence. (Pub. Resources Code, §§ 21168, 21168.5.)

VIOLATIONS OF CEQA

36. Respondent prejudicially abused its discretion and violated CEQA by certifying an EIR for the Project that is inadequate as an informational document, is not supported by substantial evidence, and fails to comply with the requirements of CEQA and the CEQA Guidelines. The defects in the EIR include, but are not limited to, the following:

Failure to Consider Impacts to James Irrigation District

37. CEQA requires that the EIR include "a detailed statement setting forth ... [a]ll significant effects on the environment of the proposed project." (Pub. Resources Code, § 21100(b)(1).) The "environment" relevant to CEQA analysis is the entire "area which will be affected by a proposed project." (Pub. Resources Code, § 21060.5.)

38. Therefore, the lead agency must consider "the effects a project will have on areas outside the boundaries of the project area." (*Napa Citizens for Honest Government v. Napa County Bd. of Supervisors* (2001) 91 Cal.App.4th 342, 369.) Consequently, "the project area does not define the relevant environment for purposes of CEQA when a project's environmental effects will be felt outside the project area." (*Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal.4th 372, 387–88, citing *County Sanitation Dist. No. 2 of Los Angeles County v. County of Kern* (2005) 127 Cal.App.4th 1544, 1582–83.)

39. Despite their close proximity to Project groundwater well discharges and the obvious resulting downstream adverse impacts that Project groundwater discharges will have on Petitioner and its water users and environmental resources within Petitioner's boundaries, the EIR inexplicably fails to study or include any discussion of the impacts the Project will have on the lands within JID, and the EIR does not include those lands in its Primary Study Area. (EIR, Fig. 4.)

40. The Project will have significant, adverse impacts to environmental resources within JID, including without limitation exceedances of JID's contractual water quality standards, applicable standards of significance, reduced crop yields, alterations of the soil, and adverse effects on surface water and groundwater quality.

41. Water quality data collected at the terminus of the DMC and at the James P-Booster Station (JID's intake from the Fresno Slough into the James Bypass) demonstrates that the previously authorized MPG exchanges have adversely and significantly impacted JID's surface water quality. Attached hereto as Exhibit "C" are TDS data measured at Check 21 (the terminus of the DMC) and TDS data measured at the P-Booster Station. The Check 21 data show almost no exceedances of JID's contractual water quality standards, whereas the P-Booster Station data show numerous exceedances.

42. Technical analysis performed by EKI Environment & Water, Inc. ("EKI") and submitted to Westlands with JID's comments demonstrates that the increase in salinity between Check 21 and the P-Booster Station are due, almost exclusively, to MPG pumping groundwater into Mendota Pool under its prior exchange programs. A copy of that technical analysis is

attached hereto as Exhibit "D."

43. This increased surface water salinity also has adverse impacts within JID. For example, technical analysis performed by Provost & Pritchard Consulting Group ("P&P") and submitted to Westlands with JID's comments determined that, in 2014, salinity levels at the P-Booster Station were high enough to cause 10% or greater yield loss to sensitive crops such as onions, lettuce, and almonds, which together make up over 42% of the cropped acreage in JID. P&P also found that boron levels caused by MPG pump-ins were sufficient to damage sensitive crops, and boron is more difficult to leach out of the root zone than TDS, meaning these boron levels cause persistent problems for sensitive crops. A copy of that technical analysis is attached hereto as Exhibit "E."

44. Another impact of the Project within JID is reduction of soil permeability caused by sodium imbalance (measured as sodium absorption ratio, or "SAR"). The EIR did not analyze the Project's effect on SAR, but most of the SAR values for individual MPG wells are high enough to cause significant to severe problems with soil structure, infiltration, and permeability.

45. The EIR's failure to study these impacts to JID also renders its project description misleading, shifting, and inaccurate. CEQA requires an accurate description of the Project, including its "technical, economic, and environmental characteristics." (Guidelines, § 15124.) The EIR's description of the Project mischaracterizes the Project by, among other things, stating that "[i]mplementation of the Proposed Action would not interfere with Reclamation's contractual obligations to other water rights' holders within the Mendota Pool area." (EIR, p. 15.) The analysis prepared by P&P demonstrates that the Project will interfere with USBR's contractual obligations to deliver high-quality water to JID.

46. The EIR short-cuts CEQA in that it conveniently ignores areas that will suffer significant environmental impacts from the Project including the area within Petitioner's boundaries and fails to describe or analyze any of these impacts to JID and is thus fatally inadequate under CEQA. Certifying the EIR and approving the Project was a prejudicial abuse of discretion because it artificially narrowed its consideration of impacts by excluding JID from the study area. Respondent therefore failed to proceed in a manner required by law, and its

actions are not supported by adequate findings, and its actions and findings are not supported by substantial evidence.

Failure to Properly Describe the Environmental Setting or Baseline

47. An EIR must include a description of the environmental setting of the Project, or "baseline," against which potential impacts are compared to determine whether they are significant. (Guidelines, § 15125(a); *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439, 447.) Proper characterization of the baseline is essential to proper characterization and evaluation of the impacts of the Project. (*Save Our Peninsula Committee v. Monterey County Board of Supervisors* (2001) 87 Cal.App.4th 99, 119.)

48. The EIR fails to adequately describe the baseline for the Project in several ways, including but not limited to the following:

49. As described above, JID is part of the environmental setting of the Project, due to the major impacts the Project will have in JID. The EIR contains no discussion of baseline conditions within JID, including without limitation its surface water and groundwater quality, its cropped acreage and irrigation of sensitive crops, its soil characteristics, and other relevant conditions within JID. Failure to describe and analyze impacts to part of the environmental setting outside the "project area" is a violation of CEQA. (*Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1216.)

50. The EIR fails to consider, as part of the baseline, significant regulatory changes that have been approved or are pending approval, including without limitation the changes to the Water Quality Control Plan for the Tulare Lake Basin as part of the CV-SALTS initiative and the changes to the Bay-Delta Water Quality Control Plan, both of which will materially impact the quantity or quality of surface water inputs to Mendota Pool. CEQA specifically requires an EIR to address "any inconsistencies between the proposed project and applicable … water quality control plans." (Guidelines, § 15125(d).)

51. For its analysis of surface water quality under CEQA, the EIR compares the potential impacts of the Project with conditions that are being caused by the previously approved exchange agreements, effectively comparing the Project with itself and concealing its impacts.

This is not the correct baseline, because as of the date of the NOP the exchange was set to cease upon expiration of MPG's exchange agreements with Reclamation. The Project provides for further exchange agreements that would continue the exchange for 20 additional years. The EIR avoids considering the impacts of the Project by assuming a baseline of continued exchange.

52. The EIR attempts to justify its assumption of continued pumping by asserting that groundwater pump-ins by MPG to support continued irrigation, reactivation of fallowed farmland, and continued conversion from row crops to permanent crops on MPG lands will continue whether the Project is approved or not. The EIR's "no action" alternative assumes over 33,000 acre-feet per year would be pumped by MPG in the absence of the Project, despite the fact that the highest actual level of pumping for adjacent overlying use historically was approximately 15,000 acre-feet per year. The existing conditions described in the baseline "shall not include hypothetical conditions, such as those that might be allowed, but have never actually occurred, under existing permits or plans, as the baseline." (Guidelines, § 15125(a)(3).)

53. This assumption also does not take into account other factors that would reduce those pump-ins, such as the implementation of the Sustainable Groundwater Management Act ("SGMA"). Both the Delta-Mendota and Westside Subbasins have been designated by the Department of Water Resources as critically overdrafted, and compliance with SGMA should be expected to require pumpers to reduce, rather than increase, groundwater pumping. The baseline not only assumes continued irrigation of existing lands but reactivation of fallowed lands and permanent crop conversions, which is patently unreasonable to expect under SGMA. (See *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 432 [future water supplies must bear a likelihood of proving available; speculative sources and unrealistic allocations are insufficient bases for decision making under CEQA].) Westlands' own Groundwater Sustainability Plan states that it intends to "allocate and manage groundwater pumping among water users to avoid undesirable results." Comments submitted by CDFW urged Westlands to approve the Project only in coordination with the appropriate Groundwater Sustainability Agencies to ensure compatibility with their Groundwater Sustainability Plans.

54. The EIR fails to completely and accurately describe a correct baseline against which to identify and assess the impacts of the Project. Therefore, certifying the EIR and approving the Project was a prejudicial abuse of discretion. Respondent therefore failed to proceed in a manner required by law, and its actions are not supported by adequate findings, and its actions and findings are not supported by substantial evidence.

Failure to Disclose Analytic Route and Use of Incoherent and Inadequate Modeling and Analysis

55. An EIR is intended to be an informational document, "prepared with a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences." (Guidelines, § 15151.)

56. An EIR is fatally deficient if it "omits material necessary to informed decisionmaking and informed public participation." (*Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 515 ["*County of Fresno*"].) "[T]here must be a disclosure of the 'analytic route the ... agency traveled from evidence to action.'" (*Id.* at p. 513.)

57. The EIR should be sufficient "to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project." (*Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 405 ["*Laurel Heights*"].) The EIR fails to comply with the informational requirements of CEQA, including the principles articulated *Laurel Heights* and *County of Fresno*, for several reasons including those alleged below.

58. In response to JID's comments, the EIR asserts, based on mixing models prepared by its consultants, that salinity impacts of the Project will not exceed the threshold of significance of 450 mg/L TDS. (EIR, p. 562.) However, actual data in the EIR shows that exceedances do in fact occur during MPG pumping under the current exchanges. (E.g., EIR, p. 191.) This conflict between the models and the data are not addressed in the EIR, nor does the EIR explain how, unlike past groundwater discharges into the Pool by the MPG, Project groundwater discharges will not cause exceedances at JID's intake. In response to JID's comments, as an

excuse for the EIR's failure to study direct, indirect, or cumulative impacts within Petitioner's boundaries, the EIR advances for the first time a theory that such exceedances were mostly caused by about eleven unidentified groundwater dischargers downstream of Project wells. However, Respondent failed to conduct an adequate investigation of such alleged dischargers, the EIR's assumptions about those discharges are not supported by substantial evidence and are contrary to the facts, and the actual data indicates that Project wells have been the exclusive or near exclusive cause of the water quality exceedances. These discrepancies too are not sufficiently explained in the EIR.

59. The models assume instantaneous and complete mixing of surface water inputs to Mendota Pool, despite the fact water has been observed to blend poorly or stagnate near the terminus of the DMC, a fact which has been recognized in orders of the State Water Resources Control Board. This results in a salinity gradient in Mendota Pool and Fresno Slough and different salinity impacts in the northern and southern portions of the pool. Analysis by P&P demonstrates that the models produce results inconsistent with available data in years for which the models were not validated.

60. But the EIR also makes arguments inconsistent with its modeling assumptions. For instance, the response to JID's comments argues that "MPG water [is] captured and removed from the Fresno Slough by these entities that lie between the MPG and James." (EIR, p. 568.) This assumes a "last in, first out" model of little to no mixing, which assumption is not supported by substantial evidence.

61. The EIR also fails to disclose the groundwater salinity used to validate and predict impacts with the models. Analysis by EKI indicates that current MPG groundwater salinity was estimated at 880 mg/L TDS for purposes of the model. However, based on data in the EIR, EKI estimates that the model assumes a lower future MPG groundwater salinity of approximately 660 mg/L TDS for the next 20 years. No explanation is given in the EIR for why future TDS concentrations are expected to be lower than current TDS concentrations in groundwater pumped to the Mendota Pool.

62. The models are also inadequate because, as noted by DWR in its comments, the

TDS data used to validate the models did not include the 2013-2014 drought, which is particularly prejudicial given the EIR's acknowledgment that future droughts are increasingly likely due to climate change.

63. The EIR is not an adequate informational document nor are its conclusions supported by substantial evidence, because among other flaws its models make unclear, unjustified, unstated, confusing, and inconsistent assumptions. Certification of the EIR and approval of the Project was therefore a prejudicial abuse of discretion, a failure to proceed in a manner required by law, and unsupported by adequate findings or substantial evidence.

Failure to Address Short and Medium Term Impacts

64. CEQA requires consideration of both short term and long term impacts. (Guidelines, § 15126.2(a); *Neighbors for Smart Rail v. Exposition Metro Line Const. Auth.* (2013) 57 Cal.4th 439, 454-55.) CEQA requires "a good faith effort at full disclosure" of those impacts. (Guidelines, § 15151; see *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 660.) The EIR prejudicially fails to study the Project's direct, indirect, and cumulative impacts as required by CEQA for several reasons including the following.

65. The EIR assumes the volume of water pumped as part of the exchange program will remain constant at 21,053 acre-feet per year on average throughout the 20-year project life of the Project, which is in conflict with the Project's description of up to over 26,000 AF of pumping in any given year. It gives no justification for that assumption, and that assumption does not reflect the history of exchanges by MPG under the previous programs and fails to capture or assess significant impacts and the full extent of the Project's adverse environmental impacts. Actual exchange pumping by MPG varies dramatically from year to year, with generally higher amounts in dry years. (Exh. D, p. 12.)

66. In dry years, the amount of water in Mendota Pool from the DMC is reduced and pumping by MPG is increased (see, e.g., EIR, Table 17). This leads to significant increased salinity as groundwater makes up a larger portion of the water in the pool. According to EKI's analysis, if the EIR did not assume constant pumping below the allowable Project limit it would

show projected exceedances of the thresholds of significance, particularly in dry years, thus requiring feasible mitigation as discussed below.

67. In addition to the surface water quality impacts concealed by the EIR's assumptions, short periods of increased transfer pumping and reduced DMC supplies lead to the introduction of significant quantities of salt into the district. As an example, in just the five-month period from May to September 2014, increased salinity at the P-Booster Station resulted in 2,903 tons more salt than if DMC water had been received unaltered. That additional salt load has adverse effects on soil permeability, and if it can be successfully leached from the root zone it then has adverse impacts to groundwater salinity.

68. The EIR's faulty analysis ignores the greatest impacts of the Project on crop yields and soil characteristics in JID, which will occur in dry years when the Project discharges the poorest quality and greatest amounts of groundwater in excess of the hypothetical averages employed by the EIR. The EIR's flawed impact assessment, e.g., the use of 20-year long-term averages, effectively ignores short- and medium-term periods existing in the real world when the Project will result in water quality exceedances and significant adverse effects.

69. Because the EIR does not consider the short and medium term impacts of the Project, certification of the EIR and approval of the Project was a prejudicial abuse of discretion, a failure to proceed in a manner required by law, and unsupported by adequate findings or substantial evidence.

Failure to Address Cumulative Impacts

70. An EIR is required to "discuss the cumulative effect on the environment of the subject project in conjunction with other closely related past, present and reasonably foreseeable probable future projects." (*San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 739; Guidelines, §§ 15063(b)(l); 15355.) This is a critical part of CEQA analysis. (*Schoen v. Department of Forestry & Fire Protection* (1997) 58 Cal.App.4th 556, 572.)

71. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. (*Bakersfield Citizens for Local Control*

v. City of Bakersfield (2004) 124 Cal.App.4th 1184, 1214-15; Guidelines, § 15355(b).) The impacts of a project can "appear insignificant when considered individually, but assume threatening dimensions when considered collectively with other sources with which they interact." (*Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98, 114; see also *Los Angeles Unified School Dist. v. City of Los Angeles* (1997) 58 Cal.App.4th 1019.)

72. The EIR does not evaluate the cumulative impacts of the Project, including without limitation the effects of MPG pumping along with other pump-ins to Mendota Pool and Fresno Slough and other reductions in DMC supplies such as those to be brought about by the updated Bay-Delta Water Quality Control Plan, climate change, and SGMA. These impacts include fallowing of prime farmland, reduced crop yields, and other adverse environmental impacts within JID.

73. In response to Petitioner's comments raising this issue, the EIR asserts that the Project is a "minor contributor to southward flowing surface water toward [JID]," relative to "many other non-Federal ongoing pump-in and exchange programs." (EIR, p. 565.) However, the EIR provides no data about the quantity or quality of other pump-ins, arguing that "no information is available." (*Ibid.*)

74. The EIR admits that MPG pumping under the existing programs constitutes 20-30% of all pump-ins to Mendota Pool in a normal year. (EIR, p. 226.) Such a proportion is not "minor." Furthermore, this form of argument is the "ratio theory" rejected by *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 721. The EIR is required to consider the collective effect of all the pump-ins rather than focus solely on the contribution of the individual Project.

75. Steve Stadler, JID's General Manager, contacted Reclamation to ask what other pump-in and exchange programs the EIR refers to. Of the ten pumpers identified, Mr. Stadler was able to quickly determine that six either do not discharge into Mendota Pool or do so in a way that their discharge does not enter Fresno Slough. Several others were very small quantities or very high quality. Information on quantity of the discharges was available for nine of the ten.

This demonstrates that Westlands did not do even a minimally adequate investigation as required by CEQA.

76. CDFW noted in its comments that the EIR also fails to consider the cumulative impact of these other programs, including programs approved by Reclamation, on subsidence beneath Mendota Dam.

77. Because the EIR does not properly analyze the cumulative impact of the Project, and because Westlands did not perform the reasonable investigation of such impacts required by CEQA, certification of the EIR and approval of the Project was a prejudicial abuse of discretion, a failure to proceed in a manner required by law, and unsupported by adequate findings or substantial evidence.

Failure to Conduct Anti-Degradation Analysis

78. CEQA requires that the lead agency coordinate the various environmental review required for the Project and produce an EIR sufficient for responsible agencies to rely on when issuing necessary approvals. (*Banning Ranch Conservancy v. City of Newport Beach* (2017) 2 Cal.5th 918, 936; Pub. Resources Code, § 21003(a); Guidelines, § 15063(g).)

79. The Project will require a permit under the National Pollution Discharge Elimination System ("NPDES"), issued by the Regional Water Quality Control Board. In order to issue that permit, the board will need to make findings under the antidegradation policy ("ADP").

80. In 1968, the State Water Resources Control Board ("SWRCB") adopted an ADP in response to a directive from the Department of the Interior calling for adoption of state antidegradation policies to protect high quality surface and ground waters. The ADP is contained in SWRCB Resolution No. 68-16.

81. The ADP states that "the quality of some of the waters of the State is higher than that established by the adopted policies and it is the intent and purpose of this Board that such higher quality shall be maintained to the maximum extent possible consistent with the declaration of the Legislature."

82. Before the Regional Water Quality Control Board authorizes any discharge of

waste into high-quality waters, the ADP requires it to find that "any change [in water quality] will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies." Second, it must find that the discharge "will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained."

83. Contrary to the holding of *Banning Ranch*, the EIR contains no analysis to support to findings required by the ADP. Therefore, certification of the EIR and approval of the Project was a prejudicial abuse of discretion, a failure to proceed in a manner required by law, and unsupported by adequate findings or substantial evidence.

Failure to Consider Mitigation and Alternatives

84. In an EIR, each feasible means of mitigating the impacts of the project "should be discussed and the basis for selecting a particular measure should be identified." (Guidelines, § 15126.4(a)(1)(B).) It must also consider "a range of reasonable alternatives to the project ... which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project." (Guidelines, § 15126.6.)

85. Because, as discussed above, the EIR does not adequately assess the baseline and impacts of the Project, it does not consider appropriate mitigation of the impacts it does not describe. Also, because the EIR conceals and underestimates many of the Project's impacts, its analysis of possible mitigation is inadequate. Analysis of appropriate mitigation and alternatives requires an accurate understanding of the impacts to be avoided.

86. Specifically, the EIR "must present a viable solution that can effectively replace the water ... that could be lost by" other users, including JID, and ensure "the ability to use water in substantially the same manner that they were accustomed to doing if the Project had not existed." (*Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1116–17.)

87. The EIR should have considered a mitigation measure or alternative recommended by Petitioner in its comments: for example, allow the Project's exchange program,

but place constraints on discharges in dry years such that water quality at the P-Booster Station does not exceed applicable water quality standards or criteria.

88. Additionally, the EIR incorporates "design constraints" into the project description instead of treating them as mitigation measures. As a result, it does not consider other, potentially better, mitigation measures, such as constraints based on degree of degradation rather than the volume of water pumped. "[C]ompressing the analysis of impacts and mitigation measures into a single issue … disregards the requirements of CEQA." (*Lotus v. Department of Transportation* (2014) 223 Cal.App.4th 645, 656.)

89. As pointed out by CDFW in its comments, the design constraints effectively defer mitigation by providing that, in the event of exceedances, Reclamation and MPG "will coordinate with other users around the Mendota Pool to determine the cause of the exceedance and any applicable remedial actions needed." (EIR, pp.177-78.) Such deferral is not in compliance with CEQA. (*Oakland Heritage Alliance v. City of Oakland* (2011) 195 Cal.App.4th 884, 906.)

90. Because the EIR does not consider feasible mitigation for impacts of the Project to JID, and because it does not consider an appropriate range of alternatives, certification of the EIR and approval of the Project was a prejudicial abuse of discretion, a failure to proceed in a manner required by law, and unsupported by adequate findings or substantial evidence.

Failure to Adequately Respond to Comments

91. CEQA requires the lead agency to provide "good faith, reasoned analysis in response" to comments on the DEIR, and "[c]onclusory statements unsupported by factual information will not suffice" for that purpose. (Guidelines, § 15088(c).)

92. The responses to comments in the EIR do not respond adequately to the concerns raised. They rely on conclusory statements unsupported by evidence.

93. One example of the conclusory nature of the responses to comments is the response to Petitioner's comment that analysis under the ADP is necessary to allow the Regional Water Quality Control Board to issue a NPDES permit. In response, the EIR simply asserts that "those permitting and regulatory processes would occur following adoption of a project or program by the lead agency." (EIR, p. 578.) However, the point of the comment was that it is

contrary to CEQA to defer that analysis to a later date. Thus, the response does not actually engage with the substance of the comment.

94. Because the EIR does not adequately respond to comments on the DEIR, certification of the EIR and approval of the Project was a prejudicial abuse of discretion, a failure to proceed in a manner required by law, and unsupported by adequate findings or substantial evidence.

ATTORNEYS' FEES

95. Petitioner is entitled to recover attorneys' fees from Respondent and Real Parties in Interest pursuant to Code of Civil Procedure section 1021.5 because this action will, among other things, confer a significant benefit on the general public and a large class of persons, and the necessity and burden of private enforcement makes an award of fees appropriate.

DECLARATORY RELIEF

96. An actual controversy has arisen and now exists between Petitioner and Respondent concerning their respective rights and duties in that Petitioner contends Respondent has violated CEQA with respect to the Project, whereas Respondent disputes these contentions and contends that it has complied with CEQA with respect to the Project.

97. Petitioner desires a judicial determination and declaration that Respondent has not complied with CEQA with respect to the Project. A judicial resolution of this controversy is necessary and appropriate.

INJUNCTIVE RELIEF

98. Petitioner is informed and believes that Respondent and Real Parties in Interest are threatening to carry out the Project in the near future and that the Project will irreparably harm the environment by, among other things, adversely affecting surface and groundwater quality, crop yields, and soils within Petitioner's boundaries.

99. If Respondent and Real Parties in Interest implement the Project, large amounts of additional salt will be brought into Petitioner's irrigation systems and applied to the lands within Petitioner's boundaries, resulting in increased soil and groundwater salinity that is, as a practical matter, irreversible.

100. A temporary restraining order and preliminary and permanent injunction should issue restraining Respondents and Real Parties in Interest from carrying out the Project, as Petitioner has no plain, speedy, and adequate remedy at law for these harms.

PRAYER FOR RELIEF

WHEREFORE, the Petitioner prays for judgment as follows:

101. For a writ of mandate or peremptory writ issued under the seal of this Court and directing Respondent to:

a. Void and set aside Respondent's approval and/or adoption of the EIR and associated mitigation reporting or monitoring program, findings, and associated actions and approvals, including its Resolution No. 101-20 and Resolution No. 102-20;

b. Void and set aside any and all other discretionary approvals pertaining to the Project and any contracts entered into pursuant to the Project; and

c. Refrain from granting any further approvals, authorities, or permits for the Project unless and until Respondent complies fully with the requirements of CEQA;

102. For a judgment determining and declaring that the approval of the Project described herein does not comply with applicable law and therefore is null and void;

103. For a temporary restraining order, a preliminary injunction, and a permanent injunction, restraining Respondent and Real Parties in Interest from engaging in any project activity or activities;

104. For its costs of suit;

105. For an award of its reasonable attorneys' fees, including but not limited to fees authorized under Code of Civil Procedure section 1021.5; and

///

///

///

106. For such other and further relief as the Court may deem just and proper.

Dated: February 20, 2020

THE LAW OFFICES OF YOUNG WOOLDRIDGE, LLP

By: _____

STEVEN M. TORIGIANI
BRETT A. STROUD
Attorneys for Petitioner James Irrigation District

[Petition Deemed Verified Under Code of Civil Procedure Section 446]

Exhibit A

THE LAW OFFICES OF
Young Wooldridge
A Limited Liability Partnership • Est. 1939
Brett A. Stroud, Attorney

February 19, 2020

VIA U.S. MAIL AND EMAIL

Tom Birmingham, General Manager
David Vang, Resources Engineer
Westlands Water District
3130 N. Fresno Street
P.O. Box 6056
Fresno, CA 93703-6056
tbirmingham@westlandswater.org
dvang@westlandswater.org

Re: Notice of Commencement of Action Regarding Mendota Pool Group 20-Year Exchange Program (Clearinghouse No. 2013041028)

Dear Mr. Birmingham:

PLEASE TAKE NOTICE that the James Irrigation District intends to commence an action pursuant to Public Resources Code section 21167.5 by filing a Petition for Writ of Mandate ("Petition") in the Superior Court of Fresno County under the California Environmental Quality Act, Public Resources Code division 13 ("CEQA"), against Westlands Water District ("Westlands") as the CEQA lead agency with respect to its approval and/or adoption of a final Environmental Impact Statement / Environmental Impact Report ("EIS/EIR") (SCH#2013041028) and approval of a project known as the Mendota Pool Group 20-Year Exchange Program ("Project") on January 21, 2020, including adoption of Resolution No. 101-20 and Resolution No. 102-20, all in violation of CEQA. The challenged actions are also described in a Notice of Determination filed with the Fresno County Clerk by Westlands on January 23, 2020.

The Petition will allege, among other things, that Westlands failed to properly follow the procedures and requirements of CEQA with respect to the Project in several ways including, but not limited to: failure to analyze impacts to James Irrigation District, failure to properly describe the environmental setting or baseline, failure to disclose the analytic route and use of incoherent and inadequate modeling and analysis, failure to address short and medium term impacts, failure to address cumulative impacts, failure to conduct analysis under California's Anti-Degradation Policy, failure to consider appropriate mitigation and alternatives, and failure to adequately respond to comments.

Generally speaking, the Petition will seek the following, as well as other relief: (1) a writ of mandate to void and set aside all Project approvals, the EIS/EIR, findings, and mitigation

1800 30th Street, 4th Floor • Bakersfield, CA 93301
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monitoring and reporting program, and to direct the Authority to prepare an EIS/EIR that complies with CEQA before any future consideration of approval of the Project or implementation of the same; (2) declaratory relief; (3) a preliminary and permanent injunction; and (4) costs of suit and attorneys' fees.

If you need more information or have any questions please do not hesitate to contact me.

Sincerely,

Brett A. Stroud, Esq.

PROOF OF SERVICE

STATE OF CALIFORNIA, COUNTY OF KERN

I, KRISTEN MOEN, declare: I am and was at the times of the service hereunder mentioned, over the age of eighteen (18) years, and not a party to the within cause. My business address is 1800 30th Street, Fourth Floor, Bakersfield, CA 93301.

On February 19, 2020, I caused the above letter entitled **"Notice of Commencement of Action Regarding Mendota Pool Group 20-Year Exchange Program (Clearinghouse No. 2013041028)"** to be served on

Tom Birmingham, General Manager
David Vang, Resources Engineer
Westlands Water District
3130 N. Fresno Street
P.O. Box 6056
Fresno, CA 93703-6056

by placing a true copy thereof enclosed in a sealed envelope addressed to the address above. I am readily familiar with the firm's practice of collection and processing of documents for mailing. Under that practice it would be deposited with United States Postal Service on that same day with postage thereon fully prepaid at Bakersfield, California in the ordinary course of business.

I declare under penalty of perjury under the laws of the State of California that the above is true and correct.

Executed on February 19, 2020, at Bakersfield, California.

Kristen Moen

KRISTEN MOEN

Exhibit B

Print Form

Notice of Determination E202010000024

Appendix D

To:
- ☒ Office of Planning and Research
  - *U.S. Mail:* P.O. Box 3044, Sacramento, CA 95812-3044
  - *Street Address:* 1400 Tenth St., Rm 113, Sacramento, CA 95814
- ☒ County Clerk
  - County of: Fresno
  - Address: 2220 Tulare Street, Fresno, CA 93721

From:
- Public Agency: Westlands Water District
- Address: 3130 N. Fresno Street, Fresno, CA 93703
- Contact: David Vang
- Phone: 559-241-6202

Lead Agency (if different from above):
- Address:
- Contact:
- Phone:

FILED
JAN 23 2020 TIME 2:39 pm
BY [signature] COUNTY CLERK
Jessica Munoz 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): 2013041028

Project Title: Mendota Pool Group 20-Year Exchange Program

Project Applicant: Mendota Pool Group

Project Location (include county): Fresno Slough portion of the Kings River in Fresno County.

Project Description:

Project Description attached as seperate page.

This is to advise that the Westlands Water District (☒ Lead Agency or ☐ Responsible Agency) has approved the above described project on January 21, 2020 (date) and has made the following determinations regarding the above described project.

