BOARD OF DIRECTORS MEETING | Agenda

THURSDAY, JULY 27, 2023
CLOSED SESSION – 8:30 AM
OPEN SESSION – 10:30 AM
BELLO VITA EVENT VENUE 4211 W. GOSHEN AVE., VISALIA, CA 93291

At the discretion of the Board of Directors, all items appearing on this agenda, whether or not expressly listed for action, may be subject to action by the Board. The order of agenda items is subject to change.

Below is the meeting link for members of the public that would like to access the open session of the Board meeting remotely via Teams at 10:30 a.m.

Join on your computer, mobile app or room device
Click here to join the meeting Meeting ID: 225 634 871 050 Passcode: VnVsQf

CALL TO ORDER/ROLL CALL – (ERICKSON)

APPROVAL OF THE AGENDA – (ERICKSON)

PUBLIC COMMENT ON CLOSED SESSION ITEMS – (DAVIS)

ADJOURN TO CLOSED SESSION

1. CLOSED SESSION

A. CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION
(Government Code section 54956.9(d)(1))
1. *NRDC v. Rogers*, U.S. District Court, Eastern District of California (Sacramento Division), Case No. 88-CV-1658-JAM-GGH.
2. *California Natural Resources Agency v. Raimondo*, United States District Court for the Eastern District of California, Case No. 1:20-CV-00426-DAD-EPG
3. *CDWR Water Operations Cases, Sacramento County Superior Court, Case No. JCCP 5117 (*Formerly *Tehama Colusa Canal Authority v. California Dept. of Water Resources)*

B. CONFERENCE WITH LEGAL COUNSEL - ANTICIPATED LITIGATION
(Government Code section 54956.9(d)(2))
Significant Exposure to Litigation: Four potential matters.

C. CONFERENCE WITH LEGAL COUNSEL- INITIATION OF LITIGATION
(Government Code section 54956.9(d)(4))
Initiation of Litigation: Two potential cases.

RECONVENE INTO OPEN SESSION (10:30 AM) (ANNOUNCE ANY REPORTABLE CLOSED SESSION ACTION.) - (ERICKSON)

PUBLIC COMMENT / PUBLIC PRESENTATIONS – (ERICKSON)

Public comment is welcome at this time on any matter within the jurisdiction of the Board that is not on the agenda. Under the State's open meeting law - the Brown Act - no action may be taken on any item not on the agenda. Public comment on items on the agenda will be allowed at the time the Board considers the item.

2. CONSENT CALENDAR – (5 MINUTES)

The following routine matters will be acted upon by one vote, unless a Board Member requests separate consideration of the item.

A. Approval of the Minutes – Board of Directors Meeting of June22, 2023. (Erickson)
B. Ratify July 2023 Bills and Accept the Financial Reports for June 2023. (Orvis)

3. ACTION ITEMS (20 MINUTES)

A. Resolution 2023-03 – Certifying the Final Environmental Impact Report for the Guidelines for Accepting Water into the Friant-Kern Canal, including the Adoption of Findings and a Mitigation Monitoring and Reporting Program, and Authorizing the Execution of a Cooperative Agreement among Participating Contractors. (Davis/Buck-Mcleod/Duncan/ESA - McEfee)
B. Third Amendment to Temporary Agreement for Conveyance of Water. This amendment would extend existing agreements with the Banta-Carbona and Patterson Irrigation Districts through the end of October 2023 in the event there are Restoration Flows available for recapture. (Davis/Buck-Mcleod)

4. GENERAL UPDATES & REPORTS (65 MINUTES)

A. FKC Middle Reach Capacity Correction Project Update - Construction Progress Report and Financial Summary. (Stantec - Atkinson)/Amaral/Davis/Orvis/Phillips) (10 minutes)
B. Water Operations Update. (Buck-Macleod) (15 minutes)
C. External Affairs Activities. (Villines/Amaral) (15 minutes)
D. O&M Report. (Hickernell) (5 minutes)
E. San Joaquin Valley Blueprint Update. (Ewell) (5 minutes)
F. San Luis & Delta-Mendota Water Authority Update. (Phillips/Orvis/Davis) (5 minutes)
G. CEO Report. (Phillips) (10 minutes)

ADJOURNMENT

PUBLIC PARTICIPATION INFORMATION

Agenda reports and other disclosable public records related to each Open Session agenda item are available on FWA's website under "Calendar" at Friantwater.org and at FWA's main office, 854 N. Harvard Ave., Lindsay, CA 93247, during regular business hours. Under the Americans with Disabilities Act, if you require a disability-related modification or accommodation to participate in this meeting, including auxiliary aids or services, please contact Vivian Felipe at 559-562-6305 or vfelipe@friantwater.org at least 48 hours prior to the meeting.

BOARD OF DIRECTORS MEETING | Minutes

THURSDAY, June 22, 2023
CLOSED SESSION – 8:30 A.M. /OPEN SESSION – 9:30 A.M.
BELLO VITA 4211 W. GOSHEN AVENUE, VISALIA, CA 93291

CALL TO ORDER/ROLL CALL

Chairman Jim Erickson called to order the noticed meeting of the Board of Directors of the Friant Water Authority at 8:30 a.m.

ATTENDANCE:

Directors Present:

Edwin Camp	Arvin-Edison W.S.D. (AEWSD)
Roger Schuh	Chowchilla W.D. (CWD)
Brock Buche	City of Fresno (CofF)
Kelley Hampton	Delano Earlimart Irrigation District (DEID)
George Porter	Fresno I.D. (FID)
Chris Tantau	Kaweah Delta W.C.D. (KDWCD)
Kent Stephens	Kern-Tulare W.D. (KTWD)
Michael Brownfield	Lindmore I.D. (LID)
Cliff Loeffler	Lindsay-Strathmore I.D. (LSID)
Josh Pitigliano	Lower-Tule River I.D. (LTRID)
Jim Erickson	Madera I.D. (MID)
Arlen Miller	Orange Cove I.D. (OCID)
Frank Junio	Pixley Irrigation District (PIXID)
Bret McCowan	Porterville I.D. (PID)
Steven G. Kisling	Saucelito I.D. (SID)
Matthew Leider	Teapot Dome W.D. (TPWD)
Rick Borges	Tulare I.D. (TID)

Associate Members:

Loren Booth	Hills Valley I.D. (HVID)
Doug Phillips	Ivanhoe Irrigation District (IID)
John Werner	Stone Corral I.D. (SCID)

Directors Absent:

Craig Fulwyler	Shafter Wasco Irrigation District (SWID)
Geoff Galloway	Terra Bella I.D. (TBID)

Associate Members Absent:

Keith Cosart	Exeter Irrigation District (EID)

APPROVAL OF THE AGENDA

The Board approved the agenda as presented.

M/S/C – Motion by Director Porter, seconded by Director Loeffler, to approve the agenda as presented. The motion carried. (Roll Call Vote: Ayes – AESWD, CWD, CofF, DEID, FID, KDWCD, KTWD, LID, LSID, LTRID, MID, OCID, PID, SID, TPWD, TID; Nays – 0; Absent – SWID, TBID)

PUBLIC COMMENT ON CLOSED SESSION ITEMS

None.

ADJOURN TO CLOSED SESSION (DAVIS)

1. CLOSED SESSION

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(Government Code section 54956.9(d)(1))

1. *NRDC v. Rogers*, U.S. District Court, Eastern District of California (Sacramento Division), Case No. 88-CV-1658-JAM-GGH.

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(Government Code section 54956.9(d)(4))
Initiation of Litigation: Two potential cases.

D. LIABILITY CLAIM
(Government Code section 54956.95)
Claimant: Victor Sanchez et al.

RECONVENE INTO OPEN SESSION

(9:30 a.m.) – General Counsel Davis reported that the Board rejected the Liability Claim of Victor Sanchez et al. (Item 1.D).

PUBLIC COMMENT / PUBLIC PRESENTATIONS

Chairman Loeffler opened the meeting with an Invocation.

2. CONSENT CALENDAR

A. Approval of the Minutes – Board of Directors Meeting of May 25, 2023. (Erickson)

B. Ratify June 2023 Bills and Accept the Cash Activity Reports for May2023. (Orvis)

M/S/C – Motion by Director Loeffler, seconded by Director Schuh, to approve the consent calendar as presented. The motion carried. (Roll Call Vote: Ayes – AESWD, CWD, CofF, DEID, FID, KDWCD, KTWD, LID, LSID, LTRID, MID, OCID, PID, SID, TPWD, TID; Nays – 0; Absent – SWID, TBID)

3. ACTION ITEMS

A. FY 2024 OM&R Budget – Review and Approve the Draft FY 2024 OM&R Budget for 60-Day Contractor Review. (Hickernell/Orvis/Amaral) CFO Orvis reported on the structure and formulation process including timelines for the preparation, review and approval of the budget. He reported that the only proposed change and the cause for the change was to increase the projected CPI and COLA from 1.5% to 3%. General Superintendent Hickernell reported on the details to the budget regarding various maintenance emphasizing the additional panel repair expenditures caused by the weather this year. Staff requested an estimate from a contractor that had previously performed panel repairs and the estimate was nearly twice the cost estimate to have the work performed by maintenance staff.

M/S/C – Motion by Director Stephens, seconded by Director Brownfield, to approve the FY 2024 OM&R Budget for contractor review with the modification of the estimated CPI/COLA to 3%. The motion carried. (Roll Call Vote: Ayes –AESWD, CWD, CofF, DEID, FID, KDWCD, KTWD, LID, LSID, LTRID, MID, OCID, PID, SID, TPWD, TID; Nays – 0; Absent - SWID, TBID)

B. Fourth-Quarter, Fiscal Year 2023, Call-for-Funds, General Membership (Orvis) CFO Orvis reported that the inclusion of the new districts as members would change the cost allocation. Additionally, the Directors were informed that the quarterly numbers would be lower due to the prorates.

M/S/C – Motion by Director Camp, seconded by Director Stephens, to approve the Fourth-Quarter, Fiscal Year 2023, Call-for-Funds as presented. The motion carried. (Roll Call Vote: Ayes – AESWD, CWD, CofF, DEID, FID, KDWCD, KTWD, LID, LSID, LTRID, MID, OCID, PID, SID, TPWD, TID; Nays – 0; Absent – SWID, TBID)

C. Adopt Resolution 2023-02 – Nomination of Johnny Amaral to the Association of California Water Agencies (ACWA) Region 7 Board. (Davis) General Counsel Davis advised per the agenda report that ACWA requires a formal nomination from the nominee's agency to serve on the Board. CFO/CEA Amaral described his work on the ACWA Board and the benefits to FWA from his participation on the Board.

M/S/C – Motion by Director Borges, seconded by Director Pitigliano, to approve the Adoption of Resolution 2023-02 as presented. The motion carried. (Roll Call Vote: Ayes – AESWD, CWD, CofF, DEID, FID, KDWCD, KTWD, LID, LSID, LTRID, MID, OCID, PID, SID, TPWD, TID; Nays – 0; Absent – SWID, TBID)

4. GENERAL UPDATES & REPORTS (70 MINUTES)

A. FKC Middle Reach Capacity Correction Project Update - Construction Progress Report and Financial Summary – Stantec's Janet Atkinson provided a project update. It was reported that the contractor has worked 566 calendar days. As of the end of May (based on cost) approximately 66.8 percent of the original contract amount of work has been performed, and the elapsed time was approximately 55.9 percent of the total contract time. There were five change orders this month for a total amount of $341,232.

B. Water Operations Update. – WRM Buck-Macleod covered water operations as outlined in the agenda report. It was reported that precipitation in May and June has generally been below average, with snowmelt occurring throughout most of the month, below normal temperatures have kept the overall melt mostly below forecasted levels. Flood releases from Millerton are ramping down and expected to continue until sometime in July. On April 20th, Reclamation updated 2023 allocations with South-of-Delta agricultural water service contractor allocation increasing to 100%. Friant allocations of 100% Class 1 allocations and 70% Class 2 remain the same but the Class 2 allocation is anticipated to drop after uncontrolled season.

C. External Affairs Activities– COO/CEA Amaral & Mike Villines provided the report on external affairs. In State affairs, the priority for June was the State Budget, which was passed last week by the Constitutional deadline of June 15th. However, that was the broad framework for the budget, next is the Budget Trailer Bills (BTBs) which will have to pass to implement the details. Additionally, all the critical water bills have passed to the other legislative house respectively. In Federal affairs, Speaker McCarthy reached a deal with the Conservative GOP Wing and the House NR Subcommittee is to hold legislative hearings on Western Water Bills, also the White House clears ESA rule revisions for release.

COO Amaral added that Staff had a appreciation day scheduled for July 7th at the Visalia Rawhide, any Directors that would like to partake in this event were welcome to RSVP with FWA's HR.

D. O&M Report– Superintendent Hickernell provided the agenda report with updates on current O&M activities. The Friant staff has worked 2410 days without a lost-time injury accident; additionally, the staff has worked 476 days without a liability accident. He reported Epic I.O. attended the Managers' meeting, answering any questions the manager's may have had regarding SCADA. He also provided an update on the water meters advising that all have been brought up to speed and should be running appropriately after storms.

E. San Joaquin Valley Blueprint Update – Austin Ewell provided the agenda report on San Joaquin Valley Blueprint activities. The Blueprint had their Board meeting yesterday where they discussed the Patterson I.D. project. Additionally, they had enclosed the Unified Water Plan for the San Joaquin Valley which is being led by the California Water Institute. Villaraigosa's comments will be posted once they have been published on the matter. The scope for the Groundwater Recharge Site Selection was shared with the Board. CEO Phillips shared that identifying the priorities has been great but now is the time to partaker on the projects, for example 1) Patterson, support and supervise the progression, 2) The Delta, how can we alleviate the pressure, how do we reduce land

repurposing? He emphasized the importance of these actions.

F. San Luis & Delta-Mendota Water Authority Update – CFO Orvis provided the agenda report on current activities of SLDMWA, and stated there is nothing new to report on the pending OM&R cost allocation disputes. General Counsel Davis reported that the Delta Mendota Subbasin's response to DWR's inadequate determination for their GSPs was to create a single GSP. How the revised GSP will address proposed subsidence will continue to be monitored. This action and perhaps the lower amount of reported subsidence resulted in this Subbasin being placed in the second tier of potential probation proceedings by the State Board.

G. CEO Report - CEO Phillips provided an update on his current activities. He provided updates on several activities including appreciation to the home boards of Tulare, Arvin and SWID for hosting him. He welcomed invites from any of the other districts. He reminded all Directors that RSVP for the offsite will be coming soon, all should take a close look at their calendars for Nov 14, 15 and 16. The sessions at the offsite may be dependent on those attending, and new Board members were strongly encouraged to attend.