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:
https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=36282

Signature (Public Agency): [signature] Title: Chief Operating Officer

Date: January 21, 2020 Date Received for filing at OPR:

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

Revised 2011

Notice of Determination (NOD) Attachment A – Project Description:

The Mendota Pool Group (MPG) extends a previously approved 10-Year Exchange Program, Settlement Agreements, and subsequent 3-year and 1-year extensions (hereafter referred to as the Existing Exchange Agreements) for a period of 20 additional years. The 20-Year Exchange Program (Project) would allow MPG farmers in the Westlands Water District (Westlands) to supplement their Central Valley Project (CVP) water deliveries and conservation practices with affordable, reliable, and good quality water in order to maintain continued cultivation of approximately 42,316 acres of historically irrigated lands. MPG irrigated lands are located in Westlands' San Luis Canal (SLC) service area. The U.S. Department of the Interior, Bureau of Reclamation (Reclamation) administers the CVP and would issue a series of annual or multi-year exchange agreements to facilitate the Project. The water exchange allows MPG farmers to deliver groundwater of suitable quality to Mendota Pool in exchange for CVP irrigation water delivered via the SLC for use on MPG-owned farms in Westlands.

Three alternatives were considered for analysis in the Joint Environmental Impact Statement/Environmental Impact Report (EIS/EIR): a No Project Alternative, a Proposed Project, and Alternative 2. Reclamation and Westlands as the Lead Agencies both certified the EIS/EIR and approved Alternative 2, which is hereafter referred to as the Approved Project.

Approved Project:

The Approved Project consists of the following components:

a. *CVP Water Transfer*: The Aproved Project would allow MPG to pump up to 26,316 acre-feet (AF) of water per year (AFY) of non-CVP groundwater into the Mendota Pool and Fresno Slough, and exchange it contractually with Reclamation for up to 25,000[1] AFY of CVP water from the Delta-Mendota Canal (DMC) at Check 13 at O'Neal Forebay of the San Luis Reservoir. The Approved Project would allow for continued water exchange; however, MPG would be limited to pumping a maximum of 400,000 AF of groundwater for exchange over the 20-year period. This exchanged water would be delivered to land owned by MPG members in Westlands. Reclamation would issue a series of annual or multi-year exchange agreements over the 20-year period. The amount of water exchanged each year would vary based on several factors, including rainfall, CVP water availability and ground and surface water monitoring data reflecting the effects of MPG pumping. The groundwater pumping program would be adaptively managed to avoid or substantially lessen environmental impacts to less-than-significant levels. Adjustments will be made to the pumping program if the monitoring program indicates that actions need to be taken to prevent significant impacts, such as well drawdown, subsidence, or water quality degradation in the Mendota Pool.

b. *Adjacent Overlying Use:* In addition to water exchanged with Reclamation through the CVP, the program would continue to authorize the MPG to pump up to an additional 12,000 AFY of groundwater from MPG wells to irrigate overlying lands and lands adjacent to the Mendota Pool owned and operated by MPG members. This provision is referred to in the Existing

[1] The Approved Project would continue a constraint of the Existing Exchange Agreements that requires 5 percent of the groundwater pumped into the Mendota Pool be retained in the Pool to account for conveyance water loss.

Exchange Agreements as "adjacent use". Although this water would be pumped from MPG wells located in Farmers Water District (FWD) and from other non-districted areas around the Mendota Pool, all water pumped in FWD for adjacent use must be used within FWD to allow for groundwater recharge within this area. If pumping for adjacent use exceeds 12,000 AFY, transfer pumping (as discussed above) must be reduced by a corresponding amount.

c. *Monitoring Program, Design Constraints and Adaptive Management:* The Approved Project includes continued implementation of the Monitoring Program, design constraints, and an adaptive management approach established by the 1998 Final EIR, 2004 Final EIS and Settlement Agreements, with revisions, and may also include possible new actions consistent with SGMA and local future GSPs. These provisions are designed to continually improve the groundwater pumping program and avoid or substantially lessen associated environmental impacts.

   i. *Monitoring Program* – The data and results of the monitoring program would continue to be summarized in an annual report prepared by the MPG, the Exchange Contractors, and Wonderful Orchards. The results of the monitoring program would inform the design of the subsequent year's pumping program. Monitoring data would be provided to Reclamation at the specified frequency for each parameter to verify pumping and monitoring plan implementation. In addition, monitoring data would also be provided to the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife, among others, if requested, at the same intervals the data is provided to Reclamation. The Monitoring Program would continue to involve the participation of MPG and voluntary participation of several entities around the Mendota Pool, including the Exchange Contractors, Wonderful Orchards, San Luis Delta Mendota Water Authority, the City of Mendota, the United States Geological Survey (USGS), the DWR, and others.

   ii. *Design Constraints* - Design constraints are management strategies inherent in the groundwater pumping program that were started under the Existing Exchange Agreements in 2001. Design constraints from these agreements would be continued, with modifications, under the Approved Project. The design constraints apply to the annual pumping programs, pumping from the deep and shallow zones and to triggers based on the results of the annual monitoring program. Design constraints are established to monitor and regulate surface water rights and quality, groundwater pumping and quality, and subsidence.

   iii. *Adaptive Management* - Under the Approved Project, the adaptive management program would be continued with improvements that better avoid or substantially reduce potential adverse effects to water quality in the Mendota Pool. Exchange Agreements with Reclamation would be issued either on an annual or multi-year basis subject to annual review and concurrence of the Exchange Contractors and Wonderful Orchards. Further, similar to the process under the Existing Exchange Agreements, a pumping program would be developed by MPG on an annual basis and reviewed by the Exchange Contractors, Wonderful Orchards, and Reclamation to allow for year-to-year variations in hydrologic conditions. Each exchange agreement under the Approved Project would be based on consideration of several factors, including the design constraints and the results of the monthly TDS data and the annual reporting program. As with the Existing Exchange Agreements, the annual pumping program negotiated with Reclamation,

Westlands, and other stakeholders at the beginning of each irrigation season (March 1st) would take into consideration the monitoring results of previous exchange years and design that specific year's exchange program based on those results.

d. *Groundwater Recharge*: The approved Project would include a groundwater recharge component not currently provided for in the existing Exchange Agreements. The purpose of the groundwater recharge component is to replenish the San Joaquin Groundwater Basin during periods when surplus CVP water or flood flows are available. The groundwater recharge component is intended to offset potential adverse effects of groundwater pumped under the Exchange Agreements.

The groundwater recharge component could include use of existing recharge basins on the New Columbia Ranch. Potential water sources available for groundwater recharge would include flood flows from the Kings River, Section 215 surplus CVP water for South of Delta Contractors (water from San Luis Reservoir), Section 215 water for Friant Contractors, and surplus San Joaquin River restoration flows which would be conveyed by existing diversions on the New Columbia Ranch. These diversions may include the Columbia Canal, Ridge Ditch, Central Canal, or Lone Willow Slough. Groundwater recharge could also include use of an existing recharge canal on land owned by Terra Linda Farms located west of the Fresno Slough whenever supplemental water or flood flows are available. Water sources potentially available for groundwater recharge at this location include Section 215 surplus CVP water, flood flows from the Kings River, and surplus San Joaquin River Restoration Flows. However, the analysis conservatively assumes only flood flows from the Kings River would be available for proposed recharge actions. Based on a review of flood flow data, flood flows from the Kings River are predicted to be available for recharge at the Terra Linda Recharge Canal in up to eight years of the 20-year exchange period and up to four years at the existing four New Columbia Ranch (NCR) Recharge Ponds. The total potential additional recharge potential above existing levels and attributable to MPG during the 20-year life of the Approved Project is conservatively estimated to be 23,169 AF. Groundwater recharge from the Terra Linda Recharge Canal is estimated to be 4,127 AF over the 20-year period, while MPG contributions to the existing four NCR Recharge Ponds is estimated to be 19,042 AF.

MPG would also construct and operate a groundwater recharge basin adjacent the Terra Linda Farms Recharge Canal. The proposed recharge basin, referred to as the River Ranch Recharge Basin, would replenish underlying local groundwater aquifers. This analysis assumes that flood flows from the Kings River would also be the source of water for River Ranch Recharge Basin and that flows would be available for the same eight years (over the 20-year period) that they're available to the Terra Linda Farms Recharge Canal under the Approved Project.

By providing an additional recharge facility, this alternative would offset drawdown of local groundwater aquifers to a greater extent than under the Approved Project and, in doing so, reduce the potential for undesirable effects such as groundwater level declines and migration of the naturally-occurring saline groundwater front west of the Fresno Slough. The River Ranch Recharge Basin under this alternative would function solely for the purpose of recharging the local groundwater aquifer and would not be used as a water bank (e.g., Meyer's Water Bank) wherein water is contractually recharged, banked and extracted for later use. Under this alternative, the MPG would maximize recharge with the goal of achieving over 43,000 AF of recharge over the 20-year exchange period by constructing the River Ranch Recharge Basin, activating the Terra Linda Farm Recharge Canal, and

contributing to the existing four NCR Recharge Ponds, dependent upon the availability of water supplies and capacity of recharge facilities.

e. *New Groundwater Wells*: The Approved Project also includes the replacement of groundwater wells, as necessary, and the continuation of the existing groundwater monitoring program. In addition, an unknown number of MPG wells along the San Joaquin River may be affected or removed from service due to the changes associated with the San Joaquin River Restoration Project (SJRRP).

Exhibit C

MONTHLY AND ANNUAL AVERAGE WATER QUALITY (TDS)
DELTA MENDOTA CANAL - CHECK 21

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
1999	NR	NR	NR	NR	NR	NR	NR	199	285	315	353	282	299
2000	389	366	317	280	294	255	237	214	242	315	338	405	304
2001	465	409	394	377	314	284	233	322	409	383	368	393	362
2002	403	378	398	331	300	277	213	297	371	384	364	412	344
2003	399	358	376	312	308	194	162	205	235	328	352	362	299
2004	356	353	349	300	300	279	234	243	304	344	346	472	323
2005	397	376	302	291	333	172	207	234	263	239	332	347	291
2006	331	314	314	377	437	340	207	214	208	202	243	326	293
2007	396	384	339	310	293	302	188	236	296	324	341	372	315
2008	451	381	413	358	348	358	264	332	390	325	316	506	370
2009	575	560	448	377	363	373	215	303	357	353	324	390	385
2010	507	457	439	452	309	213	184	227	308	323	343	353	342
2011	442	268	254	330	291	232	187	206	190	202	223	304	261
2012	426	442	574	497	347	271	219	248	277	364	388	420	373
2013	414	386	406	441	330	334	249	330	396	372	433	489	382
2014	535	525	531	470	389	433	466	479	531	447	465	534	***484***
2015	***609***	550	496	558	491	437	440	502	493	465	498	532	***506***
2016	572	480	391	446	356	315	252	242	348	398	318	NR	374
2017	NR	NR	88	76	88	69	97	125	129	151	179	242	126
2018	341	329	362	212	187	218	184	214	319	338	335	393	286

NOTES:

A VALUE OF "NR" INDICATES THAT NO READINGS ARE AVAILABLE FOR THE TIME PERIOD.
ALL VALUES REPORTED AS PPM OR MILLIGRAMS PER LITER AND CALCULATED ASSUMING TDS = 0.64 * EC.
CONTRACT STANDARD IS MONTHLY AVERAGE NO GREATER THAN 600 PPM AND ANNUAL AVERAGE NO GREATER THAN 450 PPM.
VALUES EXCEEDING STANDARDS ARE IN BOLD AND SHADED.

MONTHLY AND ANNUAL AVERAGE WATER QUALITY (TDS)
JAMES IRRIGATION DISTRICT P-BOOSTER STATION

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
2007	NR	NR	NR	NR	NR	519	409	489	576	***639***	***680***	***667***	***568***
2008	***754***	***613***	511	522	***697***	554	506	575	***612***	NR	NR	NR	***596***
2009	NR	NR	***686***	***745***	***916***	555	454	580	***646***	***604***	***624***	***633***	***641***
2010	***789***	***615***	548	***694***	***750***	268	273	323	376	354	383	237	***467***
2011	49	190	268	33	32	23	75	201	190	223	206	NR	133
2012	NR	NR	NR	NR	NR	NR	NR	NR	NR	596	***666***	583	***623***
2013	383	437	587	***710***	***674***	582	549	***614***	NR	NR	NR	NR	***558***
2014	NR	***645***	***733***	***718***	***941***	***810***	***652***	***791***	***912***	***907***	***859***	565	***784***
2015	584	***790***	***734***	***682***	***894***	***923***	***815***	***894***	***967***	***917***	***858***	***729***	***816***
2016	***789***	***779***	***697***	***638***	***912***	***681***	547	576	***623***	***757***	***741***	553	***693***
2017	391	54	43	40	28	23	49	130	131	173	233	250	127
2018	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

NOTES:

A VALUE OF "NR" INDICATES THAT NO READINGS ARE AVAILABLE FOR THE TIME PERIOD.

ALL VALUES REPORTED AS PPM OR MILLIGRAMS PER LITER AND CALCULATED ASSUMING TDS = 0.64 * EC.

CONTRACT STANDARD IS MONTHLY AVERAGE NO GREATER THAN 600 PPM AND ANNUAL AVERAGE NO GREATER THAN 450 PPM.

VALUES EXCEEDING STANDARDS ARE IN BOLD AND SHADED.

Exhibit D

eki environment & water

Corporate Office
577 Airport Boulevard, Suite 500
Burlingame, CA 94010
(650) 292-9100
ekiconsult.com

20 December 2019

Steven P. Stadler, P.E.
General Manager
James Irrigation District
8749 Ninth Street
San Joaquin, California 93660-0757

Subject: Technical Review of Mendota Pool Group 20-Year Exchange Program
Final Environmental Impact Report/Environmental Impact Statement
(EKI B90167.00)

Dear Mr. Stadler:

This technical review summarizes EKI Environment & Water, Inc.'s ("EKI's") review of the Final Environmental Impact Statement/Environmental Impact Report ("Final EIS/EIR") for the Mendota Pool Group ("MPG")[1] 20-Year Exchange Program ("Proposed Action"). The Final EIS/EIR was prepared jointly by the United States Department of the Interior, Bureau of Reclamation ("Reclamation") and Westlands Water District ("Westlands") in October 2019.