ADJOURNMENT

The meeting adjourned at 11:20 p.m.

Jason R. Phillips, Chief Executive Officer
Friant Water Authority

Vivian Garcia, Recording Secretary
Friant Water Authority

OTHERS IN ATTENDANCE:

Alan Doud	Young Wooldridge
Alex Peltzer	Counsel Various Districts
Aubrey Mauritson	Visalia Law
Austin Ewell	California Blueprint
Bill Luce	Luce Consulting
Bill Stretch	Fresno I.D.
Bill Whitlatch	The Whitlatch Group
Brian Person	AECOM
Brandon Tomlinson	Chowchilla W.D.
Brian Thomas	FWA Consultant
Chris Hickernell	FWA
Chris Hunter	Lindmore I.D.
Craig Wallace	Lindsay-Strathmore I.D.
David Dees	FWA
David Wierenga	Delano-Earlimart I.D.

Don Davis	FWA General Counsel
Don Wright	Water Wrights
Douglas DeFlitch	Douglas DeFlitch Consulting LLC.
Douglas Jackson	Water & Land Solutions
Dyson Schneider	Limoneira Ranch
Eric Quinley	Delano-Earlimart I.D.
Fergus Morrisey	OCID
Gene Kilgore	EID, IID, SCID
Heoth Wooten	Delano-Earlimart I.D.
Ian Buck-Macleod	FWA
Janet Atkinson	Stantec
Jason Phillips	FWA
Jeevan Muhar	Arvin-Edison W.S.D.
Jennifer Evans	Elevated Ag
Jocelyn H. Bean	FWA
Joe Hughes	Klein Law Group
John Bezdek	FWA Special Counsel
Johnny Amaral	FWA
Johnny Gailey	Delta View Water Assoc.
Kris Lawrence	Shafter-Wasco I.D.
Kuyler Crocker	CCM
Maggie Suarez	FWA
Mia Swenson	FWA
Mike Hagman	Lindmore I.D./EKGSA
Mike Villines	Villines Group
Ronnie Castro	Tea Pot Dome W.D.
Sean Geivet	SID, PID, Terra Bella I.D.
Sebastian Silveira	Gladstone Land Corp.
Seth Tiller	Exeter I.D.
Shane Smith	KDWCD
Shelly Abajian	Office of Senator Feinstein
Steve Ottemoller	Ottemoller Consulting Services
Tom Greci	Madera I.D.
Vivian Garcia	FWA
Wilson Orvis	FWA

Agenda Report No. 2.B.

DATE:	July 27, 2023
TO:	Board of Directors
FROM	Wilson Orvis, CFO
SUBJECT:	Approve Bills for the Month of July 2023 and Accept the Financial Reports for Month Ending June 30, 2023

SUMMARY:

The Finance Committee met on July 25, 2023 and reviewed the bills for July 2023 and the financial reports for month ending June 30, 2023. There was a quorum at the meeting.

FINANCE COMMITTEE ACTION:

At the July 25, 2023 meeting, the Finance Committee acted to recommend that Board of Directors approve payment of the July 2023 bills in the amount of $4,232,861.57 and accept the Financial Reports for month ending June 30, 2023.

SUGGESTED MOTION:

I move that the Board of Directors approve payment of the July 2023 bills in the amount of $4,232,861.57 and accept the Financial Reports for month ending June 30, 2023.

BUDGET IMPACT:

- $635,881.55 (bills) and $372,085.14 (payroll) is chargeable to the FY 2023 Operations, Maintenance, and Replacement (OM&R) Budget.
- $77,534.28 (bills) and $46,642.62 (payroll) is chargeable to the FY 2023 General Membership Budget;
- $0 is to be recovered under existing grant agreements; and
- $43,030.84 is chargeable to Middle Reach Capacity Correction Project, Phase 1.

ATTACHMENTS:

Friant Water Authority Bills to be Paid, Budget-to-Actuals, and Cash Activity Reports

FRIANT WATER AUTHORITY EXPENDITURES TO BE APPROVED, JULY 2023

BILLS PAID JULY 13, 2023

NO.	PAYEE	O&M FUND	GM FUND	TOTAL	DESCRIPTION
1	AAA TRUCK SERVICE, INC.	$ 457.95	$ -	$ 457.95	Parts & Supplies-Delano Yard
2	ACWA / JPIA	70,678.41	5,478.78	76,157.19	Medical, Dental, Vision Insurance
3	ADT COMMERCIAL	232.61	-	232.61	Securtity Service-OC Yard June to August
4	ALEXANDER'S ELECTRIC MOTOR SHOP	391.88	-	391.88	Sump Pump Repair
5	ANDERSON FENCE COMPANY	65.53	-	65.53	Fence Materials-Lindsay Yard
6	ARVIN-EDISON WATER STORAGE DISTRICT	52,968.39	-	52,968.39	FY23 FKC Allocation
7	ASPHALT COATING & SUPPLIES	543.87	-	543.87	Asphalt Emulsion-OC Yard
8	AT&T	757.20	-	757.20	Utilities-Telephone Fresno
9	AUTO ZONE, INC.	69.49	-	69.49	Parts & Supplies-Lindsay Yard
10	AWARDS & SIGNS UNLIMITED	13.56	-	13.56	Name Plates (1)
11	Bank of America	18,341.56	8,349.72	26,691.28	Various Visa Charges
12	BIG GREEN IT, LLC	2,085.00	-	2,085.00	IT Support-Microsoft 365, Teams
13	CHEVRON AND TEXACO CARD SERVICES	78.00	-	78.00	Fueling Service-Delano Yard
14	CHOWCHILLA WATER DISTRICT	7,239.13	-	7,239.13	FY23 FKC Allocation
15	CINTAS CORPORATION #2	996.15	-	996.15	Uniform Services-OC Yard
16	CINTAS CORPORATION #3	506.92	-	506.92	Uniform Services-Delano Yard
17	CITY OF DELANO	218.76	-	218.76	Utilties-Delano
18	CITY OF FRESNO	7,643.00	-	7,643.00	FY23 FKC Allocation
19	CITY OF ORANGE COVE	71.00	-	71.00	FY23 FKC Allocation
20	COMMUTER INDUSTRIES	-	1,750.00	1,750.00	Website Updates/Newsletter
21	CRAIGS AUTO PARTS	16.29	-	16.29	Parts & Supplies-Delano Yard
22	CULLIGAN OF FRESNO	118.65	-	118.65	Water Service-OC Yard
23	CULLIGAN OF LINDSAY	658.46	-	658.46	Water Service-Lindsay Office
24	DACO FARM SUPPLY	47.09	-	47.09	Parts & Supplies-Delano Shop
25	DINUBA LUMBER COMPANY	52.97	-	52.97	Parts & Supplies-OC Yard
26	DOUG DeLEO WELDING	76.91	-	76.91	Welding Supplies-Lindsay Yard
27	E M THARP INC	247.01	-	247.01	Parts & Supplies-Delano Shop
28	ENVIRONMENTAL SCIENCE ASSOCIATES	14,262.44	-	14,262.44	Consulting Services-May
29	EXECUTIVE SUITES AT RIVER BLUFF, LP	-	2,005.00	2,005.00	Office Rent-Fresno
30	FEDEX	439.46	-	439.46	Shipping Services
31	FOOTHILL AUTO TRUCK & AG PARTS, INC.	1,485.54	-	1,485.54	Parts & Supplies-OC Yard
32	FRESNO IRRIGATION DIST.	23,112.67	-	23,112.67	FY23 FKC Allocation
33	FRONTIER	958.61	-	958.61	Utilities-Telephone Services
34	FRUIT GROWERS SUPPLY CO	141.08	-	141.08	Parts & Supplies-All Yards
35	FUSION CLOUD SERVICES, LLC	233.59	-	233.59	Utilities-Telephone
36	GRAINGER	1,822.56	-	1,822.56	Parts & Supplies-Lindsay, OC Yard
37	GRAVELLY FORD WATER DISTRICT	323.81	-	323.81	FY23 FKC Allocation

FRIANT WATER AUTHORITY EXPENDITURES TO BE APPROVED, JULY 2023

BILLS PAID JULY 13, 2023

NO.	PAYEE	O&M FUND	GM FUND	TOTAL	DESCRIPTION
38	GRAYBAR	3,369.28	-	3,369.28	Parts & Supplies-Water Ops
39	GROSSMAYER & ASSOCIATES	387.50	-	387.50	Great Plains Support
40	GSI ENVIRONMENTAL INC.	4,936.50	-	4,936.50	Consulting Services-June
41	HOLT LUMBER INC.	27,403.05	-	27,403.05	Running Boards-Lindsay Yard (Bridge Repairs)
42	HOME DEPOT CREDIT SERVICES	4,484.50	-	4,484.50	Parts & Supplies-Tools & Spike Nails For Running Board
43	HUDSON, HENDERSON & CO, INC.	10,005.00	-	10,005.00	FY 2022 Audit Final
44	JIM'S STEEL SUPPLY	3,635.03	-	3,635.03	Metal Supplies-Delano Yard & Water Ops
45	JOHNSON CONTROLS FIRE PROTECTION	2,951.41	-	2,951.41	Fire Safety Equipment-Delano, OC & Lindsay Yards
46	KAN VENTURES, INC.	-	4,164.97	4,164.97	Consulting Services-June
47	KASEYA US LLC	1,039.13	-	1,039.13	IT Service-Dark Web, 365Backup
48	LAWSON PRODUCTS	252.08	-	252.08	Parts & Supplies-Lindsay Shop
49	LINCOLN NATIONAL LIFE INSURANCE CO.	3,920.99	390.60	4,311.59	Disability Insurance-July
50	LINDSAY TRUE VALUE	55.61	-	55.61	Parts & Supplies-Water Ops
51	LOWER TULE RIVER I D	80,779.24	-	80,779.24	FY23 FKC Allocation
52	MADERA IRRIGATION DISTRICT	1,380.47	-	1,380.47	FY23 FKC Allocation
53	MARTIN TERMITE & PEST CONTROL	50.00	-	50.00	Pest Control Service-June
54	MEREDITH BEZDEK	-	250.00	250.00	External Affairs-Social Media
55	MERLE STONE CHEVROLET CADILLAC	672.46	-	672.46	Parts & Supplies-Delano Shop
56	MONARCH FORD	115.09	-	115.09	Parts & Supplies-Delano Shop
57	MOONLIGHT MAINTENANCE SERVICES	2,481.78	-	2,481.78	Janitorial Services-May
58	NUTRIEN AG SOLUTIONS	40,403.56	-	40,403.56	Round Up Pro- 1325 Gallons
59	ORANGE COVE TIRE SERVICE	223.10	-	223.10	Tire Repair-OC Yard
60	PACIFIC GAS & ELECTRIC	3,103.71	-	3,103.71	Utilities-Electricity
61	PAESANO FARMS	24,376.34	-	24,376.34	Goat Grazing (May 28.568 Acres & June 20.185 Acres)
62	PAPE KENWORTH	439.33	-	439.33	Parts & Supply-Lindsay Shop
63	PBW DISTRIBUTOR INC	375.41	-	375.41	Parts & Supplies-Delano Shop
64	PETTY CASH - LINDSAY	433.21	-	433.21	Petty Cash Box Replenishment
65	PETTY CASH CHECKING	25.81	-	25.81	Petty Cash Replenishment
66	PORTERVILLE FORD	686.00	-	686.00	Parts & Service-Lindsay Yard
67	PORTERVILLE IRR DISTRICT	3,385.00	-	3,385.00	FY23 FKC Allocation
68	POWER BUSINESS TECHNOLOGY	8.95	-	8.95	Toner Service
69	PROVOST & PRITCHARD INC	1,266.50	-	1,266.50	Consulting Services-May
70	QUADIENT FINANCE USA, INC	57.11	-	57.11	Postage Service
71	QUILL CORPORATION	892.67	-	892.67	Office Supplies
72	QUINLEY, ERIC	-	1,257.40	1,257.40	Expense Claim Reimbursement
73	QUINN COMPANY	420.08	-	420.08	Parts & Supplies-OC Yard
74	REGO CONSULTING CORPORATION	4,537.50	-	4,537.50	Power Apps Consultant

FRIANT WATER AUTHORITY EXPENDITURES TO BE APPROVED, JULY 2023

BILLS PAID JULY 13, 2023

NO.	PAYEE	O&M FUND	GM FUND	TOTAL	DESCRIPTION
75	ROBERT V. JENSEN, INC.	7,547.14	-	7,547.14	Diesel Fuel- 500 Gal & Unleaded Fuel 1,410 Gal
76	ROBINSON, JOHN T.	200.00	-	200.00	Expense Claim Reimbursement
77	SAN JOAQUIN PEST CONTROL	94.00	-	94.00	Pest Control Services-June
78	SAN JOAQUIN PEST CONTROL	110.00	-	110.00	Pest Control Services-OC Yard
79	SAN JOAQUIN PEST CONTROL	80.00	-	80.00	Pest Control Services-OC Yard
80	SAN JOAQUIN VALLEY AIR	42.00	-	42.00	Fuel Tank Permit-OC Yard
81	SAUCELITO IRRIGATION DIST	3,701.00	-	3,701.00	FY23 FKC Allocation
82	SEVIERS AUTO SUPPLY	200.26	-	200.26	Parts & Supplies-Delnao Yard
83	SHERWIN WILLIAMS CO.	338.56	-	338.56	Paint Supplies-Lindsay Yard
84	SHOWYOURLOGO.INC.	314.13	-	314.13	Office Supplies-Lanyards
85	SIERRA PACIFIC MATERIALS INC	1,212.10	-	1,212.10	Road Maintenance-Rock/Dirt
86	SMART & FINAL CORP	15.99	-	15.99	Kitchen Supplies-Delano Yard
87	SO CAL GAS	161.62	-	161.62	Utilities-Natural Gas
88	SOUTHERN CALIF EDISON	4,704.59	-	4,704.59	Utilities-Electricity
89	SPARKLETTS	29.98	-	29.98	Water Service-OC Yard
90	SPRAYING DEVICES, INC.	109.41	-	109.41	Parts & Supplies-OC Yard
91	STANDARD INSURANCE CO	7,227.84	1,804.13	9,031.97	Survivor's Life Insurance
92	STOEL RIVES LLP	-	156.99	156.99	Consulting Services-May
93	STOP ALARM, INC.	486.00	-	486.00	Alarm Services-Lindsay Yard July-September
94	STRR	96.78	-	96.78	Waste Disposal Service-Delano
95	SUAREZ, MARGARITA	63.13	-	63.13	Expense Claim Reimbursement
96	TAM N TJ'Z COOLING N HEATING INC	75.00	-	75.00	A/C Service - Lindsay Office
97	TF TIRE & SERVICE	1,968.73	-	1,968.73	Tire Repair-Delano Yard
98	THE FERGUSON GROUP, LLC	-	7,409.68	7,409.68	Consulting Services-April
99	THE REDESIGN GROUP	8,900.15	-	8,900.15	IT Services-March to May, Dell Warranty Renewal
100	TOSHIBA FINANCIAL SERVICES	2,928.00	-	2,928.00	Office Copier Lease-July
101	TULARE IRRIGATION DISTRICT	54,496.95	-	54,496.95	FY23 FKC Allocation
102	VALLEY PACIFIC PETROLEUM SERVICES, INC.	12,670.49	-	12,670.49	Unleaded Fuel - Delano 494 Gal
103	VAST NETWORKS	800.00	-	800.00	Internet Service-Lindsay Yard
104	VERIZON WIRELESS	5,220.87	-	5,220.87	Utilities-Cell Phone
105	VISALIA RADIATOR SERVICE INC.	657.61	-	657.61	John Deere Parts-OC Shop
106	VULCAN MATERIALS COMPANY	1,036.99	-	1,036.99	Asphalt Materials-OC Yard
107	WEISENBERGERS	1,298.33	-	1,298.33	Part & Supplies-All Yards
108	XEROX FINANCIAL SERVICES	3,352.12	-	3,352.12	Copier Equipment Lease-Lindsay Office
109	ZENITH INSURANCE COMPANY	10,125.00	-	10,125.00	Workers Compensation-July and Audit FY22
110	ZIX CORPORATION	1,680.00	-	1,680.00	Email Security Software
111	SUBTOTAL SPENDING	567,853.72	33,017.27	600,870.99	