PROPOSED ACTION

The Proposed Action would allow Reclamation to issue a series of agreements over a period of 20 years that authorize the exchange of up to 25,000 acre-feet per year ("AFY") of surface water for groundwater pumped by MPG. Under the Proposed Action, Central Valley Project ("CVP") water, which ordinarily would be delivered to the Mendota Pool ("Pool") through Check 21 on the Delta-Mendota Canal ("DMC"), would instead be diverted through the San Luis Canal to MPG farms on the west side of California's Central Valley within Westlands.[2] In exchange, MPG would discharge an equivalent amount of groundwater plus a 5 percent "leave-in" quantity of native groundwater to the Mendota Pool up to a maximum volume of 26,316 AFY.[3] The total volume of groundwater that could be added to the Pool in exchange for CVP surface water would be capped at 421,053 AF, which equates to an annual pumping average of 21,053 AFY over

[1] According to the Final EIS/EIR, MPG was formed in 1989 with the overall purpose of providing an organization and framework to coordinate the exchange of groundwater for CVP surface water that is diverted through Check 13 on the DMC to the San Luis Canal and subsequently delivered to farms. MPG has eleven formal members consisting of: (1) Terra Linda Farms, (2) Vista Verde Farms, (3) Coelho West, (4) Meyers Farming Company, (5) Casaca Vineyards, (6) Daddy's Pride Farming, (7) Solo Mio Farms, (8) Baker Farming Company, (9) Friedenbach/Turmon Farms (Panoche Creek Trust), (10) Frank A. Logoluso Farms, and (11) M. Britz TIC. In addition, MPG coordinates Mr. Don Peracchi's exchange pumping program. *See* Final EIS/EIR. pp. 1-2 and p. 31.

[2] Final EIS/EIR. p. 1.

[3] *Id.* p. 8.

the 20-year project life of the Proposed Action.[4] As a result of exchanges performed as part of the Proposed Action, James Irrigation District and others downstream of the Pool would receive surface water degraded by Proposed Action discharges.

The Proposed Action also authorizes MPG to pump an additional 12,000 AFY to Mendota Pool for adjacent overlying use.[5] Thus, the not-to-exceed volume of MPG groundwater that could be pumped to the Pool during a given year is 38,316 AFY, which includes up to 26,316 AFY for exchange and the remainder for adjacent overlying use.[6]

Adjacent overlying use means groundwater that is pumped by MPG into Mendota Pool and conveyed to nearby lands where it is used for irrigation.[7] "Transfer pumping"[8] or "exchange pumping"[9] pertains to groundwater that is added to Mendota Pool to replace CVP surface water that is diverted by MPG.

TECHNICAL REVIEW

Westlands relies on predictions of its surface water mixing models to conclude impacts to surface water quality would be less than significant for the Proposed Action.[10] However, these model predictions are contradicted by monitoring results that confirm salinity impacts to surface water in Fresno Slough[11] are above the threshold of significance of 450 milligrams per liter ("mg/L") established for the Proposed Action.[12] Westlands attempts to resolve this discrepancy by asserting incremental salt loads introduced by non-MPG operations are the cause of the exceedances as opposed to MPG groundwater transfer pumping.

No factual support for this assertion is provided in the Final EIS/EIR because Westlands admits "no information is available on the quality or quantity of water delivered to, conveyed through, or diverted from the Fresno Slough by these non-MPG pumpers."[13] Moreover, speculation about other sources is not warranted because available data demonstrate adverse impacts to water quality in Fresno Slough are due

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[4] *Id.* p. 29.

[5] *Id.*

[6] *Id.*

[7] Luhdorff and Scalmanini Consulting Engineers ("LSCE") and Kenneth D. Schmidt and Associates ("KDSA"). December 2018. *2017 Annual Report Mendota Pool Group Pumping and Monitoring Program.* ("LSCE and KDSA 2017 MPG Annual Report"), p. 1.

[8] *Id.* Figure 2 and p. 6.

[9] LSCE. August 2018. *Hydrogeologic Technical Analysis Mendota Pool Group Exchange Program EIS/EIR,* ("LSCE Hydrogeologic Technical Analysis"), p. 32.

[10] Final EIS/EIR. p. 562.

[11] *Id.* pp. 204-205.

[12] *Id.* p. 191.

[13] *Id.* p. 565.

to MPG groundwater transfer pumping almost exclusively. The data also show impacts will persist and possibly worsen if transfer pumping is authorized for twenty more years under the Proposed Action.

Surface Water Budget Models Do Not Accurately Predict Salinity Trends

The Mendota Pool is a reservoir created by the Mendota Dam at the confluence of the San Joaquin River and the DMC. Surface water in the Pool south of the Firebaugh Intake Canal flows south past the Mendota Wildlife Area ("MWA") and James Irrigation District Booster Plant to the City of Tranquility.[14] This almost 15-mile long reach of the Pool between the Firebaugh Intake Canal and City of Tranquility is referred to as the Fresno Slough.[15]

Two surface water budget models have been developed for purposes of evaluating the potential impacts of the Proposed Action, one for the Fresno Slough and one for the San Joaquin River branch of the Mendota Pool. The Final EIS/EIR refers to these models as the Surface Water Mixing Models.[16] The models are used primarily to estimate salinity as total dissolved solids ("TDS") but also have been employed to predict boron[17] and selenium[18] concentrations.

Based on our review, the models do not accurately estimate concentrations of TDS and other chemicals of concern ("COCs") in Fresno Slough because, among other flaws, the models are based on instantaneous and complete mixing of surface water.[19] Such mixing would result in uniform COC concentrations in water,[20] which does not occur in Fresno Slough.

Water introduced to Mendota Pool tends to blend poorly or stagnate in the vicinity of the DMC.[21] As a result, a TDS concentration gradient exists in surface water along Fresno Slough.[22] In 2010, incomplete mixing was demonstrated when recaptured flows from the San Joaquin River Restoration Program ("SJRRP") entered the Mendota Pool through the DMC and caused a spike in Pool salinity. The SJRRP flows

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[14] *Id.*

[15] *Id.* p. 5.

[16] *Id.* p. 175.

[17] Reclamation. 2004. *Environmental Impact Statement, Mendota Pool 10-Year Exchange Agreements.* EIS No. 01-81. Final. ("Reclamation Mendota Pool 10-Year Exchange Agreements EIS"), p. 4-17.

[18] Reclamation. 1 August 2001. Environmental Assessment, Mendota Pool 2001 Exchange Agreement. EA No. 01-24. Final. p. 4-16.

[19] Reclamation Mendota Pool 10-Year Exchange Agreements EIS. Appendix D, Model Descriptions. p. D-13.

[20] U.S. EPA defines instantaneous and complete mixing, also referred to as rapid and complete mixing, as "mixing that occurs when the lateral variation in the concentration of a pollutant in the direct vicinity of the outfall is small." *See* U.S. EPA. September 2010. *National Pollutant Discharge Elimination System (NPDES) Permit Writers' Manual.* EPA-833-K-10-001. Office of Water, Office of Wastewater Management, Water Permits Division. p. 6-20.

[21] State Water Resources Control Board Corrected Order Water Right (WR) 2010-0029-DWR for the WY 2011 Interim Flows Project. p. 8.

[22] Reclamation Mendota Pool 10-Year Exchange Agreements EIS. p. 3-20.

did not mix thoroughly with the low-salinity San Joaquin River and resulted in higher salinity water in Fresno Slough and the irrigation canal headworks.[23]

Slow movement of water in Fresno Slough leads to different water quality impacts at the north end of Mendota Pool compared to the south end of the Pool.[24] LSCE recognizes that modeling of surface water within Mendota Pool must account for variations in salinity concentrations. LSCE states:

> Since factors affecting salinity concentrations in the northern portion of the Pool differ significantly from factors affecting salinity near the MWA, two surface water budget models were developed, one for the northern branch of the Pool to evaluate salinity concentrations at the Mendota Dam and one for the southern branch of the Pool to evaluate salinity at the MWA.[25]

Despite the existence of COC concentration gradients attributable to incomplete mixing, Westlands utilized overly simplistic and flawed surface water budget models to evaluate impacts to water quality by the Proposed Action. The models assume rapid and complete mixing, which produces a uniform concentration for a given COC in each branch of the Mendota Pool. In contrast, incomplete mixing is divided into two stages with distinctive mixing characteristics. Mixing and dilution in the first stage are determined by the initial momentum and buoyancy of the discharge to the waterbody. The second stage of mixing covers a more extensive area in which the effect of initial momentum and buoyancy is diminished, and the discharge is mixed primarily by ambient turbulence. This second-stage mixing area may extend for miles in large rivers or estuaries.[26] Under incomplete mixing situations, COC concentrations are typically estimated using mixing zone computer models such as the CORMIX modeling system.[27]

The surface water budget models do not accurately predict COC concentration trends in Fresno Slough, in part, because the models do not properly simulate the surface water flow regime within this branch of Mendota Pool. As noted by Provost & Pritchard Consulting Group, Inc. ("Provost & Pritchard"), the surface water budget models produce results that are inconsistent with actual TDS concentrations in years for which the models were not validated.[28] The complete mixing assumption of the models ignores the effects

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[23] Reclamation. September 2011. Final Supplemental Environmental Assessment, Interim Flows Project – Water Year 2012. pp 2-33 and 2-34.

[24] Reclamation. 6 August 2001. Finding of No Significant Impact. Exchange Agreements with Mendota Pool Group for 2001 Pumping Program. FONSI No. 01-24. p. 4.

[25] LSCE Hydrogeologic Technical Analysis. p. 31.

[26] U.S. EPA. March 1991. *Technical Support Document for Water Quality-Based Toxics Control.* Office of Water. EPA/505/2-90-001. p. 70.

[27] *Id.* pp. 76-77.

[28] Provost & Pritchard. 11 January 2019. Mendota Pool Group 20-Year Exchange Program, Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR), State Clearinghouse # 2013041028, Joint Document of U.S. Department of the Interior Bureau of Reclamation and Westlands Water District, November 2018. Technical

of factors such as "daily variations of activities, Pool water flow currents, wind-driven wave effects, dispersion, and advection."[29]

Consequently, the outputs of the surface water budget models are unreliable and cannot be used to demonstrate that the Proposed Action's impacts to water quality or productivity of downstream irrigators or habitats would be less than significant. The inaccuracy of the surface water budget models is illustrated by comparing model-predicted annual average TDS concentrations at the MWA with actual annual average TDS concentrations calculated from monthly grab samples collected at the MWA and analyzed by MPG.[30]

Figure 1 compares the actual annual average TDS concentrations with the annual average TDS concentrations for MWA predicted by the surface water budget model that was used in 2004[31] to evaluate potential water quality impacts associated with the Mendota Pool 10-Year Exchange Agreements.

As shown on Figure 1, actual annual average TDS concentrations computed from monthly grab sample analytical results are greater and display a faster rate of increase than the annual average TDS concentrations predicted with the surface water budget model. The regression or trendline indicates actual annual average TDS concentrations in surface water at the MWA are increasing with time. Salinity data for the MWA contradict the model results that predict relatively stable TDS concentrations over time.

The coefficient of determination (R^2) is a statistical measure of how close the data are to the fitted trendline. A R^2 of 1 means the trendline can explain all the variation in the dependent variable. If R^2 is close to zero, then the trendline can explain very little of the variation in the dependent variable. In general, if a R^2 value is greater than 0.7, then the trendline is described as having strong predictive capabilities, whereas a R^2 value less than 0.5 indicates the trendline has weak predictive capabilities. The R^2 of the trendline on Figure 1 is 0.56, which indicates a linear relationship exists but the correlation between the variables is not sufficient to accurately predict TDS concentrations with time. Nevertheless, the data indicate that MPG's pumping of groundwater into the Mendota Pool is having potentially significant/adverse effects on surface water quality. The upward trend of TDS concentrations at the MWA, as well as the James Irrigation District Booster Plant, is verified by applying the Mann-Kendall test to data compiled for these locations.

The Mann-Kendall test is a statistical test for linear trend, based on the idea that a lack of trend should correspond to a time series plot fluctuating randomly about a constant mean level, with no visually apparent upward or downward pattern. If an increasing trend really exists, the sample taken first from any randomly selected pair of measurements should on average have a lower concentration than the

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Memorandum to Steven Stadler, P.E., General Manager, James Irrigation District, from Michael Day, P.E., Principal Engineer, and Eric Abrahamsen, P.E., Project Manager. p. 8.

[29] *Id.*

[30] LSCE and KDSA 2017 MPG Annual Report. Table G-1, *Surface-Water Quality Laboratory Results*.

[31] Reclamation Mendota Pool 10-Year Exchange Agreements EIS. Appendix D, *Model Descriptions*. Table D-7.

measurement collected at a later point.[32] The Mann-Kendall test verifies upward linear trends in TDS at the MWA and James Irrigation Booster Plant at the 95% confidence interval during the time that MPG has pumped groundwater into the Pool.

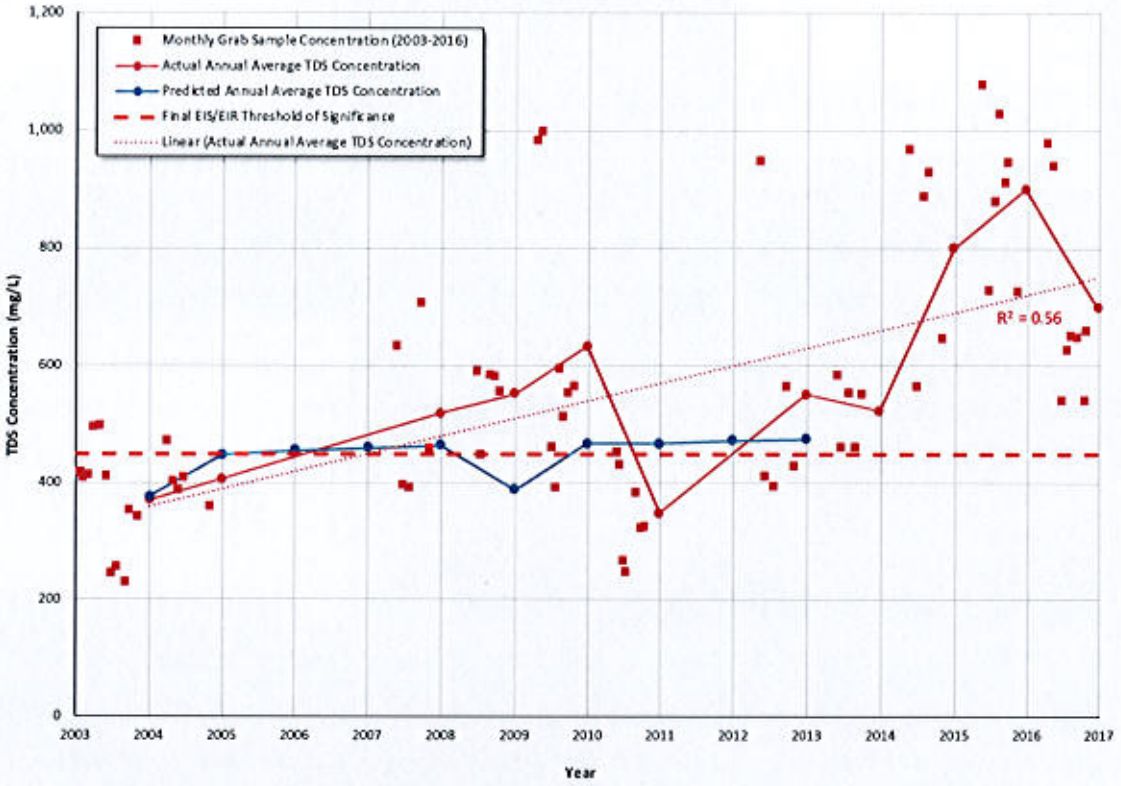

Figure 1 - Annual average TDS concentrations of surface water at MWA computed from monthly grab sample analytical results are greater and display faster rate of increase than annual average TDS concentrations predicted with surface water budget model.