FRIANT WATER AUTHORITY EXPENDITURES TO BE APPROVED, JULY 2023

BILLS PAID JULY 13, 2023

NO.	PAYEE	O&M FUND	GM FUND	TOTAL	DESCRIPTION
112	PAYROLL FWA	186,042.57	23,321.31	209,363.88	Total Mid-Month Payroll
113	TOTAL OM&R	$ 753,896.29	$ 56,338.58	$ 810,234.87	
114	Middle Reach Capacity Correction Project Phase 1				
115	BENDER ROSENTHAL INCORPORATED	$ 5,512.44	$ -	$ 5,512.44	Consultings Services-January, February, March & June
116	KAN VENTURES, INC.	$ 6,000.00	$ -	$ 6,000.00	Consulting Services-June
117	STANTEC CONSULTING SERVICES INC.	$ 14,618.40	$ -	$ 14,618.40	Consulting Services-June
118	THE FERGUSON GROUP, LLC	$ 10,000.00	$ -	$ 10,000.00	Consulting Services-April
119	SUBTOTAL - MRCCP PHASE 1	$ 36,130.84	$ -	$ 36,130.84	
122	TOTAL - MID MONTH	$ 790,027.13	$ 56,338.58	$ 846,365.71	

BILLS TO BE PAID JULY 27, 2023					
NO.	PAYEE	O&M FUND	GM FUND	TOTAL	DESCRIPTION
121	AECOM TECHNICAL SERVICES, INC.	$ -	$ 4,103.54	$ 4,103.54	Consulting Services-SJR Settlement
122	AMAZON CAPITOL SERVICES, INC.	775.32	-	775.32	Kitchen, Computer & Office Supplies
123	ANGEL GARDEN FLOWER SHOP	251.81	-	251.81	Tables and chairs
124	BELLO VITA VENUE	12,771.81	-	12,771.81	April BOD Remaining, May and June BOD Meeting
125	BILL LUCE CONSULTING	726.00	2,062.50	2,788.50	Consulting Services-June
126	BOOT BARN INC.	741.18	-	741.18	Safety Boots-Water Ops, Delano Yard
127	BRIAN G. THOMAS CONSULTING, LLC	1,600.00	-	1,600.00	Consulting Services-June
128	BUCK-MACLEOD, IAN T.	276.41	349.77	626.18	Expense Claim Reimbursement
129	CINTAS CORPORATION #2	1,084.58	-	1,084.58	Uniform Services-Lindsay Yard
130	CITY OF LINDSAY	372.54	-	372.54	Utilities-Lindsay
131	CITY OF ORANGE COVE	472.83	-	472.83	Utilities-Orange Cove
132	CRAIGS AUTO PARTS	271.88	-	271.88	Parts & Supplies-Lindsay Yard
133	ENVIRONMENTAL SCIENCE ASSOCIATES	4,388.32	-	4,388.32	Consulting Services-June
134	FOOTHILL AUTO TRUCK & AG PARTS, INC.	309.28	-	309.28	Parts & Supplies-OC Yard
135	FRUIT GROWERS SUPPLY CO	180.13	-	180.13	Parts & Supplies-Water Ops, Lindsay Yard
136	HOME DEPOT CREDIT SERVICES	1,478.48	-	1,478.48	Parts & Supplies-All Yards
137	LAWSON PRODUCTS	198.37	-	198.37	Parts & Supplies-Lindsay Shop
138	LEE'S SERVICE, INC.	3,848.64	-	3,848.64	Tires for Transport Diesel Trucks
139	LINCOLN NATIONAL LIFE INSURANCE CO.	3,894.90	390.60	4,285.50	Disability Insurance-August
140	LINDSAY STRATHMORE IRR DISTRICT	2,593.89	-	2,593.89	Billing Refund
141	LINDSAY TRUE VALUE	42.71	-	42.71	Parts & Supplies-Lindsay
142	MBK ENGINEERS	17,548.00	-	17,548.00	Consulting Services-May, June
143	MID VALLEY DISPOSAL	160.08	-	160.08	Waste Disposal Service-Lindsay
144	ODP BUSINESS SOLUTIONS, LLC	335.17	-	335.17	Office Supplies
145	OTTEMOELLER CONSULTING SERVICES, LLC	2,534.50	1,370.00	3,904.50	Consulting Services-June
146	PACIFIC GAS & ELECTRIC	3,548.30	-	3,548.30	Utilities-Electricity
147	POWER BUSINESS TECHNOLOGY	182.16	-	182.16	Copier Lease Service
148	PRINCIPAL LIFE INSURANCE COMPANY	-	1,305.23	1,305.23	457F Retirement July to Sept
149	PSW	64.92	-	64.92	Shredding Service
150	QUILL CORPORATION	59.23	-	59.23	Kitchen Supplies
151	ROBERT V. JENSEN, INC.	3,326.01	-	3,326.01	Unleaded Fuel-800 Gal Lindsay
152	SAN JOAQUIN PEST CONTROL	94.00	-	94.00	Pest Control Services-Lindsay
153	SEVIERS AUTO SUPPLY	27.14	-	27.14	Parts & Supplies-Delano Yard
154	SHERWIN WILLIAMS CO.	325.57	-	325.57	Paint Supplies-Lindsay Yard
155	SMART & FINAL CORP	265.49	-	265.49	Kitchen Supplies
156	SOMACH SIMMONS & DUNN	-	11,058.11	11,058.11	Special Counsel Services - May & June
157	SPRAYING DEVICES, INC.	60.18	-	60.18	Parts - OC Yard
158	STOEL RIVES LLP	-	161.70	161.70	Special Counsel Services-June
159	THE REDESIGN GROUP	3,000.00	-	3,000.00	Firewall/Switch Setup
160	VILLINES GROUP, LLC	-	4,000.00	4,000.00	Consulting Services-June
161	WATER AND POWER LAW GROUP PC	-	19,715.56	19,715.56	Special Counsel Services-June
162	WEISENBERGERS	218.00	-	218.00	Parts & Supplies-Lindsay Yard
163	SUBTOTAL SPENDING	$ 68,027.83	$ 44,517.01	$ 112,544.84	

BILLS TO BE PAID JULY 27, 2023					
NO.	PAYEE	O&M FUND	GM FUND	TOTAL	DESCRIPTION
164	PAYROLL FWA	186,042.57	23,321.31	209,363.88	End of Month Payroll Estimate
165	TOTAL OM&R	$ 254,070.40	$ 67,838.32	$ 321,908.72	
166	San Luis & Delta-Mendota Canal:				
167	OM&R CHARGES WY2023 - PAID VIA WIRE	$ 3,057,687.14	$ -	$ 3,057,687.14	August 2023 Estimate
168	Subtotal - SLDMWA	$ 3,057,687.14	$ -	$ 3,057,687.14	

BILLS TO BE PAID JULY 27, 2023					
NO.	PAYEE	O&M FUND	GM FUND	TOTAL	DESCRIPTION
169	Middle Reach Capacity Correction Project Phase 1				
170	BRIAN G. THOMAS CONSULTING, LLC	$ 900.00	$ -	$ 900.00	Consulting Services-June
171	VILLINES GROUP, LLC	6,000.00	-	6,000.00	Consulting Services-June
172	SUBTOTAL - MRCCP	$ 6,900.00	$ -	$ 6,900.00	
173	TOTAL - END OF MONTH	$ 3,318,657.54	$ 67,838.32	$ 3,386,495.86	
174	GRAND TOTALS	$ 4,108,684.67	$ 124,176.90	$ 4,232,861.57	

FRIANT WATER AUTHORITY

CASH ACTIVITY BALANCE
MONTH ENDING JUNE 30, 2023

	Beginning Balance	Increases	Decreases	Ending Balance
FKC Operations & Maintenance	$ 29,069,580	$ 19,726,807	$ (9,838,418)	$ 38,957,969
SLDMWA	$ 2,724,390	33,933	(1,038,831)	1,719,492
Total	**31,793,970**	**19,760,740**	**(10,877,249)**	**40,677,461**
General Member	272,110	-	(95,473)	176,637
			Total	**40,854,099**

BANK ACTIVITY BALANCE
MONTH ENDING JUNE 30, 2023

Local Agency Investment Fund	$ 100,679	$ -	$ -	$ 100,679
California Asset Management Program	32,542,192	15,516,654	(7,900,000)	40,158,846
Bank of the Sierra	(576,790)	4,244,086	(3,072,721)	594,574
			Total	**$ 40,854,099**

NOTE:

Most Current Interest Rate: For month ended June 30, 2023 , effective yield, 3.167%

The Authority's investments are in compliance with its Statement of Investment Policy dated March 3, 2023.

Management believes it is fully able to meet its expenditure requirements for the next six months.

FRIANT WATER AUTHORITY
O&M FUND
CASH ACTIVITY REPORT
MONTH ENDING JUNE 30, 2023

	Checking & Investments	Payroll Checking	Petty Cash	Total
CASH BALANCE MAY 31, 2023	$ 31,793,170	$ -	$ 800	$ 31,793,970
Increases:				
District O&M receipts	2,130,762			2,130,762
SLDMWA receipts	33,933			33,933
Pumpback Grant	573,421			573,421
Revenue from MRCCP	16,327,045			16,327,045
Recapture	297,859			297,859
Interest Revenue	352			352
Miscellaneous deposits	3,202			3,202
Administration Allocation	1,331			1,331
Payroll deposits		392,835		392,835
Total Increases	19,367,904	392,835	-	19,760,740
Decreases:				
O&M Expenditures	985,642			985,642
MRCCP	8,067,105			8,067,105
Wire to SLDMWA - O&MR Charges - July Estimate	1,038,831			1,038,831
Payroll Cash Outlays	392,835	392,835		785,671
Total Decreases	10,484,413	392,835	-	10,877,249
CASH BALANCE BEFORE INTERFUND ACTIVITY	40,676,661	-	800	40,677,461
Interfund transfer to O&M	-			-
CASH BALANCE JUNE 30, 2023	$ 40,676,661	$ -	$ 800	$ 40,677,461

FRIANT WATER AUTHORITY
GENERAL MEMBERS FUND
CASH ACTIVITY REPORT
MONTH ENDING JUNE 30, 2023

CASH BALANCE MAY 31, 2023		$ 272,110
Increases:		
Member Assessments	-	
Total Cash Receipts		$ -
Decreases:		
Meetings	21,370	
Rent & Facility Expense	2,005	
Board Retreat	5,854	
Annual membership dues	10,000	
Professional Services	50	
Consulting	30,912	
	70,191	
Reimburse O&M:		
Current Month Payroll & Benefits	45,922	
Current Month Payroll & Benefits to O&M	(21,972)	
Administration Allocation	1,331	
Less Total Cash Disbursements		$ 95,473
CASH BALANCE BEFORE INTERFUND ACTIVITY		$ 176,637
Interfund transfer to O&M		$ -
CASH BALANCE JUNE 30, 2023		$ 176,637

FRIANT WATER AUTHORITY
MONTH ENDING JUNE 30, 2023
CASH ACTIVITY REPORT
LOCAL AGENCY INVESTMENT FUND (L.A.I.F.)
(FUNDS ON DEPOSIT WITH STATE OF CALIFORNIA)
CASH ACTIVITY REPORT

CASH BALANCE MAY 31, 2023		$ 100,679
Increases:		
Interest Revenue	-	
Decreases:		
Transfer to checking	-	
CASH BALANCE JUNE 30, 2023		$ 100,679

Balance ascribed to:

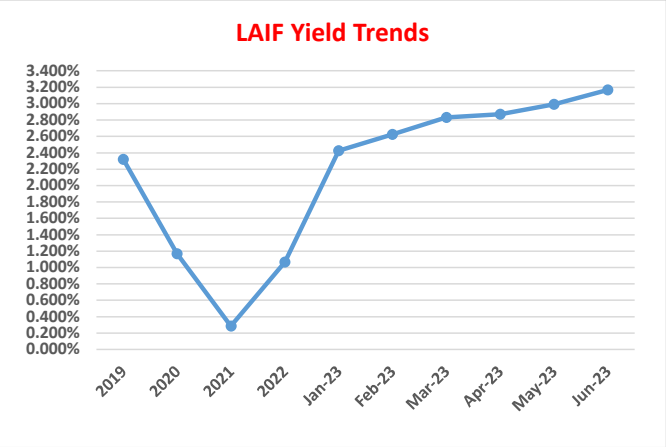
O&M Fund	$	99,568
General Member Fund	$	1,111
	$	100,679

NOTE:

Most Current Interest Rate: For month ended June 30, 2023 , effective yield, 3.167%

The Authority's investments are in compliance with its Statement of Investment Policy dated March 3, 2023.