Salinity Exceedances Are Due Almost Exclusively to MPG Groundwater Transfer Pumping

Westlands acknowledges MGP transfer pumping has contributed to increased salinity in surface water at MWA and the James Irrigation District Booster Plant.[33] As shown on Figure 2, between the years 2000 and 2016, TDS concentrations in surface water samples collected by MPG at the MWA and James Irrigation District Booster Plant have risen approximately 20 mg/L annually.

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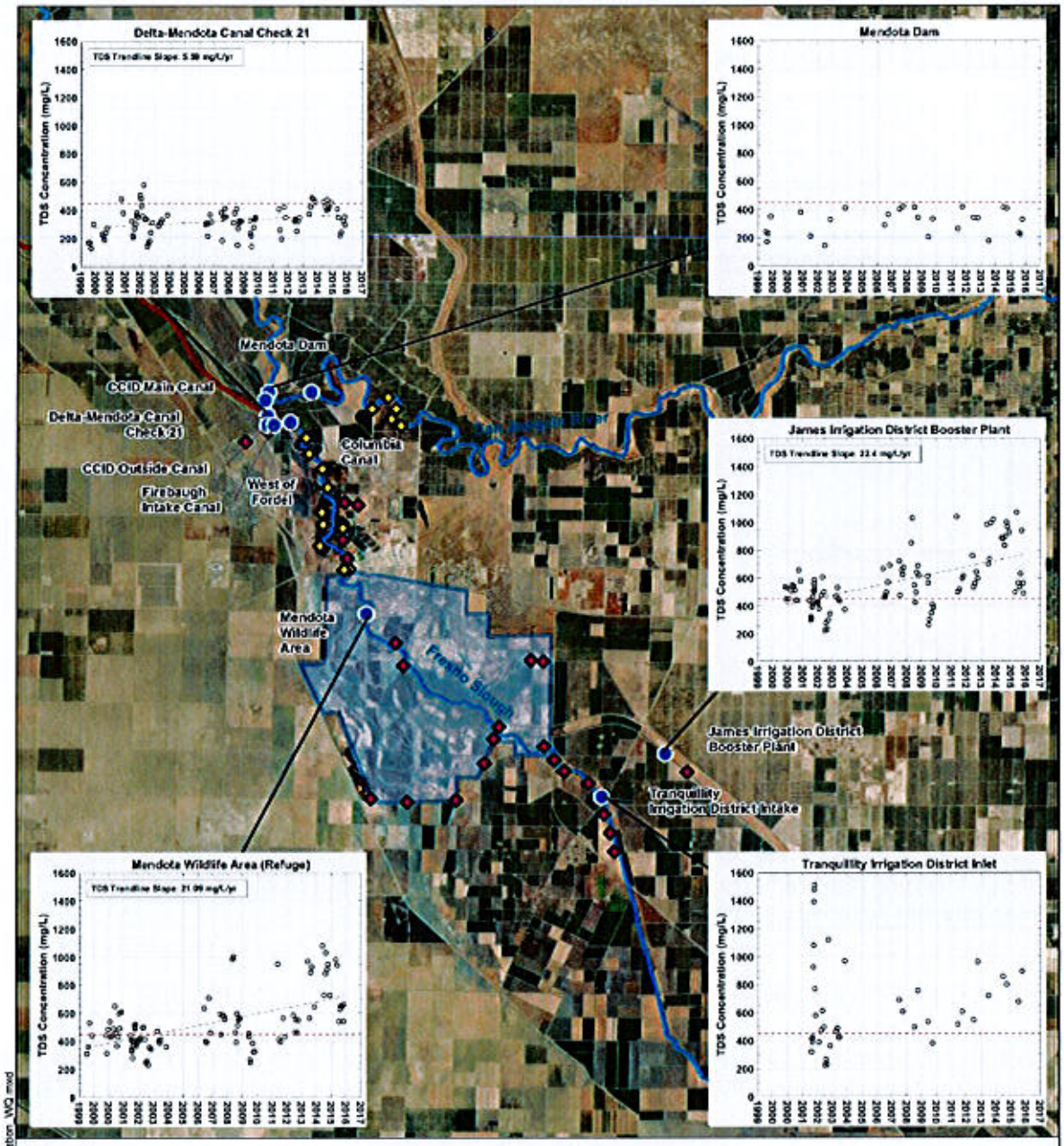
[32] Gilbert, R.O. 1987. *Statistical Methods for Environmental Pollution Monitoring*. New York: Van Nostrand Reinhold. p. 209.

[33] Final EIS/EIR. p. 206.



Legend

- Mendota Wildlife Area
- Delta-Mendota Canal
- Surface Water Sampling Location
- Mendota Pool Group (MPG) Groundwater Input Location
- Non-MPG Groundwater Input Location

N

0 3 6
(Scale in Miles)

Surface Water Sampling Stations and TDS Trend Plots for Selected Stations

Notes

1. All locations are approximate.
2. Trendline is displayed on plot only when it is statistically significant at the 95% confidence interval.
3. Annual average total dissolved solids (TDS) concentration of 450 milligrams per liter (mg/L) is Final EIS/EIR threshold of significance.
4. Surface water sampling stations and groundwater input locations are obtained from Figure 36 of Final EIS/EIR.

Mendota Pool, Fresno County, CA
December 2019
EKI B90167.00
Figure 2

Path: X:\Mendota Pool Surface Water Budget Model\Fig_Station_WQ.mxd

The plots of monthly grab sample analytical results on Figure 2 also show TDS concentrations in surface water samples obtained at the MWA and James Irrigation District Booster Plant are routinely greater than 450 mg/L. The Proposed Action establishes a threshold or design constraint that the average annual TDS concentration in surface water at the MWA shall not be greater than 450 mg/L.[34] Westlands relies on continued implementation of existing design constraints to conclude the impact of the Proposed Action to water quality in Fresno Slough will be less than significant.[35] Yet, the annual average TDS concentrations for MWA and the James Irrigation District Booster Plant have been routinely above 450 mg/L since 2007 even with the design constraints, monitoring program, and adaptive management approach that are being employed and would continue under the Proposed Action.[36]

Westlands dismisses the ineffectiveness of the design constraints by asserting exceedances of the 450 mg/L threshold at the MWA are not associated with MPG transfer pumping but rather "periods of low southerly flows from the San Joaquin River caused by reduced diversions, substantial non-MPG pump-ins into the Fresno Slough and MWA portions of the Mendota Pool, migration of the saline front, and higher salinity drought influenced levels in the DMC."[37] Westlands claims "data demonstrate that MPG inputs are not the major contributor to potential exceedances in salinity and TDS standards in the MWA and areas further south,"[38] but these data are not provided in the Final EIS/EIR. Westlands simply speculates if the data were available, they would indicate non-MPG pumping into Fresno Slough south of MWA is causing the high concentrations of boron and other COCs in surface water at the James Irrigation District Booster Plant. Westlands states:

> However, data to characterize surface water flow patterns were not available to the MPG for this southern portion of the Fresno Slough. Also, non-MPG pump-in water quality data, MWA pumping patterns, etc., were not available, but likely significantly degrade surface water quality observed at the James Irrigation District intake. Thus, it is determined that MPG pumping has not, and would not under the Proposed Action and Alternative 2, result in or substantially contribute to boron-related surface water quality impacts at James Irrigation District. While the MPG is managing the salinity and boron discharges into the Pool via this program, the MPG has no jurisdiction over non-MPG discharges into the Pool, including those in the southern portion of the Pool in the MWA area in proximity to the James Irrigation District P-Booster Plant intake.[39]

A plot of annual average TDS concentrations for surface water at the MWA and James Irrigation District Booster Plant (Figure 3) does not support Westlands' contention that water added to Fresno Slough by intervening non-MPG entities is impairing water quality in the southernmost reach of the slough.

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[34] *Id.* p. 178.

[35] *Id.* pp. 217-218.

[36] *Id.* p. 32.

[37] *Id.* p. 177.

[38] *Id.* p. 217.

[39] *Id.* pp. 633-634.

Figure 3 shows TDS concentrations do not increase substantially between MWA and the James Irrigation District Booster Plant,[40] thereby signifying non-MPG water additions between these locations are not causing TDS exceedances at the James Irrigation District Booster Plant.

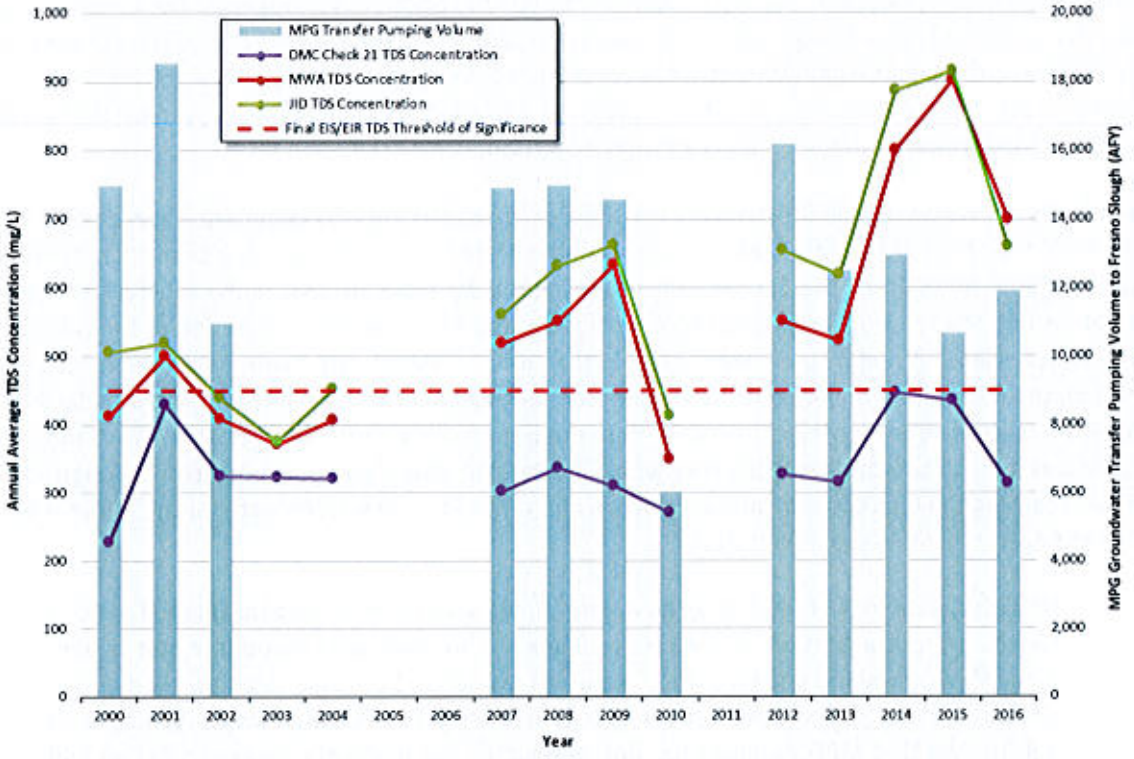

Figure 3 - Annual average TDS concentrations in surface water at MWA and James Irrigation District Booster Plant are controlled by MPG annual groundwater transfer pumping volume to Fresno Slough and annual average TDS concentration of CVP water in DMC.

Instead, Figure 3 indicates annual average TDS concentrations for MWA and the James Irrigation District Booster Plant are influenced greatly by the MPG groundwater transfer volume pumped into Fresno Slough. In years where exchange pumping is curtailed (i.e., 2002 and 2010) or does not take place (i.e., 2003 through 2006 and 2011), annual average TDS concentrations for MWA and the James Irrigation

[40] No meaningful differences exist between annual average TDS concentrations for years 2000 through 2016 at MWA and the James Irrigation District Booster Plant. EKI performed a t-test and the Shapiro-Wilk test and found no statistical difference between these two groups of data at the 95% percent confidence interval.

District Booster Plant decrease and approach those for CVP water conveyed by the DMC to Mendota Pool.[41]

The influence of the DMC on water quality is not surprising given the DMC is the dominant source of surface water in Mendota Pool.[42] Reclamation delivers on the order of 50,000 to 100,000 AFY of surface water to Fresno Slough through the DMC[43] compared to MPG groundwater transfer pumping volumes on the order of 10,000 to 20,000 AFY (*see* Figure 3 and Table 1).

Large volumes of CVP surface water delivered by the DMC improve water quality within Fresno Slough because CVP surface water has TDS concentrations that are lower than those in groundwater pumped by MPG into Mendota Pool. The higher salinity of MPG groundwater transfer volumes results in exceedances of the TDS significance threshold of 450 mg/L.

The influence of CVP surface water is exhibited between 2015 and 2016 when the annual average TDS concentration for water in the DMC declined and corresponding drops in annual average TDS concentrations for water at MWA and the James Irrigation District Booster Plant were observed (Figure 3) when the MPG annual groundwater transfer pumping volume remained relatively constant.

TDS concentrations in surface water at MWA and the James Irrigation District Booster Plant can be explained by the MPG groundwater transfer pumping volume to Mendota Pool and salinity of CVP water in the DMC since these variables or parameters describe the sources that control surface water quality in Fresno Slough. Figure 4 displays the results of multivariate linear regression performed by EKI. Equations were derived that predict annual average TDS concentrations in surface water at MWA and the James Irrigation District Booster Plant using the MPG annual groundwater transfer pumping volume to Mendota Pool and DMC annual average TDS concentration of CVP water at Check 21 as input parameters (*see* Table 1).

Annual average TDS concentrations in surface water at MWA and the James Irrigation District Booster Plant predicted by the multivariate equations are plotted against annual average TDS concentrations computed from analytical results of monthly grab samples collected at these locations by MPG. As shown on Figure 4, the equations capture most of the variability in annual average TDS concentrations at the MWA and James Irrigation District Booster Plant. This reasonable correlation means other factors (e.g., non-MPG discharges into Mendota Pool) that Westlands cites as being responsible for exceedances of the TDS significance threshold of 450 mg/L have little effect. Increases in TDS concentrations above those measured in DMC water conveyed to Fresno Slough are due almost entirely to the salinity of groundwater pumped into the Pool by MPG.

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[41] Annual average TDS concentrations are missing for most years in which no exchange occurred because MPG generally collects and analyzes surface water samples in only those years where exchange of groundwater for CVP surface water takes place. *See* Final EIS/EIR. p. 201.

[42] Reclamation Mendota Pool 10-Year Exchange Agreements EIS. p. 3-20.

[43] Final EIS/EIR. Tables 8-15, 8-23, and 8-24.