Management believes it is fully able to meet its expenditure requirements for the next six months.

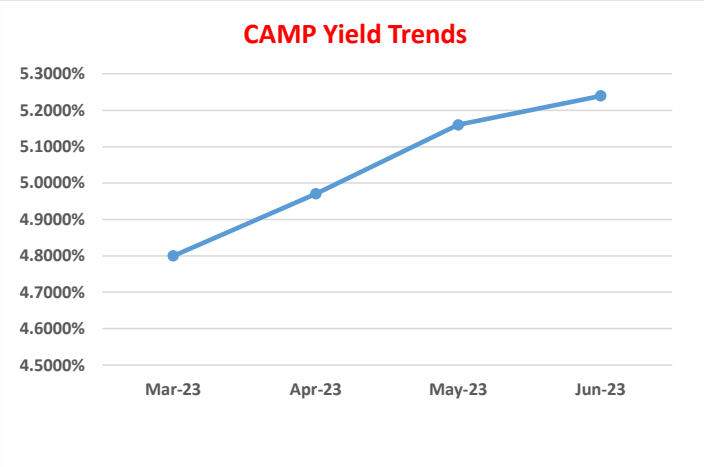


2019	2.320%
2020	1.168%
2021	0.284%
2022	1.066%
Jan-23	2.425%
Feb-23	2.624%
Mar-23	2.831%
Apr-23	2.870%
May-23	2.993%
Jun-23	3.167%

FRIANT WATER AUTHORITY
MONTH ENDING JUNE 30, 2023
CASH ACTIVITY REPORT
CALIFORNIA ASSET MANAGEMENT PROGRAM (C.A.M.P.)

CASH BALANCE MAY 31, 2023			$ 32,542,192
Increases:			
Transfer from checking	$	15,374,000	
Interest Revenue		142,654	15,516,654
Decreases:			
Transfer to checking		(7,900,000)	
CASH BALANCE JUNE 30, 2023			$ 40,158,846
Balance ascribed to:			
O&M Fund	$	39,985,215	
General Member Fund	$	173,631	
	$	40,158,846	

The Authority's investments are in compliance with its Statement of Investment Policy dated March 3, 2023.
Management believes it is fully able to meet its expenditure requirements for the next six months.



Mar-23	4.800%
Apr-23	4.970%
May-23	5.160%
Jun-23	5.240%

FWA Revenue Presentation

FY 2023 **Budget year:** **75.0%** **Completed**

Operations & Maintenance	**FY 2023** Budget	**06/30/2023** Year to Date	**Budget** Remaining	**Budget** Spent %
Revenue				
Interest Income	-	119,262	(119,262)	
Miscellaneous Income	-	137,307	(137,307)	
Reverse Pumping Fee	-	129,862	(129,862)	
Conveyance Fees	-	6,310	(6,310)	
O & M Revenue	12,198,370	9,148,777	3,049,593	75.0%
Water Supply Cord./Monitoring Revenue	-	135,482	(135,482)	
Total Revenue	**12,198,370**	**9,677,001**	**2,521,369**	**79.3%**
Expenses				
Total Operations	1,767,690	1,465,369	302,321	82.9%
Total Maintenance	7,217,022	5,119,071	2,097,952	70.9%
Administration Costs	1,936,083	1,523,499	412,584	78.7%
Special Projects	1,277,574	514,644	762,930	40.3%
Total OM&R Expenses	**12,198,370**	**8,622,583**	**3,575,787**	**70.7%**

FWA Budget Presentation

FY 2023 **Budget year:** **75.0%** **Completed**

Operations & Maintenance	**FY 2023** Budget	**06/30/2023** Year to Date	**Budget** Remaining	**Budget** Spent %
Operations Dept				
Employee Salaries/Pay	805,692	547,495	258,198	68.0%
Employee Benefits	407,646	322,681	84,965	79.2%
Supplies & Services	554,352	595,193	(40,841)	107.4%
Total Operations	***1,767,690***	**1,465,369**	**302,321**	**82.9%**
Maintenance Dept				
Employee Salaries/Pay	2,505,766	1,565,134	940,632	62.5%
Employee Benefits	1,366,251	963,660	402,591	70.5%
Supplies & Services	3,345,005	2,590,277	754,728	77.4%
Total Maintenance	***7,217,022***	**5,119,071**	**2,097,952**	**70.9%**
Administration Costs	2,200,921	1,600,924	599,998	72.7%
Administration Costs allocated to GM	(264,838)	(77,424)	(187,414)	29.2%
Total Operations & Maintenance	**10,920,796**	**8,107,939**	**2,812,857**	**74.2%**
Special Projects				
Cost Recovery	-	-	-	
Spending	1,277,574	514,644	762,930	40.3%
Total Special Projects	***1,277,574***	**514,644**	**762,930**	**40.3%**
Total OM&R	***12,198,370***	***8,622,583***	***3,575,787***	**70.7%**

Friant Water Authority
Budget vs Actual Expenses
YTD - 06/30/2023

Budget year: 75.0% Completed

		Total				Labor				Materials			
		Annual Budget	YTD Actual	% 0f Bud	Projected Remaining	Budget	YTD Actual		Projected Remaining	Budget	YTD Actual		Projected Remaining
	MAINTENANCE												
1	Vehicle & Equipment Service	$ 759,318	$ 427,843	56.3%	$ 331,475	$ 180,284	$ 117,648	65.3%	$ 62,636	$ 579,034	$ 310,195	53.6%	$ 268,839
2	Maintenance Supervision	341,127	193,591	56.8%	147,536	241,127	182,699	75.8%	58,428	100,000	10,892	10.9%	89,108
4	Right-of-Way Management	50,784	44,361	87.4%	6,423	50,784	44,361	87.4%	6,423	-	-	0.0%	-
5	Weed & Pest Control	1,039,248	652,247	62.8%	387,001	336,331	201,387	59.9%	134,944	702,917	450,861	64.1%	252,056
6	Implem Biol. Opinion	22,000	11,317	51.4%	10,683	-	-	0.0%	-	22,000	11,317	51.4%	10,683
7	Road Maintenance	60,673	16,934	27.9%	43,739	36,723	12,662	34.5%	24,060	23,951	4,272	17.8%	19,679
8	Yard & Building Maintenance	339,973	230,986	67.9%	108,987	162,763	139,411	85.7%	23,352	177,210	91,575	51.7%	85,635
9	Structure & Gate Maintenance	72,677	57,961	79.8%	14,716	65,232	51,085	78.3%	14,147	7,445	6,876	92.4%	569
10	Cleaning Right-of-Way	69,608	36,964	53.1%	32,643	69,608	36,964	53.1%	32,643	-	-	0.0%	-
11	Bargate & Guardrail Maint	41,526	15,959	38.4%	25,567	19,023	14,337	75.4%	4,686	22,503	1,622	7.2%	20,881
12	Embankment Maintenance	85,276	145,425	170.5%	(60,149)	77,116	144,624	187.5%	(67,507)	8,159	801	9.8%	7,358
13	Bridge Maintenance	63,193	8,360	13.2%	54,833	26,632	8,240	30.9%	18,392	36,561	120	0.3%	36,441
15	Reverse Flow Pumping	-	11,707	0.0%	(11,707)	26,249	7,278	27.7%	18,970	(26,249)	4,429	-16.9%	(30,678)
16	Concrete Lining Maintenance	19,483	29,102	149.4%	(9,619)	10,700	28,110	262.7%	(17,411)	8,783	992	11.3%	7,791
17	Drainditch & Channel Maint.	37,870	28,052	74.1%	9,817	37,870	28,052	74.1%	9,817	-	-	0.0%	-
18	Fence Maintenance	81,666	54,905	67.2%	26,761	64,242	52,726	82.1%	11,517	17,424	2,179	12.5%	15,244
19	Mudjacking	25,181	2,460	9.8%	22,722	22,941	2,460	10.7%	20,481	2,240	-	0.0%	2,240
20	Painting	56,933	12,270	21.6%	44,663	44,707	8,570	19.2%	36,137	12,225	3,700	30.3%	8,526
21	Sump Pump Maintenance	2,057	310	15.1%	1,746	1,107	95	8.5%	1,012	950	216	22.7%	734
22	Cross Drainage Structure Mtce	1,107	367	33.2%	740	1,107	367	33.2%	740	-	-	0.0%	-
23	Rip-Rapping	2,625	-	0.0%	2,625	2,625	-	0.0%	2,625	-	-	0.0%	-
24	Finance Charge	-	2,518	0.0%	(2,518)	-	-	0.0%	-	-	2,518	0.0%	(2,518)
25	Operations Supervision	50,438	39,523	78.4%	10,914	50,438	39,523	78.4%	10,914	-	-	0.0%	-
26	Water supply coordination & monitoring	632,218	661,011	104.6%	(28,793)	162,023	114,288	70.5%	47,735	470,195	546,723	116.3%	(76,528)
28	Legal Expense - Direct	110,000	67,998	61.8%	42,002	-	-	0.0%	-	110,000	67,998	61.8%	42,002
29	Safety & First Aid Training	34,717	13,569	39.1%	21,148	20,299	3,415	16.8%	16,884	14,418	10,154	70.4%	4,264
30	Office Admin (Typing etc.)	83,705	36,903	44.1%	46,801	83,705	36,903	44.1%	46,801	-	-	0.0%	-
31	Payroll Preparation	12,707	2,305	18.1%	10,402	12,707	2,305	18.1%	10,402	-	-	0.0%	-
32	Meetings	385,847	291,123	75.5%	92,814	195,274	114,106	58.4%	81,168	190,573	177,017	92.9%	13,556
33	Education & Training	50,597	9,884	19.5%	40,713	33,683	7,684	22.8%	25,999	16,914	2,200	13.0%	14,714
34	Procurement	20,085	4,167	20.7%	15,918	20,085	4,167	20.7%	15,918	-	-	0.0%	-
35	Inventory & Property Mgt.	1,388	-	0.0%	1,388	1,388	-	0.0%	1,388	-	-	0.0%	-
36	Employee Benefits	1,366,251	963,660	70.5%	404,019	334,437	250,599	74.9%	83,838	1,031,814	711,634	69.0%	320,180
37	Personnel Administration	103,340	158,843	153.7%	(55,502)	103,340	158,843	153.7%	(55,502)	-	-	0.0%	-
38	Workers Comp. Insurance	69,661	42,935	61.6%	26,726	-	-	0.0%	-	69,661	42,935	61.6%	26,726
39	Dues & Subscriptions	10,615	10,338	97.4%	277	-	-	0.0%	-	10,615	10,338	97.4%	277
40	Budget Preparation	3,624	2,826	78.0%	799	3,624	2,826	78.0%	799	-	-	0.0%	-
41	Archiving & Data Storage	7,596	-	0.0%	7,596	7,596	-	0.0%	7,596	-	-	0.0%	-
42	Vehicle & Equipment Acquisition	1,013,489	756,506	74.6%	256,982	-	-	0.0%	-	1,013,489	756,506	74.6%	256,982
	TOTAL EXPENSES: MAINTENANCE	**7,217,022**	**5,119,071**	**70.9%**	**2,097,952**	**2,505,766**	**1,815,732**	**72.5%**	**690,034**	**4,711,256**	**3,303,338**	**70.1%**	**1,407,918**

Friant Water Authority
Budget vs Actual Expenses
YTD - 06/30/2023

Budget year: 75.0% Completed

		Total				Labor				Materials			
		Annual Budget	YTD Actual	% Of Bud	Projected Remaining	Budget	YTD Actual		Projected Remaining	Budget	YTD Actual		Projected Remaining
	OPERATIONS												
43	Vehicle & Equipment Service	$ 1,084	$ 547	50.46%	$ 537	$ -	$ -	0.00%	$ -	$ 1,084	$ 547	50.46%	$ 537
44	Yard & Building Maintenance	63,974	31,831	49.76%	32,143	10,602	13,669	128.92%	(3,066)	53,372	18,163	34.03%	35,209
45	Structure & Gate Maintenance	199,735	160,942	80.58%	38,793	58,309	55,119	94.53%	3,190	141,425	105,823	74.83%	35,602
46	Cleaning Right-of-Way	3,468	304	8.76%	3,164	2,508	299	11.91%	2,209	960	5	0.52%	955
47	Bargate & Guardrail Maint	2,632	48	1.83%	2,584	-	-	0.00%	-	2,632	48	1.83%	2,584
48	Reverse Flow Pump	-	118,155	0.00%	(118,155)	-	-	0.00%	-	-	118,155	0.00%	(118,155)
49	Sump Pump Maintenance	15,791	9,779	61.93%	6,012	-	-	0.00%	-	15,791	9,779	61.93%	6,012
50	Finance Charge	-	8	0.00%	(8)	-	-	0.00%	-	-	8	0.00%	(8)
52	C. & I. Maint (ESI Equipment)	259,634	234,586	90.35%	25,048	39,500	35,840	90.73%	3,661	220,134	198,746	90.28%	21,388
53	Meter Repair	111,318	96,835	86.99%	14,483	30,096	32,705	108.67%	(2,610)	81,222	64,130	78.96%	17,093
54	Canal Patrol	339,292	237,485	69.99%	101,808	338,575	237,226	70.07%	101,349	718	259	36.07%	459
55	Operations Reports	106,163	117,493	110.67%	(11,329)	105,805	117,175	110.75%	(11,371)	359	317	88.44%	41
56	Operations Supervision	86,606	47,637	55.00%	38,969	86,606	47,637	55.00%	38,969	-	-	0.00%	-
58	Water Measurement	9,273	4,634	49.98%	4,638	7,837	4,043	51.58%	3,795	1,436	592	41.22%	844
61	Safety & First Aid Training	3,886	2,352	60.54%	1,533	1,254	261	20.79%	993	2,632	2,092	79.48%	540
62	Meetings	1,881	2,920	155.25%	(1,039)	1,881	2,920	155.25%	(1,039)	-	-	0.00%	-
63	Education & Training	6,637	544	8.20%	6,093	1,254	544	43.40%	710	5,383	-	0.00%	5,383
64	Employee Benefits	407,646	322,681	79.16%	84,965	121,465	94,232	77.58%	27,233	286,181	228,449	79.83%	57,732
65	Workers Comp. Insurance	32,168	20,613	64.08%	11,555	-	-	0.00%	-	32,168	20,613	64.08%	11,555
66	Utilities	35,302	26,014	73.69%	9,289	-	-	0.00%	-	35,302	26,014	73.69%	9,289
67	Vehicle & Equipment Acquisition	81,200	29,906	36.83%	51,294	-	-	0.00%	-	81,200	29,906	36.83%	51,294
	TOTAL EXPENSES: WATER OPERATIONS	**$ 1,767,690**	**$ 1,465,369**	**82.9%**	**$ 302,321**	**$ 805,692**	**$ 641,727**	**79.6%**	**$ 163,965**	**$ 961,998**	**$ 823,642**	**85.6%**	**$ 138,356**