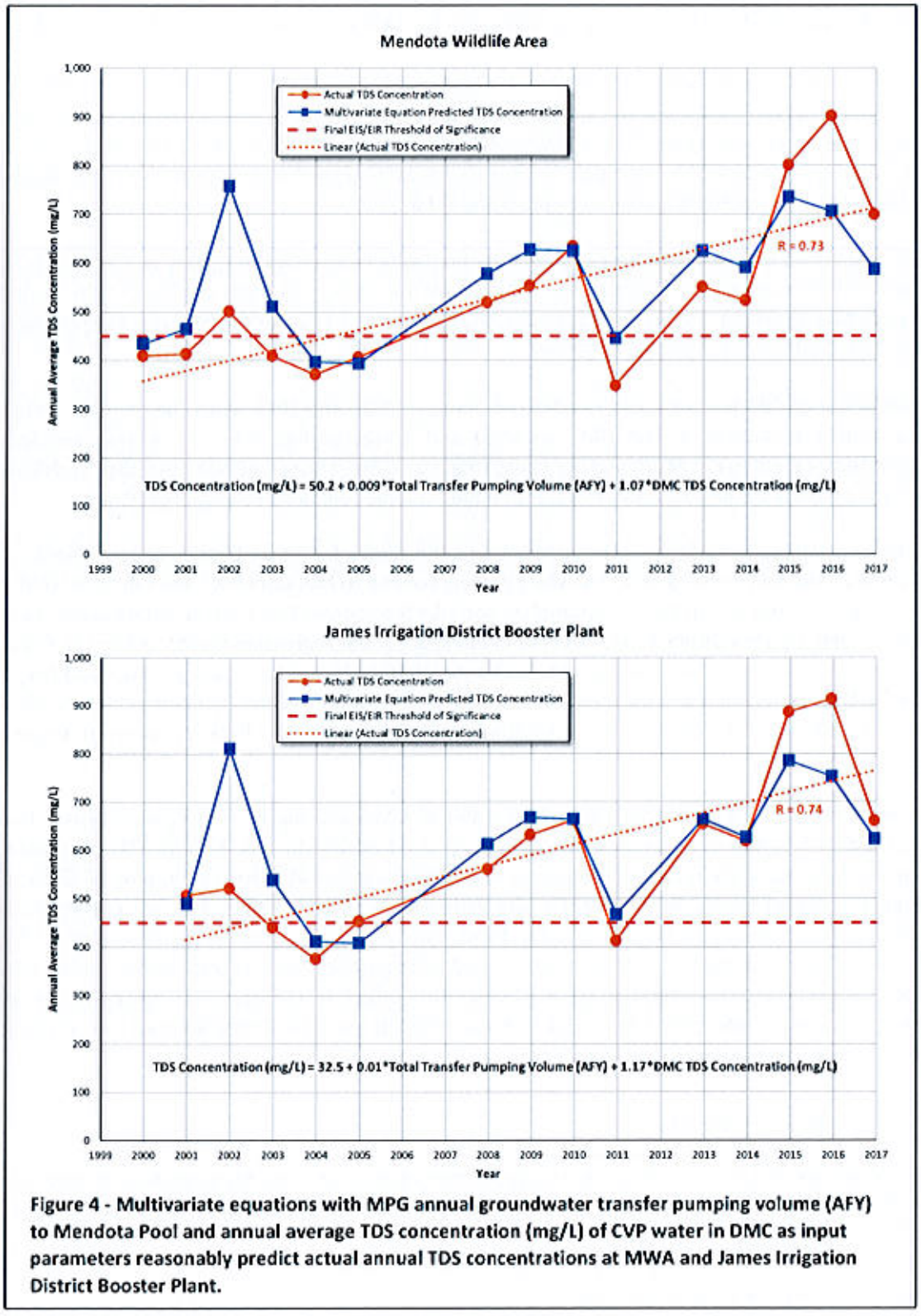

Figure 4 - Multivariate equations with MPG annual groundwater transfer pumping volume (AFY) to Mendota Pool and annual average TDS concentration (mg/L) of CVP water in DMC as input parameters reasonably predict actual annual TDS concentrations at MWA and James Irrigation District Booster Plant.

TABLE 1
SUMMARY OF MPG ANNUAL GROUNDWATER TRANSFER VOLUMES TO MENDOTA POOL AND ANNUAL AVERAGE TDS CONCENTRATIONS FOR SELECTED SURFACE WATER SAMPLING STATIONS

Year	MPG Groundwater Transfer Volume[44] (AFY)	Annual Average TDS Concentration (mg/L)[45]		
		Delta-Mendota Canal Check 21	Mendota Wildlife Area	James Irrigation District Booster Plant
1999	19,721	193	410	-
2000	18,995	228	413	506
2001	27,415	430	501	520
2002	12,497	325	410	440
2003	0	324	371	375
2004	0	321	407	453
2005	0	-	-	-
2006	0	-	-	-
2007	22,556	303	519	561
2008	24,017	337	552	631
2009	26,792	311	634	662
2010	11,865	270	348	413
2011	0	-	-	-
2012	24,872	327	551	654
2013	22,449	316	523	619
2014	23,106	446	800	887
2015	21,105	435	901	913
2016	22,322	314	699	661
2017	0	-	-	-

The trendlines on Figure 4 reveal a linear relationship between actual annual average TDS concentrations and time. The coefficient of correlation (R) is a statistical measure of the strength of a linear relationship between paired data. The R values are 0.73 for the MWA trendline and 0.74 for the James Irrigation District Booster Plant trendline, which connote strong positive linear correlations. In practical terms, MPG monitoring data indicate TDS concentrations in surface water at MWA and the James Irrigation District

[44] MPG annual groundwater transfer volumes to Mendota Pool compiled from LSCE and KDSA 2017 MPG Annual Report, Table 3-3, *Annual Mendota Pool Group Pumpage by Location*.

[45] Annual average TDS concentrations for selected surface water sampling stations computed from monthly grab sample analytical results presented in LSCE and KDSA 2017 MPG Annual Report, Table G-1, *Surface-Water Quality Laboratory Results*.

Booster Plant are increasing over time and water quality degradation along Fresno Slough will persist and possibly worsen if MPG continues to pump groundwater into Fresno Slough.

As shown on Figure 4 and summarized in Table 1, annual average TDS concentrations for surface water at MWA and the James Irrigation District Booster Plant are already greater than 450 mg/L, which is the threshold of significance for impacts to surface water established for the Proposed Action.[46] Thus, MPG groundwater transfer pumping has led to significant impacts to water quality within Fresno Slough.

Salinity Impacts of MPG Groundwater Transfer Pumping Are Significantly Underestimated

The surface water budget models employed in the Final EIS/EIR to assess impacts to surface water quality by the Proposed Action were validated based on conditions and TDS concentrations observed at Mendota Dam and the MWA in 2012.[47] LSCE states "[p]umping amounts and well concentrations from wells located near the Fresno Slough were assigned based on reported or estimated amounts and water quality measurements taken in, or nearest to 2012."[48] The resulting information was relied upon to validate the surface budget model for the southern branch of Mendota Pool. However, LSCE did not report the TDS concentration in MPG groundwater pumped to the Pool that was used for validation purposes. EKI estimates the TDS concentration in this groundwater to be approximately 880 mg/L based on information contained in Table 5-10 of the LSCE Hydrogeologic Technical Analysis.

LSCE assumes a much lower TDS concentration in groundwater pumped to Mendota Pool by MPG when modeling impacts to surface water attributable to the Proposed Action. Based on Table 8-23 of the LSCE Hydrogeologic Technical Analysis, EKI estimates that the TDS concentration is assumed to be 660 mg/L in groundwater pumped to the Pool for the next 20 years. No explanation is given for why future TDS concentrations are expected to be lower than current TDS concentrations in groundwater pumped to the Pool.

The Proposed Action is not expected to improve groundwater quality. LSCE forecasts TDS concentrations will rise by an average of 20 mg/L in shallow groundwater and 40 mg/L in deep groundwater at the MWA by the end of the Proposed Action 20-year project life.[49] Further, the design constraints associated with the Proposed Action were largely in effect in 2012 and their ongoing implementation[50] cannot justify the lower TDS concentration assumed in MPG groundwater transfer volumes during the Proposed Action because the design constraints have not been able to stop TDS concentrations from rising due to MPG transfer pumping to date. The TDS concentration assumed for groundwater pumped to Fresno Slough by MPG is not a reasonable estimate of future conditions. Accordingly, impacts to surface water quality are underestimated in the Final EIS/EIR.

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[46] Final EIS/EIR. pp. 204-205.

[47] LSCE Hydrogeologic Technical Analysis. p. 32.

[48] *Id.*

[49] *Id.* pp. 76-78.

[50] Final EIS/EIR. p. 217.

Short-Term Effects Are Not Properly Evaluated

Westlands does not properly evaluate short-term effects of the Proposed Action. The short-term effects resulting from the variability in the annual volume of MPG groundwater transferred to Mendota Pool is not considered in the Final EIS/EIR. Westlands assumes the transfer volume will remain constant at 21,053 AFY throughout the 20-year project life of the Proposed Action. Westlands does not give a justification for this assumption. A constant exchange volume does not reflect how MPG has performed transfer pumping to date or will do so throughout the Proposed Action.

Table 2 summarizes MPG transfer volumes by year and lists the Water Year Hydrologic Classification Indices for the San Joaquin Valley assigned by the California Department of Water Resources for these years. Table 2 shows that the volume of groundwater pumped by MPG into Mendota Pool varies dramatically by the rainfall amount for a given year. Groundwater is commonly exchanged during normal and dry years and not wet years.

This mode of operation was required by Settlement Agreement No. 1 for the 10-year program that encompassed the years 2001 through 2010. Settlement Agreement No. 1 allowed exchanges only during normal and dry years.[51] Although this requirement was removed when Settlement Agreement No. 2 went into effect in 2011,[52] MPG still conducted exchanges only in normal and dry years between 2011 and 2017.

The amount of rainfall experienced in a year will continue to govern the corresponding annual groundwater transfer volume pumped to Mendota Pool. Westlands states "[t]he total amount of groundwater pumped would be dependent upon the amount of precipitation in a given year. For instance, the amount of groundwater pumped by MPG may be greater during a dry year and less in years where there is more rainfall and natural irrigation of crops."[53] Westlands notes other factors also are important in determining transfer volumes, including review of monitoring data, demonstrated effectiveness of design constraints and management strategies, changes imposed by Groundwater Sustainability Plans, and necessary approvals by Reclamation and local entities.[54]

MPG may need to pump the maximum volume of 26,316 AFY allowed under the Proposed Action during normal and dry years to compensate for lower volumes pumped during wet years. A volume of 26,316 AFY is 25 percent more than the volume of 21,053 AFY assumed by Westlands in its Final EIS/EIR analysis.

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[51] *Id.* p. 7.

[52] *Id.* p. 8.

[53] *Id.* pp. 29-30.

[54] *Id.* p. 31.

TABLE 2
ANNUAL MPG GROUNDWATER TRANSFER VOLUMES AND
WATER YEAR HYDROLOGIC CLASSIFICATION INDICES FOR SAN JOAQUIN VALLEY

Year	Water Year Hydrologic Classification Index for San Joaquin River[55]	MPG Groundwater Transfer Volume (AFY) [56]		
		Wells Along Fresno Slough	Wells South of Joaquin River	Mendota Pool Total
1999	Above Normal	14,871	4,850	19,721
2000	Above Normal	14974	4,021	18,995
2001	Dry	18,510	8,906	27,415
2002	Dry	10,963	1,534	12,497[57]
2003	Below Normal	0	0	0
2004	Dry	0	0	0
2005	Wet	0	0	0
2006	Wet	0	0	0
2007	Critical	14,884	7,671	22,556
2008	Critical	14,962	9,055	24,017
2009	Below Normal	14,527	12,265	26,792
2010	Above Normal	5,971	5,894	11,865[58]
2011	Wet	0	0	0
2012	Dry	16,136	8,736	24,872
2013	Critical	12,471	9,978	22,449
2014	Critical	12,950	10,156	23,106
2015	Critical	10,638	10,468	21,105
2016	Dry	11,887	10,435	22,322
2017	Wet	0	0	0[59]

[55] California Department of Water Resources. California Data Exchange Center. http://cdec.water.ca.gov/reportapp/javareports?name=WSIHIST. Accessed 18 December 2019.

[56] MPG annual groundwater transfer volumes to Mendota Pool compiled from LSCE and KDSA 2017 MPG Annual Report, Table 3-3, *Annual Mendota Pool Group Pumpage by Location*.

[57] Pumping was reduced due primarily to incomplete groundwater level recovery that was observed in many wells at the end of 2001. LSCE and KDSA 2017 MPG Annual Report. p. 2.

[58] Actual pumping program was greatly reduced due to wet conditions and availability of CVP and other surface water supplies in 2010. LSCE and KDSA 2017 MPG Annual Report. p. 4.

[59] MPG planned to transfer 14,876 AFY in 2017 but the transfer did not occur due to the extended period of San Joaquin River and Kings River flood releases. LSCE and KDSA 2017 MPG Annual Report. p. 6.

The predicted TDS concentration in surface water at MWA is proportional to the transfer volume as derived by the surface water budget models in the Final EIS/EIR. Westlands predicts the surface water TDS concentration will be 414 mg/L[60] at MWA when the MPG groundwater transfer volume is 21,053 AFY. If 25 percent more groundwater is transferred to Mendota Pool, the surface water budget models would predict a rise in the TDS concentration to 518 mg/L, which is greater than the threshold for significance of 450 mg/L.

In actuality, the TDS concentration would be much higher than 518 mg/L because Westlands assumes an unreasonably low salinity for MPG groundwater transferred to the Pool, as discussed in the prior section of this technical review. If the TDS concentration of 880 mg/L in MPG groundwater used to validate the surface water budget models is substituted for the TDS concentration of 660 mg/L in MPG groundwater assumed by Westlands in its simulations, then the TDS concentration in surface water at MWA increases to 690 mg/L when the maximum allowable groundwater volume of 26,316 AFY is transferred to Mendota Pool during normal years when no curtailment of CVP surface water supplies occurs.

Even higher TDS concentrations in surface water would be measured under drought conditions.[61] However, the assumptions underpinning the Final EIS/EIR's evaluation of short-term effects during dry years are implausible and without justification. The Final EIS/EIR attributes the TDS increase in the southern portion of Mendota Pool solely to a 13,000 AFY reduction in DMC flows to MWA during the dry year simulation.[62] No justification is provided for this assumption.

Reduction of James Irrigation District's contracted CVP surface water supplies during a dry year alone could surpass 13,000 AFY. As explained in comments on the draft EIS/EIR, James Irrigation District receives 9,700 AFY of CVP water from Shasta Lake under a settlement contract. If the forecasted natural inflow to Shasta Lake is less than certain values, a Shasta Critical Year is declared and deliveries under the settlement contract are 7,600 AFY,[63] which amounts to a reduction of 2,100 AFY. In addition, James Irrigation District generally receives 35 percent of its 35,300 AFY (i.e., 12,400 AFY) of south of delta water supply allotted under a CVP water supply contract.[64] Water delivered pursuant to this contract is expected to decline due to recent adoption of amendments to the State Water Resources Control Board Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary and could be suspended completely during dry years.