Friant Water Authority
Budget vs Actual Expenses
YTD - 06/30/2023

Budget year: 75.0% Completed

		Total				Labor				Materials			
		Annual Budget	YTD Actual	% 0f Bud	Projected Remaining	Budget	YTD Actual		Projected Remaining	Budget	YTD Actual		Projected Remaining
	ADMINISTRATION												
68	Amortization Expense-Right-to-Use Leased Equipment	-	14,163	0.00%	(14,163)	-	-	0.00%	-	-	14,163	0.00%	(14,163)
69	Water supply coordination & monitoring	$ 79,546	$ 79,330	99.73%	$ 216	$ 62,535	$ 63,119	100.93%	$ (583)	$ 17,011	$ 16,212	95.30%	$ 800
70	Administrative Supervision	-	8,993	0.00%	(8,993)	-	8,993	0.00%	(8,993)	-	-	0.00%	-
71	Safety & First Aid Training	94,652	18,238	19.27%	76,414	6,880	1,239	18.01%	5,642	87,772	17,000	19.37%	70,772
72	Office Admin (Typing etc.)	141,116	86,714	61.45%	54,402	141,116	86,483	61.29%	54,633	-	231	0.00%	(231)
73	Payroll Preparation	14,186	6,779	47.78%	7,408	14,186	6,779	47.78%	7,408	-	-	0.00%	-
74	Meetings	51,273	37,016	72.20%	53,777	46,873	16,009	34.15%	30,864	4,400	1,709	38.85%	2,691
75	Offsite Planning Board of Directors	-	554	0.00%	(554)	-	451	0.00%	(451)	-	103	0.00%	(103)
76	Education & Training	90,915	25,350	27.88%	65,565	30,885	10,340	33.48%	20,545	60,030	15,010	25.00%	45,021
78	Inventory & Property Mgt.	3,651	451	12.35%	3,200	3,651	451	12.35%	3,200	-	-	0.00%	-
79	Employee Benefits	511,200	393,611	77.00%	117,589	111,120	91,726	82.55%	19,394	400,080	301,885	75.46%	98,195
80	Data Processing	260,585	231,639	88.89%	28,947	15,576	43,508	279.33%	(27,932)	245,010	188,131	76.79%	56,879
89	Travel	39,520	18,744	47.43%	20,776	-	-	0.00%	-	39,520	18,744	47.43%	20,776
81	Accounting & Auditing	408,511	285,987	70.01%	122,524	354,743	270,087	76.14%	84,656	53,768	15,900	29.57%	37,868
82	Personnel Administration	132,129	87,736	66.40%	44,394	68,130	62,162	91.24%	5,968	63,999	25,574	39.96%	38,425
83	Liability Insurance	142,825	139,131	97.41%	3,694	-	-	0.00%	-	142,825	139,131	97.41%	3,694
84	Workers Compensation Insurance	13,546	2,513	18.55%	11,034	-	-	0.00%	-	13,546	2,513	18.55%	11,034
85	Finance Charge	-	1,629	0.00%	(1,629)	-	-	0.00%	-	-	1,629	0.00%	(1,629)
86	Utilities	72,307	46,167	63.85%	26,140	-	-	0.00%	-	72,307	46,167	63.85%	26,140
87	Office Supplies	29,069	20,489	70.48%	8,580	-	-	0.00%	-	29,069	20,489	70.48%	8,580
89	Postage	7,747	5,972	77.08%	1,775	-	-	0.00%	-	7,747	5,972	77.08%	1,775
90	Dues & Subscriptions	9,034	4,727	52.32%	4,307	-	-	0.00%	-	9,034	4,727	52.32%	4,307
91	Budget Preparation	11,067	11,174	100.97%	(107)	11,067	11,174	100.97%	(107)	-	-	0.00%	-
92	Achieving & Data Storage	12,655	-	0.00%	12,655	12,655	-	0.00%	12,655	-	-	0.00%	-
93	Lease office equipment	37,323	41,617	111.50%	(4,294)	-	-	0.00%	-	37,323	41,617	111.50%	(4,294)
94	Vehicle & Equipment Acquisition	38,063	51,499	135.30%	(13,436)	-	-	0.00%	-	38,063	51,499	135.30%	(13,436)
95	Admin Reimb - GM Fund - see Note #1	(264,838)	(77,424)	29.23%	(187,414)	-	-	0.00%	-	(264,838)	(77,424)	29.23%	(187,414)
	TOTAL EXPENSES: ADMINISTRATION	**$ 1,936,083**	**$ 1,523,499**	**78.7%**	**$ 412,584**	**$ 879,418**	**$ 672,521**	**76.5%**	**$ 206,897**	**$ 1,056,665**	**$ 850,978**	**80.5%**	**$ 205,687**

Note #1

O&M	**95%**	**$ 1,523,499**
GM	**5%**	**$ 77,424**
	100%	**$ 1,600,924**

	SPECIAL PROJECTS												
102	Benefits	$133,698	$31,156	23.3%	$102,542	$45,683	$31,156	68.2%	$14,526	$88,016	$0	0.0%	$88,016
103	Subsidence - System Wide	151,304	167,819	110.9%	(16,515)	41,304	33,824	81.9%	7,480	110,000	133,995	121.8%	(23,995)
104	GSA Engagement - East	322,292	131,222	40.7%	191,069	102,292	19,880	19.4%	82,411	220,000	111,342	50.6%	108,658
105	GSA Engagement - West	194,539	31,585	**16.2%**	162,954	15,767	935	5.9%	14,831	178,773	30,650	17.1%	148,123
106	Water Quality	475,741	152,862	**32.1%**	322,879	68,241	15,137	22.2%	53,104	407,500	137,725	33.8%	269,775
	TOTAL EXPENSES: SPECIAL PROJECTS	**$1,277,574**	**$514,644**	**40.3%**	**$762,930**	**$273,286**	**$100,933**	**36.9%**	**$172,352**	**$1,004,288**	**$413,711**	**41.2%**	**$590,577**

BUDGET ITEM	FYE 9/30/22	CURRENT YTD	REMAINING
CARRY OVER ITEMS FY 2022			
SEE NOTE:			
96 Motor Grader	323,732	318,104	5,628
97 Foreman Pickup - Delano	33,600	47,190	(13,590)
98 CSO Pickup - Orange Cove	25,290	33,662	(8,372)
99 CSO Pickup - Delano	25,290	33,662	(8,372)
	407,912	432,618	(24,706)
100 Limitorque Actuators	21,000		21,000
101 Canal Sump Pump	9,000		9,000
TOTAL CARRY OVER ITEMS FY 2022	437,912	432,618	5,294

Note:		Cash Out	Incr - %/Dec + To Carry Over
#2	Received in April - 2023	$ 318,104.25	2%
#2	Received in February - 2023	$ 47,190.31	-40%
#2	Received in February - 2023	$ 33,661.82	-33%
#2	Received in February - 2023	$ 33,661.82	-33%
		$ 432,618.20	6%
#3	Part of carry over to FY2023 (BOD Approved) but supply chain delivered in FY2022		
#3	Part of carry over to FY2023 (BOD Approved) but supply chain delivered in FY2022		

Friant Water Authority
General Membership
June 30, 2023

BUDGET TO ACTUALS REPORT

Consultants	FY 2023 Approved Budget	FY 2023 Actuals	Surplus /(Shortage)	% of Budget YTD 75.00%
General Counsel				
Burke, Williams & Sorenson, LLC	3,000	-	3,000	
Special Counsel				
Water & Power Law Group	230,000	149,459	80,541	*64.98%*
Burke, Williams & Sorensen, LLC	39,000	39,875	(875)	*102.24%*
Somach Simmons	119,000	55,734	63,266	*46.83%*
BiOps Litigation (Kaplan & Kirsch)	156,000	79,731	76,269	*51.11%*
CEQA Litigation (Stoel Rives)	126,000	12,290	113,710	*9.75%*
Additional Special Counsel (TBD)	55,500		55,500	
Special Counsel Subtotal	**725,500**	**337,088**	**388,412**	*46.46%*
Professional Support - Operations				
General Consulting - as needed (Luce, Steve O. & MBK)	111,950	10,374	101,577	*9.27%*
Kan Ventures	60,000	29,424	30,576	*49.04%*
Additional Legal/Operations Consultant (TBD)	16,000	-	16,000	
Professional Support - Operations Subtotal	**187,950**	**39,797**	**148,153**	*21.17%*
Professional Support - Communications & Outreach				
External Affairs - Federal (Ferguson Group)	50,000	24,824	25,176	*49.65%*
External Affairs - State (Villines)	50,000	24,200	25,800	*48.40%*
Media & Materials - (Commuter Industries)	30,000	8,725	21,276	*29.08%*
Professional Support - Comm. & Outreach Subtotal	**130,000**	**57,749**	**72,251**	*44.42%*
Consultants Subtotal	**1,046,450**	**434,634**	**611,816**	*41.53%*
Staff				
Leadership	635,327	437,945	197,382	*68.93%*
Staff Subtotal	**635,327**	**437,945**	**197,382**	*68.93%*
Other Activities				
CDTFA - State Water Resources Control Board	67,500	89,344	(21,844)	*132.36%*
Family Farm Alliance	15,000	15,000	0	*100.00%*
CVPWA dues	40,000	37,249	2,751	*93.12%*
SJV Blueprint	15,000	-	15,000	
Public Policy Institute of California	10,000	10,000	0	*100.00%*
Misc Organizational Contributions	15,000	6,871	8,129	*45.81%*
Dues & Fees Subtotal	**162,500**	**158,464**	**4,036**	*97.52%*
Other Supplies & Services				
Travel	60,000	24,904	35,096	*41.51%*
Hotel	37,500	25,802	11,698	*68.81%*
Meals	35,000	36,255	(1,255)	*103.59%*
Miscellaneous visa receipts	15,000	7,108	7,892	*47.38%*
Meeting expenses -	45,000	40,764	4,236	*90.59%*
Other Supplies & Services Subtotal	**192,500**	**134,833**	**57,667**	*70.04%*
Admin Allocation	**175,000**	**77,424**	**97,576**	***44.24%***
Direct Expenses (including rent, mileage)				
Mileage	27,500	10,800	16,700	*39.27%*
Rent	34,620	28,817	5,803	*83.24%*
Office Expenses	2,500	43	2,457	*1.71%*
Office Supplies	7,500	3,080	4,420	*41.07%*
Utilities	1,000	-	1,000	
Direct Expenses Subtotal	**73,120**	**42,740**	**30,380**	*58.45%*
Other Activities Subtotal	**603,120**	**413,461**	**189,659**	*68.55%*
Subtotal Base Budgets	**2,284,897**	**1,286,040**	**998,857**	*56.28%*
Special Projects				
Regulatory Engagement & Advocacy	200,000		200,000	*0.00%*
Total Special Projects	**200,000**	**0**	**200,000**	*0.00%*
Total Budgets	**2,484,897**	**1,286,040**	**1,198,857**	*51.75%*

Middle Reach Capacity Correction Project, Phase 1

Bureau of Reclamation and Friant Water Authority

Monthly Financial Status Report - Budget to Actual Spending

Expenditures through June 30, 2023

	Federal Funding		FWA Spending Plan Funds	Friant Water Authority Funding						
Sources of Funds	**SJRRP funds**	**WIIN funds**	**Advance Payments for Construction Costs**	**FWA Contractors**	**Eastern Tule GSA**	**Pixley GSA**	**State Funding-DWR**	**Misc. Revenue**	**Delano GSA**	**Total FWA funds**
Anticipated Funding	$41M-$46.9M	$ 210,550,000	$ 118,645,000	$ 50,000,000	$125M-$200M	$ 11,000,000	$ 74,484,000	$ -	$ 1,200,000	
Funds Secured/Received to date	$ 41,900,000	$ 208,100,000	$ 75,518,000	$ 49,894,401	$ 11,382,129	$ 11,000,000	$ 53,625,600	$ 636,029	In progress	$ 126,538,158
Expenditures to date	(89,992)	(8,810,528)	$ (52,073,746)	(16,345,124)	(11,382,129)	(11,000,000)	(53,625,600)	(636,029)	-	(92,988,882)
Remaining Funding Available	$ 41,810,008	$ 199,289,472	$ 23,444,254	$ 33,549,276	-	$ -	$ 0	$ (0)	In progress	$ 33,549,276

	Budget Estimate (2023)			Prior Period Expenditures (Cumulative)		June 30, 2023 Expenditures		Total Expenditures through June 30, 2023		Remaining Budget	
Project Cost Category	**Reclamation**	**FWA (Non-Federal)**	**Total**	**Reclamation Expenditures**	**FWA Expenditures**	**Reclamation Expenditures**	**FWA Expenditures**	**Reclamation Expenditures**	**FWA Expenditures**	**Reclamation**	**FWA (Non-Federal)**
Prior-Period Preconstruction Costs (thru September 30, 2021)	$ 19,025,114	$ 3,525,733	**$ 22,550,847**	$ 19,025,114	$ 3,525,733	$ -	$ -	$ 19,025,114	$ 3,525,733	$ -	$ (0)
ROW & Land Acquisition	$ 6,704,604	$ 15,276,761	**$ 21,981,365**	$ 6,453,593	$ 13,305,877	$ 88,886	$ 41,961	$ 6,542,479	$ 13,347,839	**$ 162,125**	**$ 1,928,922**
Legal & Administration (Facilitating Services) & IT Services	$ 51,251	$ 863,646	**$ 914,897**	$ (1,257)	$ 500,941	$ 818	$ 3,581	$ (439)	$ 504,522	**$ 51,690**	**$ 359,123**
Permitting, NEPA/CEQA, Cultural Resources, & Environmental Monitoring	$ 822,997	$ 501,908	**$ 1,324,905**	$ 694,113	$ 101,908	$ 1,354		$ 695,467	$ 101,908	**$ 127,530**	**$ 400,000**
Project Management	$ 2,970,519	$ 1,668,595	**$ 4,639,114**	$ 817,359	$ 364,625	$ 28,098	$ 10,479	$ 845,457	$ 375,103	**$ 2,125,062**	**$ 1,293,492**
Construction Management	$ 14,938,075	$ -	**$ 14,938,075**	$ 5,496,091	$ -	$ 578,834		$ 6,074,925	$ -	**$ 8,863,150**	**$ - **
Design & Specifications	$ 729,148	$ -	**$ 729,148**	$ 819,409	$ -	$ (80,424)		$ 738,985	$ -	**$ (9,837)**	**$ - **
Construction Support	$ 22,890,288	$ 12,102	**$ 22,902,390**	$ 8,705,491	$ 15,776	$ 333,697	$ -	$ 9,039,188	$ 15,776	**$ 13,851,100**	**$ (3,675)**
Construction Contract & Contingency	$ 95,182,187	$ 141,465,439	**$ 236,647,626**	**$ 107,303,064**	**$ 67,118,000**	**$ 7,949,256**	**$ 8,000,000**	**$ 115,252,320**	**$ 75,118,000**	**$ (20,070,133)**	**$ 66,347,439**
Total	**$ 163,314,183**	**$ 163,314,183**	**$ 326,628,366**	**$ 149,312,977**	**$ 84,932,861**	**$ 8,900,519**	**$ 8,056,021**	**$ 158,213,496**	**$ 92,988,882**	**$ 5,100,687**	**$ 70,325,301**
% Cost-Share	**50%**	**50%**						***63%***	***37%***		

Please Note:

Actual cost-share percentages: **59%** **41%**

The difference is due to timing of when the FWA Spending Plan Funds are being expended by BOR.

Friant
WATER AUTHORITY

AGENDA REPORT NO. 3.A.

DATE: July 27, 2023

TO: Board of Directors

FROM Donald M. Davis, General Counsel
Ian Buck-Mcleod, Water Resources Manager
Katie Duncan, Water Resources EIT

SUBJECT: **Resolution 2023-03 Certifying the Final Environmental Impact Report for the Guidelines for Accepting Water into the Friant-Kern Canal, including the Adoption of Findings and a Mitigation Monitoring and Reporting Program, and Authorizing the Execution of a Cooperative Agreement among Participating Contractors**

SUMMARY:

FWA has prepared an Environmental Impact Report (EIR) analyzing and addressing the potential environment impacts arising from the adoption and implementation of the proposed *Guidelines for Accepting Water into the Friant-Kern Canal* (Guidelines) to satisfy the agency's obligations under the California Environmental Quality Act (CEQA). A Draft EIR was publicly released on May 12, 2023, and the Final EIR has been prepared following the close of the 45-day public comment period. As the lead agency under CEQA for the Guidelines, FWA is required to certify the Final EIR before it may approve proceeding with implementation of the Guidelines, which will be done through the execution of the Cooperative Agreement with participating agencies (Contractors). The certification of the Final EIR will enable the home boards of the Contractors participating in the Guidelines to also approve the Cooperative Agreement at the meetings in August and September, so that implementation of the Guidelines may begin soon thereafter. We understand from the Bureau of Reclamation (Reclamation), that it is in the process of adapting the proposed Guidelines, with some minor additions, to serve as Reclamation's policy document with respect to pump-ins along the Friant-Kern Canal.

RECOMMENDED ACTION(S):

The Board should: (1) Receive the staff report on the Final EIR and Cooperative Agreement, including a brief presentation from Environmental Science Associates (ESA) which prepared the EIR, and ask any questions; (2) Take public comments on the Final EIR and proposed actions; and (3) adopt Resolution 2023-03 certifying the Final EIR for the Guidelines and adopting Findings and a Mitigation Monitoring and Reporting Program, and authorizing the execution of the Cooperative Agreement.

SUGGESTED MOTION:

"I move that the Board adopt Resolution 2023-03 certifying the Final EIR for the Guidelines and adopting Findings and a Mitigation Monitoring and Reporting Program, and authorizing the execution of the Cooperative Agreement."

DISCUSSION:

Background and Overview of the Guidelines and Cooperative Agreement

FWA has been working for many years with Friant Contractors and Reclamation to develop water quality thresholds and monitoring for the Friant-Kern Canal (FKC) that ensures the quality of water conveyed through the FKC is protected for sustained domestic and agricultural use and that also balance concerns of water supply reliability and water quality. In 2018, FWA established the Friant-Kern Canal Water Quality Ad Hoc Committee (Ad Hoc Committee) that was charged with the task of preparing an update to Reclamation's current water quality policy. The Ad Hoc Committee made up of Friant Contractor directors and district managers from Arvin-Edison Water Storage District (WSD), Delano-Earlimart Irrigation District (ID), Kern-Tulare Water District (WD), Lindsay Strathmore ID, Lower Tule River ID, Pixley ID, Porterville ID, Shafter-Wasco ID, Saucelito ID, and Terra Bella ID. This group worked together for more than four years, led by a "small group" of district managers from Arvin-Edison WSD, Delano-Earlimart ID, Lindsay Strathmore ID, Saucelito ID, and Terra Bella ID to reach consensus and develop the proposed Guidelines.

The proposed Guidelines:

- Are applicable to all "Non-Millerton water" introduced or diverted from the FKC.
- Define water quality thresholds and required "leave behind water" associated with the introduction of Non-Millerton water and corresponding water quality.
- Define methodologies and tools for monitoring and forecasting water quality in the FKC.

Participating Contractors on the FKC will enter into the proposed Cooperative Agreement that collectively provides for the voluntary adoption of the Guidelines and establishes the framework for the implementation of the Guidelines among the Contractors with oversight and support services provided by FWA. Upon the Board's certification of the Final EIR and approval of the Cooperative Agreement, participating Contractor's will seek approval from their own home boards, and once fully executed, the Guidelines will be deemed adopted and will apply to all existing and future FKC pump-in programs.

Reclamation has indicated that they will prepare an environmental document to comply with the National Environmental Protection Act (NEPA) as part of updating their own water quality policy that will incorporate the Guidelines with some modifications.

Overview of the Final EIR and Mitigation Monitoring and Reporting Program

Before FWA can approve and begin to implement the proposed Guidelines, CEQA requires that FWA first prepare and certify that the EIR has been completed in compliance with CEQA, that the FWA Board has reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment and analysis of FWA. As summarized in the proposed Resolution and the EIR, the CEQA process involves multiple opportunities for public review and comment beginning with the Notice of Preparation (NOP) of the EIR through the release of the Draft EIR.

The overarching purpose of the EIR is to identify the potentially significant environmental effects of the Guidelines and make changes or alterations to the Guidelines or incorporate certain requirements into the Guidelines, which avoid or substantially lessen the significant environmental effects as identified in the EIR. Here, because the Guidelines themselves are a form of mitigation to address water quality in the FKC, it is not surprising that the EIR concludes that the potentially significant environmental impacts related to a small handful of resource areas (biological resources, cultural resources, noise, and tribal cultural resources) can be reduced to a less than significant level through the implementation of the specific mitigation measures that are incorporated into the Mitigation Monitoring and Reporting Program (MMRP). And upon examination of the MMRP, the Board will see that most of these measures are related to discretionary projects that Contractors may pursue in response to the Guidelines, particularly the construction of small facilities related to new pump-ins or the expansion of existing pump-in activities. The EIR was intended to facilitate such future projects by providing needed environmental coverage, although project specific environmental review will still be necessary.

BUDGET IMPACT:

The adoption of the Guidelines and Cooperative Agreement will not directly result in any new budget impacts. Implementation of the program and all associated costs have been included in the 2024 fiscal year budget, and such costs will ultimately be reimbursed through a surcharge on the participating Contractors based on the volume of their annual pump-ins of Non-Millerton water subject to the Guidelines

ATTACHMENTS:

Resolution 2023-03
Exhibit A: CEQA Findings of Fact
Final EIR
Cooperative Agreement

A full copy of the Draft EIR is available on FWA's website at: Guidelines for Accepting Water into the Friant-Kern Canal Draft Environmental Impact Report (squarespace.com)

RESOLUTION No. 2023-03

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE FRIANT WATER AUTHORITY CERTIFYING THE FINAL ENVIRONMENTAL IMPACT REPORT, ADOPTING CEQA FINDINGS OF FACT, ADOPTING A MITIGATION MONITORING AND REPORTING PROGRAM, APPROVING THE GUIDELINES FOR ACCEPTING WATER INTO THE FRIANT-KERN CANAL (GUIDELINES), AND AUTHORIZING THE EXECUTION OF THE COOPERATIVE AGREEMENT FOR THE IMPLEMENTATION OF THE GUIDELINES

THE BOARD OF DIRECTORS OF THE FRIANT WATER AUTHORITY RESOLVES AS FOLLOWS:

SECTION 1. Findings. The Board of Directors finds as follows:

A. The United States Bureau of Reclamation ("Reclamation") constructed and owns the facilities of the Friant Division of the Central Valley Project ("CVP" or "Project"), including the Friant Dam and the Friant-Kern Canal ("Canal" or "FKC") which conveys water from Millerton Lake to municipalities and water agencies (collectively, "Contractors") along the 152-mile length of the Canal that have water delivery contracts with Reclamation for Project water.

B. The Contractors, through their own facilities, provide CVP water to communities and thousands of family farms which irrigate more than one million acres of highly productive and economically vital farmland.

C. Since 1986, the Friant Water Authority ("FWA") and its predecessors have operated and maintained certain Friant Division facilities, including the FKC, on behalf of the United States, and since 1998 such operations, maintenance and replacement ("OM&R") obligations have been governed by that certain Agreement to Transfer the Operations, Maintenance and Replacement and Certain Financial and Administrative Activities Related to the Friant-Kern Canal and Associated Works (Contract No. 8-07-20-X0356-X) ("Transfer Agreement"), which FWA and Reclamation renewed effective October 5, 2020 for an additional term of 35 years.

D. Under Article 30(a) of the Transfer Agreement, FWA is required to operate and maintain the FKC "in a manner that preserves the quality of the water at the highest feasible level" as determined by Reclamation.

E. In the recitals and substantive provisions of the Contractors' water delivery contracts (i.e., the article entitled "Cooperation and Coordination"), Reclamation and the applicable Contractor acknowledge the shared goal to "pursue measures to improve … water quality … for all Project purposes," including through the "implementation of partnerships."

F. Nevertheless, each water delivery contract also includes a provision that states that "the United States does not warrant the quality of the water delivered to the Contractor and is under no obligation to furnish or construct water treatment facilities to maintain or improve the quality of water delivered to the Contractor."

G. As the operations of the Friant Division have evolved, from time-to-time water is introduced into the FKC other than directly from Millerton Lake to the headworks of the FKC (collectively, "Non-Millerton water"). In general, such Non-Millerton water is of a lower quality than that conveyed directly from Millerton Lake.

H. In order to ensure that the quality of water conveyed through the FKC is protected for sustained domestic and agricultural use, FWA and the Contractors have cooperatively developed certain Guidelines for Accepting Water into the Friant-Kern Canal ("Guidelines" or "Project") that define certain water quality thresholds and the required mitigation associated with the introduction of Non-Millerton water into the FKC, as well as establish methodologies, procedures and tools for forecasting, monitoring and managing water quality in the FKC.

I. Under the Guidelines, a public agency interested in participating in the Guidelines activities, including the introduction of Non-Millerton water into the FKC, is required to enter into a cooperative agreement ("Cooperative Agreement") with FWA to implement the Guidelines.

J. Because the proposed Guidelines and Cooperative Agreement require discretionary approvals from FWA (and the participating Contractors) prior environmental review is required.

K. FWA agreed to serve as the lead agency under the California Environmental Quality Act ("CEQA" - Public Resources Code sections 21000 and following) for the environmental review of the Guidelines.

L. FWA retained the consulting firm Environmental Science Associates ("ESA") to assist in the preparation of the environmental documents necessary for approval of the Guidelines under CEQA.

M. An Initial Study (IS) was prepared pursuant to the requirements of CEQA, and the State CEQA Guidelines (Title 14 of the California Code of Regulations, sections 15000 and following). The IS found that the Project could potentially have a significant impact on the environment and therefore required the preparation of an Environmental Impact Report (EIR). A copy of the IS is included as part of the Final EIR.

N. On December 6, 2022, FWA issued a Notice of Preparation ("NOP") that an EIR would be prepared for the Guidelines and filed such NOP with the California State Clearinghouse, which issued the Project State Clearinghouse (SCH) No. 2022120093. The NOP was available for public review from December 6, 2022 through January 9, 2023, and solicited comments regarding the scope and content of the EIR. A copy of the NOP, together with comments received, is part of the Final EIR.

O. On December 13, 2022, a virtual public scoping meeting was held for the EIR.

P. On May 12, 2023, FWA issued a Notice of Completion/Notice of Availability ("NOA") of the Draft EIR. The NOA was published on the California State Clearinghouse website (https://ceqanet.opr.ca.gov/2022120093/2), FWA's website (https://friantwater.org/projects), and was made available at the Fresno, Kern and Tulare County Clerks offices and published in the Fresno Bee and Bakersfield Californian. Copies of the NOA and the Draft EIR were distributed to the public agencies and other interested parties

as shown on the distribution list included in the Draft EIR and attached to the NOA. Additionally, the Draft EIR was distributed to responsible and interested state agencies through the State Clearinghouse; State Clearinghouse No. 2022120093.

Q. On May 12, 2023, the Draft EIR was made available for public review and comment pursuant to State CEQA Guidelines section 15087. The public review period lasted from May 12, 2023 to June 26, 2023. A virtual public meeting was held on May 30, 2023 to accept comments on the Draft EIR. Copies of the Draft EIR were made available for the public online at FWA's website (https://friantwater.org/projects), and hard copies were made available for review at FWA's Lindsay Office (854 N. Harvard Ave.).

R. FWA did not receive any comments on the Draft EIR during this 45-day public comment period.

S. A full copy of the Final EIR was posted on FWA's website on July 21, 2023, at: https://friantwater.org/projects.

T. The Board conducted a duly noticed public hearing on the Final EIR on July 27, 2023. All interested parties were given full opportunity to be heard and to present evidence regarding the Final EIR and related actions and approvals.

U. The Final EIR identifies the potential for significant impacts on the environment from implementation of the Project, all of which can be avoided or substantially reduced to less than a significant impact through the EIR mitigation measures; therefore, approval of the Project must include CEQA "Findings" as set forth in the CEQA Findings of Fact attached as Exhibit A.

V. The Project's Mitigation Monitoring and Reporting Program ("MMRP"), as required by CEQA, is attached as Appendix A of the Final EIR.

W. All documents and files which constitute the record of proceedings upon which the certification of the Final EIR and related actions to approve the Guidelines are based are on the file in the office of the Chief Operating Officer of the Friant Water Authority at its office at 854 N Harvard Avenue, Lindsay, California, 93247.