Therefore, curtailment of James Irrigation District's CVP surface water supplies during a drought could total 14,500 AFY. The decrease of CVP surface water flow in Fresno Slough would be greater than this

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[60] Final EIS/EIR. Table 26.

[61] *Id.* pp. 180-181.

[62] LSCE Hydrogeologic Technical Analysis. p. 113.

[63] James Irrigation District. 14 January 2019. *James Irrigation District's Comments on Mendota Pool Group 20-Year Exchange Program (Project), Draft Environmental Impact Statement/Environmental Impact Report (DEIS/EIR) (SCH# 2013041028)*. Letter to Rain Emerson, Bureau of Reclamation and David Vang, Westlands Water District, from Steven Stadler, P.E., General Manager. p. 4.

[64] *Id.*

volume because Tranquility Irrigation District, Fresno Slough Water District, and other CVP water users along Fresno Slough also would experience reductions in their CVP surface water supplies.

Despite predicting a reduction of 13,000 AFY during the dry year simulation, Westlands does not assume more MPG groundwater would be pumped to Fresno Slough to partially offset this shortfall. The MPG transfer volumes to MWA are assumed to be 10,446 AFY[65] for each year of the Proposed Action and for the dry year simulation.[66] This assumption is at odds with the purpose of the Proposed Action. As Westlands states:

> Exchange water represents a supplemental supply in dry years to MPG farmlands in Westlands that are developed with permanent crops (e.g., orchards, vineyards), which require a reliable and continuous supply of irrigation water for the crop to survive. If exchange water becomes unavailable, these farmers may have to remove substantial areas of high-value permanent crops and instead switch to lower-value annual crops (e.g., alfalfa, wheat, barley) as they are more readily fallowed in dry years when there isn't sufficient water supply to meet demand.[67]

The record of MPG transfer pumping (*see* Table 2) indicates more groundwater is exchanged in dry years than normal years. The short-term effect of transferring greater volumes of higher salinity groundwater to Fresno Slough during dry years is not evaluated in the Final EIS/EIR.

SUMMARY

In summary, the Final EIS/EIR method of analysis and modeling of water quality impacts to James Irrigation District and others downstream of the Proposed Action's discharges of highly saline native groundwater into the Mendota Pool (in lieu of high-quality DMC supplies) grossly underestimate water quality impacts to James Irrigation District and others along Fresno Slough and is otherwise flawed for several reasons. These include:

1. While past discharges from MPG wells directly and/or cumulatively caused adverse water quality exceedances at the MWA and James Irrigation District Booster Plant surface water intake off Fresno Slough (e.g., Final EIS/EIR, Tables 21 and 27), the Final EIS/EIR reaches the opposite conclusion about Proposed Action discharges. However, the Final EIS/EIR fails to explain key modeling assumptions and facts relied upon to reach the conclusion that the Proposed Action will not – contrary to past discharges, result in future downstream exceedances of the designated

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[65] This assumed volume is less than the actual groundwater volumes that MPG has generally transferred to Fresno Slough in the past (*see* Table 2). No explanation for the assumed smaller MPG groundwater transfer volume is provided in the Final EIS/EIR.

[66] LSCE Hydrogeologic Technical Analysis. Tables 8-23 and 8-24.

[67] Final EIS/EIR. pp. 27-28.

significance threshold or applicable water quality standards including at MWA and the downstream James Irrigation District Booster Plant surface water intake.

a. For example, Westlands uses surface water budget models, which it validates with data that are not disclosed, and those models predict lower TDS concentrations that conflict with actual MPG data that confirm exceedances of the significance threshold (*see* Figures 1 and 2).

b. As another example, the surface water budget models do not disclose the TDS data used for validation, but our analysis indicates that the Final EIS/EIR assumes TDS concentrations lower than current levels.

2. The following key assumptions in the Final EIS/EIR's surface water quality analysis that EKI was able to discern based on its technical expertise are clearly counter-factual, unreasonable, and unwarranted:

a. The Final EIS/EIR assumes that non-MPG pump-ins, about which it confessedly lacks data, are the predominant factor driving salinity increases and exceedances in Fresno Slough. However, actual MPG data including data within the Final EIS/EIR itself and EKI's analysis shows that the MPG pump-ins are by far the largest (almost exclusive) contributing factor causing elevated salinity and exceedances with the contribution from non-MPG pump-ins being relatively small (*see*, e.g., Figure 3).

b. The Final EIS/EIR uses over simplistic modeling that, among other flaws, assumes rapid and complete mixing upon discharge of groundwater into Mendota Pool, which does not in fact occur in the Pool, and does not simulate the actual surface water flow regime in the Pool, resulting in unreliable results and underestimated water quality impacts downstream.

c. The Final EIS/EIR assumes a uniform or average distribution of the 20-year pumping amount across the 20-year project life, despite the obvious fact that wet and dry year pumping will be different, which results in underestimated water quality impacts downstream. Averaging effectively ignores likely exceedances in dry years, when greater than average MPG groundwater volumes are exchanged (*see*, e.g., Final EIS/EIR, Table 17) and the baseline conditions are likely worse due to drought conditions (*see*, e.g., Final EIS/EIR, Table 18).

3. Finally, even if a technical consultant could make sense of how cumulative water quality exceedances experienced by James Irrigation District and others during the prior 20 plus years of similar Proposed Action discharges into the Pool will somehow not continue with future discharges, that is not something that is explained in nor can be readily understood from reading the Final EIS/EIR or even the technical appendices.

Attachment A contains a copy of my resume. Please call if you have questions or wish to discuss this letter in greater detail.

Very truly yours,

EKI ENVIRONMENT & WATER, INC.

Andrew N. Safford, P.E.
Vice President

Exhibit E

EST. 1988
PROVOST& PRITCHARD
CONSULTING GROUP
An Employee Owned Company

1120 W. I Street, Suite C
Los Banos, CA 93635-9952
Tel: (209) 829-1685
Fax: (209) 829-1675
www.ppeng.com

Technical Memorandum

To:	Steven Stadler, P.E., General Manager, James Irrigation District
From:	Michael Day, P.E., Principal Engineer, Provost & Pritchard Consulting Group, Inc. Eric Abrahamsen, P.E., Project Manager, Provost & Pritchard Consulting Group, Inc.
Subject:	Mendota Pool Group 20-Year Exchange Program Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) State Clearinghouse # 2013041028 Joint Document of U.S. Department of the Interior Bureau of Reclamation and Westlands Water District November 2018 Include attachments at the end of this document
Date:	January 11, 2019

Introduction:

The water quality James Irrigation District (JID or James ID) receives from the Mendota Pool has taken a decided turn for the worse in the twenty years since the Mendota Pool Group Pumpers (MPG) began pumping well water into the Mendota Pool and exchanging it for high-quality Delta-Mendota Canal (DMC) surface water delivered to their properties in Westlands Water District (WWD), as facilitated by the United States Bureau of Reclamation (Reclamation or USBR). The environmental impacts of implementing a similar exchange program for another twenty years (Project) have been partially studied by MPG, WWD, and Reclamation in the subject draft EIS/EIR. Surprisingly, the EIS/EIR concludes that no significant environmental impacts would occur as a result of the Project in spite of ample evidence to the contrary in the documents themselves. Furthermore, the document is deficient for its failure to analyze the impacts to JID, despite the fact that JID is likely to suffer more than others from the water quality impacts of the Project.

The following is a technical review of subject draft EIS/EIR. Our resumes are attached hereto in **Attachment A - Resumes** to document our background and expertise to perform the review.

Background:

JID is located southeast of the Mendota Wildlife Area (MWA) and covers the area around the City of San Joaquin. JID provides irrigation water to (in 2018) 23,667 cropped acres. A large portion of JID's water supply is delivered through the Delta-Mendota Canal (DMC) under the terms of two contracts with Reclamation. The first is a settlement contract (Reclamation Contract No. 14-06-200-700-A, dated December 23, 1963) made with JID in settlement of its water rights on the Fresno Slough and San Joaquin River (SJR) that were impaired by the construction of Friant Dam on the SJR at Millerton Lake, under which Reclamation provides up to 9,700 AF of Schedule 2 water in normal years and 7,600 AF in dry years according to the schedule in Table 1.

Table 1 - USBR Scheduled Water Deliveries to JID for Schedule 2 Water (AF)

Hydrologic Year Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Normal	0	600	800	1,300	1,900	2,500	2,000	400	200	0	0	0
Dry	0	600	800	1,000	1,500	1,900	1,400	300	100	0	0	0

The second is a Central Valley Project water supply contract (Reclamation Contract No. 14-06-200-700A-LTR1, dated February 25, 2005 for up to 35,300 acre-feet of water each year. The water is generally delivered in the spring and summer months and varies each year based on demand, availability, and schedules set by the USBR. These water deliveries averaged 13,706 AF/year between 2005 and 2014, or only 39% of the contract amount.

Failure to Study JID:

The primary study area for the EIS/EIR exclude JID. As shown in figure 36 on page 184 of the EIS/EIR, it is notable that Mendota Pool continuous water quality check points are located only at the Exchange Contractor Canals and Mendota Wildlife Area (MWA), but not immediately downstream in the Fresno Slough at the JID P-Booster Plant. The EIS/EIR also does not contain any discussion of the impacts the Project will have, and is already having, on the water quality received by JID. It is also noticeable that the "program design constraints" are concerned with minimizing impacts on water quality for the Exchange Contractors, Wonderful Orchards, and the MWA, but not JID.

This exclusion of JID from the study area and failure to study impacts to James, and its soils, crops, and groundwater, is not justified. Study of impacts to MWA is insufficient to understand the impacts to James, which has different water uses, needs, and environmental resources at stake. In addition, JID is downstream from the MWA, and stopping the analysis at the MWA ignores two important realities. One is that there are many wells that discharge into the Pool between the MWA's intake and JID that also substantially degrade water quality. The other is that JID relies on blending higher-quality DMC water, delivered through the Mendota Pool, for dilution of its well water to protect crops.

The existing Project design constraints are flawed because they only constrain pumping on poor quality wells for exchange purposes when quality at Exchange Contractor canals and/or Mendota Pool exceed triggering thresholds, and only at certain times of the year that don't correlate to JID's irrigation season. And, pumping of poor-quality wells is allowed to continue for "local" Pool Pumper purposes (but not exchange to their lands in WWD) even when that degrades water delivered to MWA and JID.

Water Quality Impacts in JID:

The water quality section fails to properly address the poor quality (high in constituents of concern including SAR, Boron, and TDS) of the groundwater received by JID as a result of this project. The problem is confirmed by data collected by Provost & Prichard and by data contained in the EIS/EIR itself.

Provost & Prichard maintains and operates an Electrical Conductivity (EC) meter at the P-Booster plant. Daily readings from June 1, 2007 to June 19, 2018 were used to obtain approximate TDS readings by multiplying EC measurements in DS/m by 640. That data is graphed and attached hereto as **Attachment B – June 2007 through June 19, 2018 – Approx TDS (ppm) at P Booster**. The extremely high TDS readings in 2014 (a critically dry year) stand out, as seen below in Figure 1.

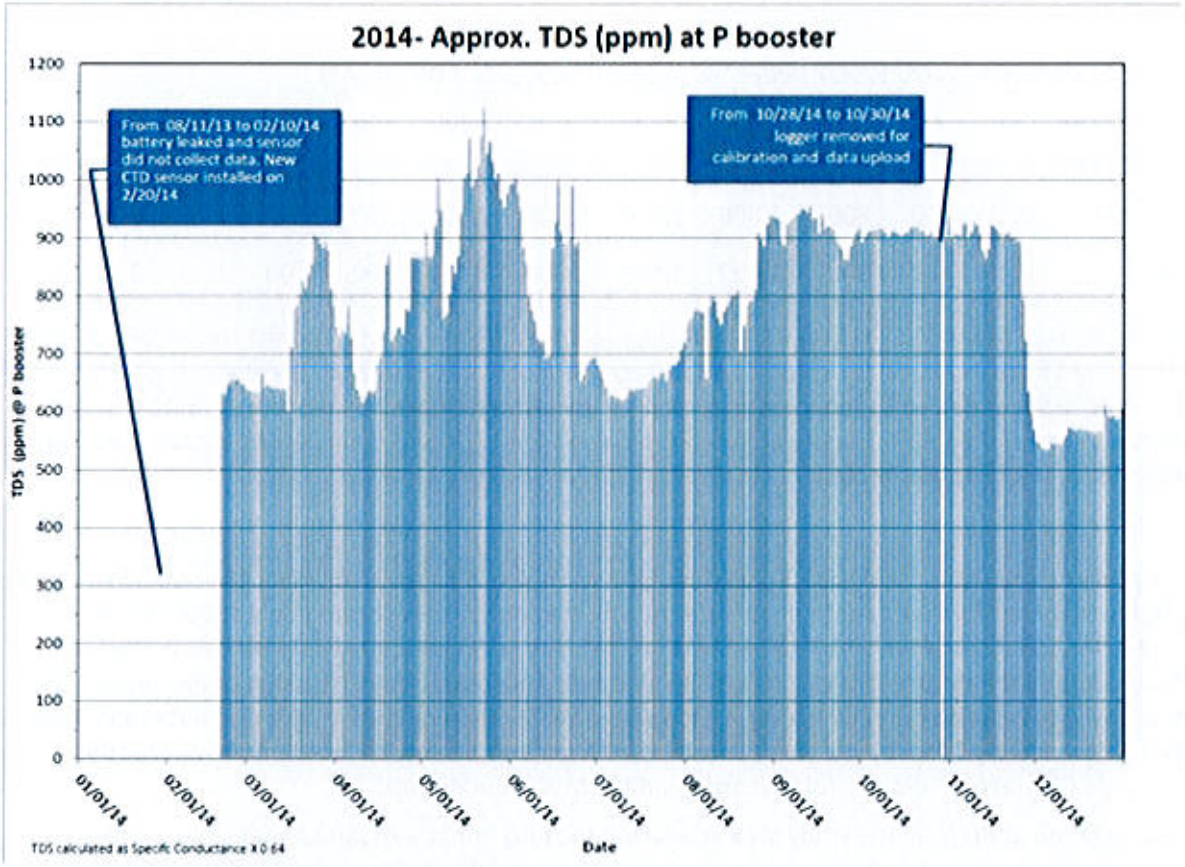

Figure 1 – Approximate TDS at P Booster (2014)

The severity of the problem in 2014 is also demonstrated in the EIS/EIR itself. Table 17 on page 183 includes data from grab sampling at the James P-Booster Plant reported in the 2014 Annual Report, Mendota Pool Group Pumping and Monitoring Program. Those samples had a median TDS of 992 mg/L and a maximum of 998 mg/L. Mendota Pool Group pump in water was a significant portion of the water put into the Pool and of the water received by JID in 2014 and other drought years that contributed greatly to cumulative impacts on JID from those pump ins.