SECTION 2. **Certification of Final EIR**. The Board of Directors certifies the Final EIR as follows:

A. Based on the evidence and oral and written testimony presented at the public hearing including staff reports, and based on all the information contained in FWA's files on the Project (including those of its environmental consultant, ESA), including but not limited to, the Final EIR for the Project (a copy of which is on file at FWA's Lindsay office), the Board certifies in accordance with State CEQA Guidelines section 15090 that:

1. The Final EIR for the Project was prepared in compliance with CEQA and the State CEQA Guidelines.

2. The Final EIR was presented to the Board of Directors and that the Board has reviewed and considered the information contained in the Final EIR prior to approving the Project.

3. The Final EIR adequately describes the Project, its environmental impacts, and reasonable alternatives. Potentially significant impacts have been identified and mitigation measures have been incorporated as set forth in the MMRP that will avoid or reduce impacts to a level which will not cause a significant impact on the environment. Compliance with the MMRP is a requirement of the Cooperative Agreement.

4. The Final EIR reflects the independent judgment and analysis of the Board of Directors of the Friant Water Authority.

SECTION 3. Adoption of Findings and Mitigation Monitoring and Reporting Program. The Board of Directors approves, adopts, and imposes the following with respect to the Project:

A. The **Findings** pursuant to State CEQA Guidelines sections 15091 and 15126.6, as set forth in the attached Exhibit A. The Findings describe the mitigation measures and demonstrate that they will effectively mitigate or avoid the potentially significant environmental impacts of the Project.

B. The **Mitigation Monitoring and Reporting Program (MMRP)**, as set forth in Appendix A of the Final EIR. Potentially significant impacts have been identified and mitigation measures have been incorporated into the Project (and any subsequent discretionary projects) through the Cooperative Agreement that will reduce potential impacts to a level which will not cause a significant impact on the environment.

SECTION 4. **Approval of the Guidelines**. The Board of Directors approves the Guidelines described in the Final EIR as the Project to be implemented.

SECTION 5. Approval of the Cooperative Agreement. The Board of Directors approves the Cooperative Agreement and directs FWA staff to proceed with all necessary actions to execute and enter into the Cooperative Agreement with the participating Contractors and other public agencies in order to implement the Guidelines.

SECTION 6. **Filing of a Notice of Determination**. The Board of Directors directs FWA staff to cause to be filed with the respective clerks of Fresno, Kern and Tulare Counties and the Office of Planning and Research in Sacramento a Notice of Determination in accordance with CEQA.

SECTION 7. **Effective Date**. This Resolution will take effect upon adoption.

APPROVED AND ADOPTED on July 27, 2023.

_____
Jim Erickson, Chair of the Board of Directors

ATTEST:

_____
Josh Pitigliano, Secretary of the Board

I HEREBY CERTIFY that Resolution No. 2023-03 was duly adopted by the Board of Directors of the Friant Water Authority at a regular meeting held on July 27, 2023, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

_____

Josh Pitigliano, Secretary of the Board

RESOLUTION 2023-03

EXHIBIT A

CEQA FINDINGS OF FACT

FOR

THE ENVIRONMENTAL IMPACT REPORT OF THE GUIDELINES FOR ACCEPTING WATER INTO THE FRIANT-KERN CANAL PROJECT

STATE CLEARINGHOUSE NUMBER: 2022120093

PREPARED PURSUANT TO

SECTIONS 15091 AND 15093 OF THE STATE CEQA GUIDELINES AND SECTION 21081 OF THE PUBLIC RESOURCES CODE

BY

FRIANT WATER AUTHORITY

JULY 2023

1. INTRODUCTION

These Findings (defined below) are made pursuant to the California Environmental Quality Act (CEQA), Public Resources Code Sections 21000 and CEQA Guidelines (California Code of Regulations, Title 14, sections 15000 *and following*) by the Friant Water Authority (Friant) in connection with the Environmental Impact Report (EIR) prepared for the *Guidelines for Accepting Water into the Friant-Kern Canal* (Guidelines). The Draft EIR (and appendices) and Final EIR (and appendices) constitute the EIR for the Guidelines.

These Findings are based on substantial evidence in the entire administrative record and references to specific reports and specific pages of documents are not intended to identify those sources as the exclusive basis for the findings. These findings reflect the Friant's Board of Director's (Board) independent judgment and analysis.

1.1 OVERVIEW AND ORGANIZATION

Friant has prepared an EIR which analyzes the anticipated environmental impacts of the Guidelines. To support its certification of the EIR and approval of the proposed Guidelines, Friant's Board makes the following findings of fact (Findings). These Findings contain the Board's written analysis and conclusions regarding the Guidelines environmental effects, mitigation measures, and alternatives which, in the Board's view, justify the approval of the Guidelines despite its potential environmental effects. These Findings are based upon the entire record of proceedings for the EIR, as described below.

The content and format of the Findings are designed to meet the requirements of CEQA. The EIR identifies significant environmental effects that would result from the Project. For each significant effect identified in the EIR, the Board is adopting one or more of the findings as provided in CEQA and specified in Section 15091 of the CEQA Guidelines. For identified significant effects, the Board finds that the mitigation measures identified in the EIR avoid or substantially lessen the significant effects to a level of less than significant.

The Board also adopts a Mitigation Monitoring and Reporting Program (MMRP). The Board finds that the MMRP meets the requirements of Public Resources Code Section 21081.6 by providing for the implementation and monitoring of measures intended to mitigate potentially significant effects. The MMRP is attached to the Board's Resolution as Exhibit B and incorporated by reference is being adopted by the Board concurrent with and as part of its Project approval.

2. PROPOSED GUIDELINES SUMMARY

Friant, a joint powers authority, has been working with Friant Division long-term contractors (Friant Contractors) and the United States Department of the Interior, Bureau of Reclamation (Reclamation) to develop the proposed Guidelines to ensure that the quality of water conveyed through the Friant-Kern Canal is protected for sustained domestic and agricultural use.

The proposed Guidelines would be applicable to all Non-Millerton water (water from sources other than Millerton Lake) introduced to or diverted from the Friant-Kern Canal including but not limited to: groundwater pump-ins, surface water diversions and pump-ins, recaptured and recirculated San Joaquin River Restoration Program Restoration Flows, and water introduced at the Friant-Kern Canal–Cross Valley Canal (CVC) intertie and delivered via reverse flow on the Friant-Kern Canal. The proposed Guidelines define the water quality thresholds and required "leave behind" water associated with introduced Non-Millerton water and corresponding water quality, as well as the methodologies and tools for monitoring and forecasting water quality in the Friant-Kern Canal. The proposed Guidelines describe the Friant review process for applications to Reclamation to introduce Non-Millerton water into

the Friant-Kern Canal; implementation procedures; and the responsibilities of water contractors and other parties authorized to introduce or receive Non-Millerton water into or from the Friant-Kern Canal (referred to collectively as "Contractors").

Implementation of the proposed Guidelines would not result in Friant making any physical modifications to the Friant-Kern Canal; however, in response to the proposed Guidelines, Contractors may need to take certain actions to ensure that a proposed introduction of Non-Millerton water meets the water quality thresholds of the Guidelines. These actions may include blending of water, changes to the timing of the introduction or discharge of Non-Millerton water, use of alternative water supplies, or construction and operation of small water treatment facilities at the source of the pump-in. In addition, Friant or Contractors may need to construct and/or maintain facilities for monitoring and forecasting water quality (e.g., water quality monitoring stations).

2.1 PROJECT OBJECTIVES

CEQA requires that an EIR contain a "statement of the objectives sought by the proposed project." Under CEQA, "[a] clearly written statement of objectives will help the Lead Agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations. The statement of objectives should include the underlying fundamental purpose of the project" (CEQA Guidelines Section 15124[b]).

The objectives of the proposed Guidelines are to:

- Provide greater protection of the quality of water introduced to or received from the Friant-Kern Canal for sustained domestic and agricultural use.
- Define the water quality thresholds, including the "leave behind" water associated with introduced Non-Millerton water and corresponding water quality, as well as the methodologies and tools for monitoring and forecasting water quality in the Friant-Kern Canal.
- Guide the application review process, implementation procedures, and the responsibilities of water contractors and other parties authorized by Reclamation to introduce or receive Non-Millerton water into or from the Friant-Kern Canal.

3. STATUTORY REQUIREMENTS

CEQA, in Public Resources Code Section 21081, and the CEQA Guidelines Section 15091 requires that:

> No public agency may approve or carry out a project for which an EIR has been certified which identifies one or more significant environmental effects of the project unless the public agency makes one or more written findings for each of those significant effects, accompanied by a brief explanation of the rationale for each finding. The possible findings are:
>
> 1. Changes or alterations have been required in, or incorporated into, the project, which avoid or substantially lessen the significant environmental effect as identified in the EIR.
> 2. Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.
> 3. Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the EIR.

All identified significant effects were determined to be mitigated to a less-than-significant level with incorporation of mitigation measure as described below in Section 4.

3.1 RECORD OF PROCEEDINGS AND CUSTODIAN OF RECORD

For purposes of CEQA and these Findings, the record of proceedings for the Board's decisions on the Guidelines consist of: (a) matters of common knowledge to the Board, including, but not limited to, federal, state and local laws and regulations and policies, (b) the following documents, which are in custody of the Friant Water Authority, 854 N. Harvard Ave. Lindsay, CA 9324:

- Notice of Preparation, dated December 6, 2022.
- Other public notices issued by Friant in conjunction with the Guidelines.
- Draft EIR, dated May 12, 2023.
- Final EIR, dated July, 2023, including all documents incorporated therein by reference.
- Mitigation Monitoring and Reporting Plan, dated July, 2023.
- All findings and resolutions adopted by the Board in connection with the Guidelines, and all documents cited or referred to therein.
- All final technical reports and addenda, studies, memoranda, maps, correspondence and all planning documents prepared by Friant or Friant's consultants relating to the Guidelines.
- All documents submitted to Guidelines by agencies or members of the public in connection with development of the Guidelines.
- All actions of the Board with respect to the Guidelines.
- All references included in the Draft EIR.
- Other documents regarding coordination and consultation with the public and public agencies and other documents designated by Friant.

3.2 PREPARATION AND CONSIDERATION OF THE EIR AND INDEPENDENT JUDGMENT FINDINGS

Pursuant to Public Resources Code Section 21082.1(c)(3), the Board finds, with respect to the Friant's preparation, review and consideration of the EIR, that:

- Friant retained the independent firm of Environmental Science Associates (ESA) to prepare the EIR, under the supervision and at the direction of Friant.
- Friant circulated a NOP on December 6, 2022 for a 30-day period.
- Friant noticed and conducted a virtual scoping meeting on December 13, 2022.
- The NOP was sent to public agencies, organizations, and individuals that requested receipt of Friant's public notices.
- Friant circulated the Draft EIR for review by responsible agencies and the public from May 12, 2023 through June 26, 2023, for a 45 days and submitted it to the State Clearinghouse for review and comment by State agencies.
- The Draft EIR was sent to public agencies, organization, and individuals that requested receipt of Friant's public notices and was made available at the Fresno, Kern and Tulare County Clerks offices and published in The Fresno Bee and The Bakersfield Californian on Friday May 12, 2023.
- Friant noticed and conducted a virtual public meeting on May 30, 2023 to receive oral comments on the Draft EIR.
- The EIR reflects the Board's independent judgment and analysis and has been completed in compliance with CEQA.

- The Project will have potential significant, unavoidable impacts as described and discussed in the EIR.
- The EIR is adequate under CEQA to address the potential environmental impacts of the Project.
- The EIR has been presented to the Board and the Board has independently reviewed and considered information contained in the EIR.
- By these Findings, the Board ratifies, adopts and incorporates the analyses, explanations, findings, responses to comments, and conclusions of the EIR described in these Findings.

3.3 NO RECIRCULATION OF EIR REQUIRED

Public Resources Code Section 21092.1 and CEQA Guidelines Section 15088.5 dictate that, under certain circumstances, when new information is added to an EIR after it has been circulated for the required public review and comment period, the EIR must undergo another round of public review and comment. The Final EIR contains no new information and therefore, no recirculation of the EIR is required.

3.4 MITIGATION MEASURES, CONDITIONS OF APPROVAL AND MITIGATION MONITORING AND REPORTING PROGRAM

Public Resources Code Section 21081.6 and CEQA Guidelines Section 15097 require Friant to adopt a monitoring or reporting program to ensure that the mitigation measures and revisions to the Project identified in the Final EIS are implemented. The MMRP attached to the Board's Resolution as Exhibit B and incorporated by reference is being adopted by the Board concurrent with and as part of its approval of the Guidelines. The MMRP satisfies the requirements of CEQA. The mitigation measures set forth in the MMRP are specific and enforceable and are capable of being fully implemented by the efforts of Friant and/or the Contractors when carrying out any new project subject to CEQA pursuant to the Guidelines. The MMRP adequately describes implementation procedures, monitoring responsibility, reporting actions, compliance schedule, and verification of compliance in order to ensure that actions taken in response to the Guidelines comply with the adopted mitigation measures, or equally effective measures, to reduce significant impacts to a less-than-significant level. Compliance with the MMRP is a requirement of the Cooperative Agreement that will be executed by all Contractors.

The mitigation measures incorporated into and imposed as part of the MMRP will not have significant impacts that were not analyzed in the EIR.

4. FINDINGS REGARDING SIGNIFICANT IMPACTS

In accordance with Public Resources Code Section 21081 and CEQA Guidelines Sections 15091 and 15092, the Board adopts the findings and conclusions regarding impacts and mitigation measures that are set forth in the EIR and summarized in the MMRP. These findings do not repeat the full discussions of environmental impacts contained in the EIR. The Board ratifies, adopts, and incorporates the analysis, explanation, findings and conclusions of the EIR. The EIR concludes that the potentially significant environmental impacts related to biological resources, cultural resources, noise, and tribal cultural resources can be reduced to a less than significant level through the implementation of specific mitigation measures, as discussed below.

4.1 FINDINGS REGARDING IMPACTS ANALYZED IN THE EIR AND DETERMINED TO BE LESS-THAN-SIGNIFICANT IMPACTS

This section identifies potentially significant adverse impacts of the proposed Guidelines that require findings to be made pursuant to Public Resources Code Section 21081 and CEQA Guidelines Section 15091. Based on information in the EIR, the Board finds that, based upon substantial evidence in the record, adoption and implementation of the mitigation measures set forth below will avoid or reduce the identified significant impacts of the proposed Guidelines to less than significant levels. Based on the

analysis contained in the EIR, the following resources have been determined to have impacts that can be reduced to less-than-significant levels with implementation of mitigation measures.