Table 21 on page 189 of the EIS/EIR reveals that during 2014 the water received by JID was also very high in other constituents of concern, most importantly boron. The samples had a median boron concentration of 500 µg/L and up to 1150 µg/L.

As explained below, these high levels of degradation will have significant impacts in James.

Crop and Soil Impacts in JID:

Some of the crops grown throughout JID, and particularly in the northern area that receives mostly undiluted Mendota Pool Water, are very sensitive to salinity and Boron. **Figure 2** shows the distribution of the Crops in 2017 throughout JID. Also, many of the soils throughout JID, and particularly in the northern area, are vulnerable to sodicity problems (i.e. soil sealing and loss of permeability due to sodium imbalance, as indicated by elevated Sodium Adsorption Ratio (SAR).

In 2018, of JID's 23,667 cropped acres (see Attachment C – District Crop Production Report Jan-Nov - 2018), 12,038 were crops sensitive to salinity, boron, or both. Those crops include onions (2,187 acres), lettuce (67 acres), grapes (1,766 acres), almonds (7,867 acres), and walnuts (151 acres). Sweetcorn is also sometimes grown (James ID 2018 Operations Report – Page 6 – Crop Production DRAFT 01/02/09).

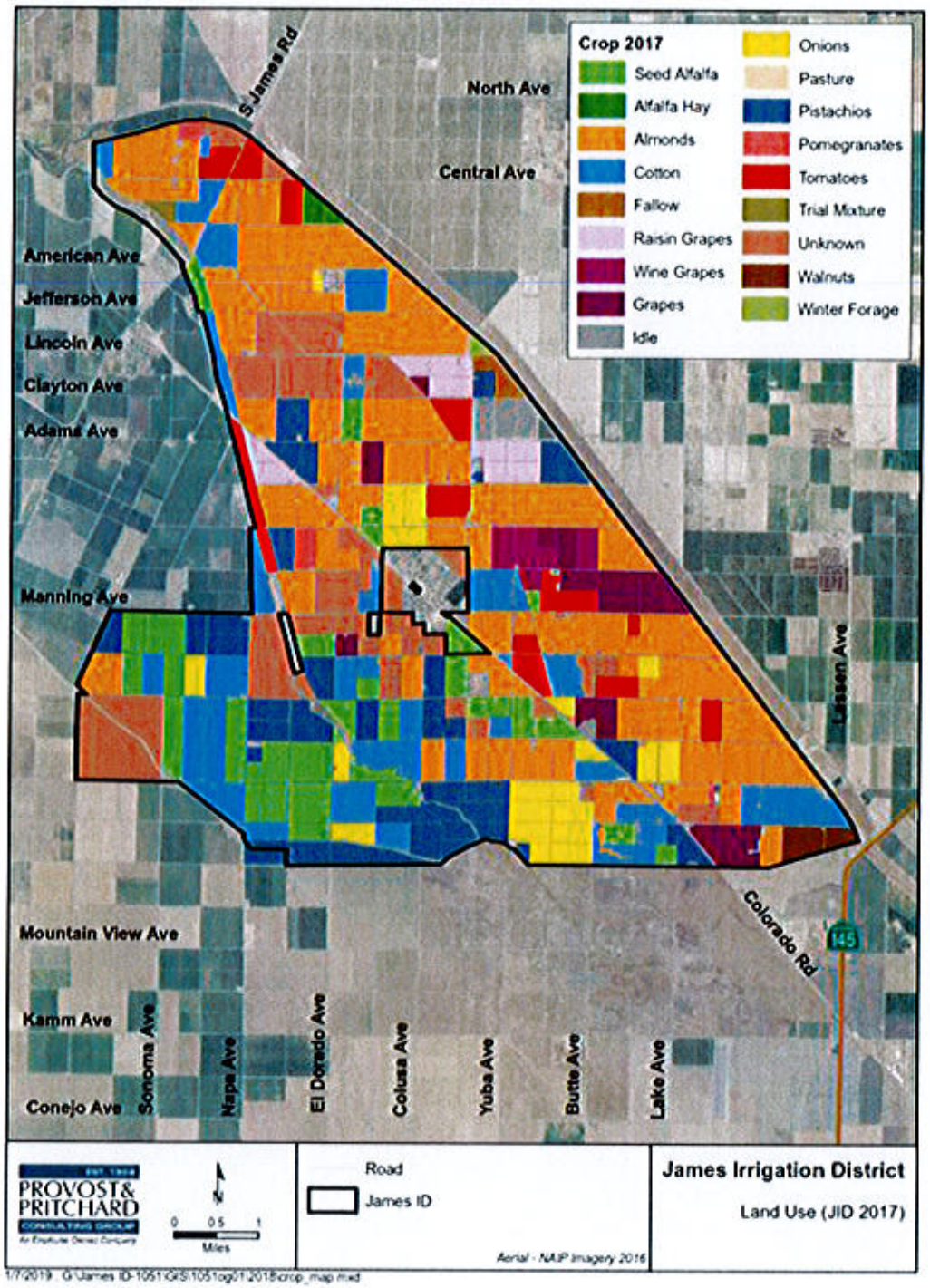

Figure 2: JID Crop Map

Many of these crops grown in JID suffer reduced yields at salinity levels far below 800 mg/L, including onions (512 mg/L), lettuce (576 mg/L), grapes and almonds (640 mg/L), and walnuts and sweetcorn (704 mg/L).[1] A yield reduction of 10% is expected for onions at 768 mg/L, lettuce and almonds at 896 mg/L, walnuts at 1,024 mg/L, and grapes and sweetcorn at 1,088 mg/L.[2] All of these thresholds were exceeded at some point in 2014, and according to data in the EIS/EIR itself the median TDS was 992 mg/L. That level exceeds the 10% yield reduction threshold for onions, lettuce, and almonds, which together make up over 42% of the cropped acreage in JID. By contrast, water in the DMC that year was measured at 481 mg/L, which does not exceed any of these thresholds. Furthermore, it is not clear how the annual averages in table 17 of the EIR were derived, and short-term concentrations may have been significantly higher, as evidenced by the data from Provost & Prichard's EC meter in Figure 1. Such averaging ignores the impacts of even brief periods of extreme concentrations, and the lack of transparency in how the averages are derived is detrimental to the understandability of the document.

Boron sensitivity for onions, grapes, and walnuts begins in the range of 0.5-0.75 mg/L (500-750 µg/L). The EIS/EIR does contain any analysis of the effects of the project on boron concentrations. Table 6-1 in Appendix D of EIS/EIR reports boron content from five grab samples at the JID booster plant with a minimum of 0.4 mg/L, a maximum of 1.5 mg/L, and median 0.5 mg/L. These levels, therefore, are at times sufficient to cause damage to boron sensitive crops, and boron is known to be much more difficult to leach out of crop root zones than salts are.

Problems with soil structure, infiltration, and permeability are strongly correlated with sodium imbalance (measured by high SAR).[3] The EIR/EIS does not discuss the projects impact on SARs or report SAR values that would allow a determination of the extent of the impact to JID. However, SAR data are reported for individual MPG pumper wells in Tables E1, E2, and E3 of Annual Reports Mendota Pool Group Pumping and Monitoring Program (attached hereto in **Attachment D – Appendices E1, E2, and E3 of 2016 Annual Report Mendota Pool Group Pumping and Monitoring Program**), and many are very high. SAR values from periodic grab samples at the JID booster plant are reported in Table G-1 of the 2016 Annual Report Mendota Pool Group Pumping and Monitoring Program (attached hereto in **Attachment E - Table G-1 of the 2016 Annual Report Mendota Pool Group Pumping and Monitoring Program**). Most of the values fall in the "Increasing problems" range, and four are in the severe problems range.

Irrigation water with higher TDS and boron concentrations also requires more leaching water to avoid accumulating salts and boron in the root zone. It is possible to calculate the additional amount of water required to remove salts if TDS is known. But there are no guidelines for calculating leaching requirements for boron. However, even if water is available at a price JID's growers can afford (not likely in drought years) and applied properly, leaching moves the salts and boron into the groundwater,

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[1] Salinity, Boron, and SAR sensitivity numbers on this page based on R.S. Ayers and D.W. Westcott, *Water quality for agriculture*, Food and Agriculture Organization Irrigation and Drainage Paper 29 Rev. 1 (1994), attached hereto as **Attachment F**. TDS numbers are obtained using the formula: TDS = EC (DS/m) * 640. See also E.V. Maas and S.R. Grattan, *Crop Yields as Affected by Salinity*, in Agricultural Drainage Agronomy Monograph No. 38, American Society of Agronomy (R.W. Skaggs and J. van Schilfgaarde, Eds. 1999), attached hereto as **Attachment G**.

[2] These thresholds assume irrigation water for the entire season has these concentrations.

[3] See, e.g., Dennis Rolston, et al., *Effect of salt on soils*, California Agriculture (October 1984), pp. 11-13, attached hereto as **Attachment H**.

which presents problems for well water quality and future regulation under the Irrigated Lands Regulatory Program.

Other crop, soil problems, and irrigation system problems can occur due to high Chlorides, high PH, and water hardness that are also not disclosed, analyzed, or discussed in the Draft EIR/EIS. These problems can be associated with:

High Chlorides – toxic to some sensitive crops through root absorption after surface irrigation and crop leaves burn after sprinkler applications

High Nitrates – high levels can cause some crops to develop excessive vegetation instead of food or fiber production

Bicarbonate – overhead sprinkling of certain fruits and vegetable can leave "whitewash" on the skin of the produce that reduces its marketability

pH Imbalance – water outside the normal range of 6.5 – 8.4 can negatively impact plant physiological processes, soils and/or irrigation systems by dissolving or precipitating salts and through water hardness effects.

Manganese – can be toxic to some plants and/or feed slime-causing bacteria that can foul irrigation systems

Iron – concentrations greater than 5.0 mg/l may cause nutritional imbalances in certain crops and/or can feed slime-causing bacteria that can foul irrigation systems

Corrosivity or Erosivity – Certain combinations and concentrations of ions can increase the corrosion potential of water and soils in contact with metal or concrete components of irrigation distribution systems and on-farm irrigation systems.

Additional Salt Load to JID:

It is also important to understand that many tons of salt will come into JID as a result of the exchange Project that cause crop, soil, and groundwater problems, as noted above. The EIR/EIS does not account for this significant impact. As an example of how severe the problem is in dry years, consider the additional salt load to JID in May-September of 2014.

Table 2 (on the next page) shows the additional tons of salt brought into JID at the P-Booster Plant (above the amount that would have been brought in using DMC water if TDS was 450 mg/l) due to elevated salinity in those months.[4]

[4] To compute the total salt in an amount of water: Amount of Water (AF) * TDS (mg/l) * 1 gram/1000 mg * 1 pound/453.592 grams * 43,560 cubic feet /acre-feet * 28.317 litres/cu-ft * 1 ton/ 2000 pounds.

2014 Month	Volume (AF)	Approximate Monthly Average TDS (mg/l)	Maximum DMC TDS (mg/l)	Additional Salt level (mg/l)	Additional Tons Salt
May	739	941	450	491	493.4
Jun	3,799	810	450	360	1,859.6
July	1,278	652	450	202	351.0
August	256	791	450	341	118.7
September	128	912	450	462	80.4
Total					2,903.0

Table 2 – Increase in Salt in JID (2014)

Flawed Mixing Model:

The EIS/EIR relies on a flawed Mendota Pool mixing model that produces results inconsistent with actual readings in years for which the model was not validated. Mixing is done in two separate sections of the Pool independently, even though there is no physical barrier in the Pool at "Section AA" (see EIS/EIR Figure 6-1 in Appendix E part 1), and "complete mixing" is assumed on a monthly time step in each section. This means there are no factors for daily variation of activities, Pool water flow currents, wind-driven wave effects, dispersion, and advection as actually occur. The mixing model was not calibrated, rather it was "validated" but only using data from 2012, which followed an abundant water year (water year 2011) but was itself classified as dry. Therefore, supplies carried over in storage facilities from prior years delivered to and through the Pool made 2012 non-typical for dry conditions. It is particularly unjustified not to validate the model using data from water year 2014, the second half of a historic drought. The 2014 data presented in Table 17 of the EIS/EIR indicate a severe problem in dry years, which will be worse when cumulative projects and other future developments are considered, including climate change and the recently approved Bay Delta Water Quality Control Plan Update, that make future critical dry years like 2014 (and 2013) more likely. While the EIS/EIR does admit that concentrations of constituents of concern were high in 2014, it does not discuss Project constraints, mitigation, or alternatives that would avoid or substantially lessen those impacts to JID or realistically describe the impacts of the Project in future, similar years.

The baseline assumptions that feed the groundwater and mixing model are also not reasonable. It is assumed that MPG wells will pump approximately 33,395 AF/year into the Pool without the Project (No Project/No Action Alternative) for use on MPG owners' lands near the Pool (rather than in WWD), despite the fact that Figure 2 on page 4 shows that such adjacent uses account for a smaller share of pumping than the transfer pumping, between 5,000-15,000 AF/year. In an attempt to justify this assumption, the analysis assumes "reactivation of fallowed farmland" and "continuation of crop conversion trends," an unlikely combination of outcomes in light of the future implementation of the Sustainable Groundwater Management Act (SGMA). It also assumes an unreasonably high water demand of 5.1 AF/year per acre.

Averaging and Short-Term Impacts:

Tables 25 and 26 on pages 201-202 of the EIS/EIR predict no significant impact on TDS at MWA, but in light of the dry year data (from 2014) in Table 17 it is difficult to understand how this can be so. It

appears that some kind of averaging over the 20-year period is being employed, but the method is not clear even to an expert much less to the target audience of the document (decision-makers and the public). Furthermore, such averaging effectively ignores short-term changes in water quality that can have both short-term and medium-term impacts on crops and long-term impacts on soils, e.g., accumulation and loading of salts into James's soils and groundwater. Salts tend to increase in concentration (versus irrigation water concentration) and sometimes precipitate out as they move downward through the crop root zone and soluble salts travel out the bottom with leachate toward groundwater as crop evapotranspiration removes pure water from the root zone. For example, by simple mass balance, irrigating with 800 mg/l irrigation water with salts that don't precipitate in the soil and a ten percent leaching fraction can push leachate concentrations as high as 8,000 mg/l.

One year irrigating almonds, onions and other sensitive crops with water above thresholds for TDS, SAR, and boron is enough to cause yield and/or crop quality reductions and lasting soil permeability problems (without corresponding gypsum and leaching water to counteract the effects, both of which add more salts to the groundwater).

Conclusion:

Based on our review of the subject EIS/EIR, We believe it ignores critically important areas of analysis, particularly with respect to significant impacts to JID, rests on faulty assumptions, and does not present a complete and accurate picture of the environmental resource conditions at stake within JID's boundaries and the environmental impacts of the Project to JID, it growers, and their crops, soils and groundwater. JID will suffer significant impacts to its crops, soils, and groundwater that are not even discussed let alone analyzed.