4.1.1 Biological Resources

Impact 3.5-1: Implementation of the proposed Guidelines could result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.

In response to the proposed Guidelines, Contractors might need to take certain actions to comply with the proposed Guidelines. Actions may include construction and operation of small water treatment facilities (approximately the size of a shed) likely located adjacent to the Friant-Kern Canal right-of-way, or installation of water quality monitoring stations located in the Friant-Kern Canal itself. It is also possible that some actions could occur in areas within Contractors' boundaries. Construction of such facilities could adversely affect special-status species, either through direct mortality or injury (e.g., from heavy machinery crushing wildlife or plants) or through the loss of suitable habitat for special-status species. his effect could be temporary, if such habitat is restored to pre-action conditions following the completion of construction (e.g., staging areas or haul routes); or the effect could be permanent, if no such restoration activities are possible (e.g., it would not be possible to restore habitat in the footprint where a permanent new water quality treatment facility is constructed).

Mitigation Measure 3.5-1a: One botanical survey shall be conducted prior to construction activities to determine the presence or absence of special-status plant species within the construction footprint, including staging and haul routes. The surveys shall be conducted in general accordance with the *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities* (CDFW 2018) and shall be timed to appropriately coincide with the blooming period in all suitable habitat located within any anticipated disturbance areas.

Mitigation Measure 3.5-1b: In the event that special-status plant species are found during the botanical surveys, the locations of the special-status plants shall be marked and a 50-foot buffer shall be established as avoidance areas both in the field, using flagging, staking, fencing, or similar devices, and on construction plans.

Mitigation Measure 3.5-1c: If non-listed, special-status plants are identified during botanical surveys and complete avoidance is not practicable, coordination with CDFW and/or USFWS shall be conducted as appropriate to develop the conservation plan. No take of state-listed species shall occur without an Incidental Take Permit (ITP) from CDFW.

Mitigation Measure 3.5-1d: To avoid special-status wildlife habitat, Contractors implementing actions in response to the proposed Guidelines shall implement the following measures:

- To the extent practicable, site(s) shall be identified that avoid habitats of special-status species (which may include foraging, sheltering, migration, and rearing habitat in addition to breeding or spawning habitat).
- Buffers around special-status species habitats shall be established to exclude effects of construction activities. The size of the buffer shall be in accordance with USFWS and CDFW protocols for the applicable special-status species.

- To the extent practicable, construction activities shall be scheduled to avoid special-status species' breeding, spawning, or migration locations during the seasons or active periods that these activities occur.
- Where impacts on special-status species are unavoidable, impacts shall be compensated for by restoring or preserving in-kind suitable habitat on-site or off-site, or by purchasing restoration or preservation credits.

Mitigation Measure 3.5-1e: To protect wildlife, Contractors implementing actions in response to the proposed Guidelines shall implement the following measures:

- ***Avoidance of Vegetation Disturbance*.** Sites shall be selected that will minimize, to the greatest extent feasible, the amount of soil and upland vegetation disturbance during construction and use methods creating the least disturbance to vegetation. Disturbance to existing grades and native vegetation, the number of access routes, the size of staging areas, and the total area disturbed shall be limited to the extent of all temporary and permanent impacts as defined by the final project design.
- ***Environmental Awareness Training*.** Prior to engaging existing or new personnel in construction activities, new construction personnel shall participate in environmental awareness training conducted by an agency-approved biologist or resource specialist. Construction personnel will be informed about the identification, potential presence, legal protections, and avoidance and minimization measures relevant to special-status species that potentially occur on the site.
- ***Environmental Monitoring*.** A qualified biologist shall ensure that all applicable protective measures are implemented during construction. The qualified biologist shall have authority to stop any work if they determine that any permit requirement is not fully implemented. The qualified biologist will prepare and maintain a monitoring log of construction site conditions and observations, which will be kept on file by the lead agency.
- ***Work Area and Speed Limits*.** All construction work and materials staging shall be restricted to designated work areas, routes, staging areas, temporary interior roads, or the limits of existing roadways.
  - Prior to start of work, brightly colored fencing or flagging or other practical means shall be erected to demarcate the limits of the activities within 100 feet of sensitive natural communities and habitat areas (e.g., any aquatic features), including designated staging areas; ingress and egress corridors; stockpile areas, soil, and materials; and equipment exclusion zones. Flagging or fencing shall be maintained in good repair for the duration of construction activities.
  - Vehicles shall obey posted speed limits and will limit speeds to 20 miles per hour within the study area on unpaved surfaces and unpaved roads to reduce dust and soil erosion and avoid harm to wildlife.
- ***Daily Removal of Food Trash*.** All food trash shall be properly contained within sealed containers, removed from the work site, and disposed of daily to prevent attracting wildlife to construction sites.

Mitigation Measure 3.5-1f: To protect nesting birds, Contractors implementing actions in response to the proposed Guidelines shall implement the following measures:

- To the extent practicable, vegetation removal shall be scheduled to avoid the breeding season for nesting raptors and other special-status birds (generally February 1 through

August 31, depending on the species). Removal of vegetation outside of the nesting season is intended to minimize the potential for delays in vegetation removal due to active nests.

- If work is to occur during the breeding season for nesting birds, a qualified biologist shall conduct a minimum of one pre-construction survey for nesting migratory birds and raptors within the project area for all construction-related activities that will occur during the nesting season. The pre-construction survey shall be conducted no more than 15 days prior to the initiation of construction in a given area and will be phased based on the construction schedule. If an active nest is found, a construction-free buffer zone (250 feet for migratory birds, 500 feet for raptors) shall be established around the active nest site. If establishment of the construction-free buffer zone is not practicable, appropriate conservation measures (as determined by a qualified biologist and approved by CDFW) shall be implemented. These measures may include but are not limited to consulting with CDFW to establish a different construction-free buffer zone around the active nest site, conducting daily biological monitoring of the active nest site, and delaying construction activities in the vicinity of the active nest site until the young have fledged.
- If burrowing owls are detected within the project area during the non-breeding season and maintaining a 150-foot, no-disturbance buffer is not practicable, a qualified biologist shall submit an exclusion and passive-relocation plan to CDFW for approval. The exclusion and passive-relocation plan will generally follow the guidelines outlined in Appendix E of the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). If occupied burrows are detected during the breeding season and maintaining a 250-foot no-disturbance buffer is not practicable, CDFW will be consulted to determine and approve alternative measures to minimize the potential for disturbance to occupied burrows and nesting activities. Measures may include but are not limited to continuous biological monitoring by a qualified biologist until it has been determined that the young have fledged and are no longer reliant on the nest or parental care for survival or construction is complete. No direct disturbance of burrows with eggs or young can be conducted without written authorization from CDFW and USFWS.
- For construction activities that occur between February 1 and August 31, a qualified biologist shall conduct pre-construction surveys for raptors. The pre-construction surveys will include the project footprint and a minimum of a 0.50-mile radius where access is permitted around the construction area in suitable nesting habitat (i.e., large trees). The preconstruction surveys shall be conducted no more than 10 days before ground disturbance in a given area and will be phased based on the construction schedule. If nesting raptors are detected, an appropriate no-disturbance buffer (initially set at 500 feet for raptors; reductions in the standard buffer for raptors may be allowed where circumstances suggest the birds will not abandon the active nest with a reduced buffer size. A qualified biologist will determine whether reducing the buffer is likely to substantially increase disturbance of nesting birds, taking into account the presence or absence of dense vegetation, topography, or structures that would block project activities from view; the life history and behavior of the bird species in question; and the nature of the proposed activity. If a reduced buffer is implemented, the biologist shall monitor bird behavior in relation to work activities. At a minimum, the biologist will monitor the baseline behavior of the birds for at least 30 minutes prior to the commencement of the work activity and for at least one hour immediately following the initiation of the work activity, when response by the nesting birds to the novel activity is expected to be greatest) shall be established and monitored by a qualified biologist. Buffers shall be maintained until a qualified biologist has determined that the young have fledged and are no longer reliant on the nest or parental care for survival.

- If construction results in permanent loss of alfalfa fields (high-quality foraging habitat for Swainson's hawk), this loss shall be mitigated; at a minimum of a 1:1 ratio. Mitigation shall occur in coordination with CDFW and may consist of but is not limited to purchasing mitigation credits from a CDFW-approved mitigation bank, obtaining conservation easements with appropriate provisions to maintain the land as suitable foraging habitat in perpetuity, establishing new alfalfa fields, or implementing other habitat conservation measures as approved by CDFW.

Mitigation Measure 3.5-1g: To protect special-status amphibians and reptiles, Contractors implementing actions in response to the proposed Guidelines shall implement the following measures:

- If western spadefoot is encountered during construction activities, it will be allowed to move out of harm's way of its own volition, or a qualified biologist will relocate it to the nearest suitable habitat that is at least 100 feet outside of the construction impact area.
- Prior to moving equipment at the start of a day, construction personnel shall inspect underneath parked vehicles and heavy machinery for amphibians or reptiles. If any are found, they will be allowed to move out of the construction area under their own volition, or a qualified biologist will relocate the organism(s) to the nearest suitable habitat that is at least 100 feet outside of the construction impact area.

Mitigation Measure 3.5-1h: To protect Crotch's bumble bee, Contractors implementing actions in response to the proposed Guidelines shall implement the following measures:

- If construction activities will involve conversion of grassland or shrublands, a survey for Crotch's bumble bee shall be conducted prior to construction activities during the Crotch's bumble bee active period (i.e., March to July).
- The survey will be a visual survey conducted by a qualified biologist who will search for Crotch's bumble bee activity and the presence of ground nests. If an active ground nest is observed, it shall be avoided. If avoidance of the active nest is not possible, CDFW will be consulted for approval of alternative measures to protect the Crotch's bumble bee.

Mitigation Measure 3.5-1i: To protect San Joaquin kit fox, Contractors implementing actions in response to the proposed Guidelines shall implement the following measures:

- Before the start of ground-disturbing activities within suitable habitat areas for San Joaquin kit fox (i.e., alkali desert scrub, annual grassland, pasture, barren) an approved biologist shall conduct preconstruction surveys in accordance with USFWS' *Standardized Recommendations for Protection of the San Joaquin Kit Fox prior to or during Ground Disturbance* (USFWS 2011). Preconstruction surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities or any project activity likely to impact the San Joaquin kit fox.
- If a natal/pupping den is discovered within the work area or within 200-feet buffer of the work area boundary, the USFWS shall be immediately notified and under no circumstances should the den be disturbed or destroyed without prior authorization from USFWS. If the preconstruction survey reveals an active natal/pupping den, the Contractor shall contact the Service immediately to obtain the necessary take authorization. No construction work shall be allowed within 200 feet of the newly discovered natal/pupping den without written approval from the Service.

Mitigation Measure 3.5-1j: To protect Tipton kangaroo rat, Contractors implementing actions in response to the proposed Guidelines shall implement the following measures:

- Before the start of construction, the approved biologist shall conduct a habitat assessment to determine presence of special-status small mammal species burrows or their signs. If no observations, burrows, or signs of special-status small-mammal species are detected, no further measures will be required.
- If burrows and signs of special-status small mammal species are observed, the approved biologist will conduct protocol-level surveys in accordance with *Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats* (USFWS 2013)
- If signs of Tipton kangaroo rat are detected during the survey, the Contractor, under the supervision of the approved biologist, shall establish non-disturbance exclusion zones (using wildlife exclusion fencing [e.g., a silt fence or similar material]). The non-disturbance exclusion fence with one-way exit/escape points shall be placed to exclude the Tipton kangaroo rat from the construction area.

Mitigation Measure 3.5-1k: To protect American badger, Contractors implementing actions in response to the proposed Guidelines shall implement the following measures:

- No more than 30 days before the start of construction activities, a qualified biologist shall conduct pre-construction surveys for American badgers within suitable habitat on the project site. If a potentially active den is found in a construction area, a burrow probe shall be used to determine the presence of badgers, or the den openings may be monitored with tracking medium or an infrared-beam camera for three consecutive nights to determine current use. Potential (inactive) dens within the limits of disturbance shall be blocked or excavated to prevent use during construction. If American badgers or active dens are detected during these surveys, the following measures shall be implemented.
- Disturbance of any American badger dens shall be avoided to the extent practicable. American badger dens are used for shelter, escape, cover, and reproduction, and are thus vital to the survival of American badgers. If present, occupied badger dens shall be flagged, and ground-disturbing activities avoided, within 50 feet of the occupied den during the nonbreeding season (July 1 through February 14). Dens determined to be occupied during the breeding season (February 15 through June 30) shall be flagged, and ground-disturbing activities avoided, within 200 feet to protect adults and nursing young. Buffers may be modified by a qualified biologist with the written concurrence of CDFW.
- If avoidance of an active non-maternity den is not feasible, badgers shall be relocated by slowly excavating the burrow (either by hand or with mechanized equipment under the direct supervision of a qualified biologist) before or after the rearing season (February 15 through June 30). Any passive relocation of American badgers shall occur only under the direction of a qualified biologist.

Findings for Impact 5.3-1: Implementation of Mitigation Measures 3.5-1(a) through 3.5-1(k), or equally effective measures, would reduce potential impacts on special-status species to a less-than-significant level because either habitat for special-status species would be avoided through siting of Contractor actions, or potential effects on species would be greatly minimized through implementation of minimization strategies (or would be offset through the purchase of off-site compensatory mitigation credits or through on-site restoration actions). Pursuant to Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1), the Board finds that changes or alterations have been required in, or incorporated into, the Guidelines which will avoid this significant effect or mitigate it to a

less than significant level as identified in the EIR. The Board has imposed Mitigation Measures 3.5-1(a) through 3.5-1(k) on the Guidelines as a condition of approval and implementation will be monitored through the MMRP.

Impact 3.5-2: Implementation of the proposed Guidelines could result in a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS.

In response to the proposed Guidelines, Contractors might need to take certain actions to comply with the proposed Guidelines. Actions may include construction and operation of small water treatment facilities (approximately the size of a shed) likely located adjacent to the Friant-Kern Canal right-of-way, or installation of water quality monitoring stations located in the Friant-Kern Canal itself. It is also possible that some actions could occur in areas within Contractors' boundaries. Construction activities could include site preparation involving removal of existing structures and facilities (e.g., distribution boxes, wells, ditches, standpipes, and pipes) and clearing of areas for establishment of new staging areas and potentially off-road haul routes. Ground and/or surface water disturbance could result in temporary damage to, or the permanent removal of sensitive natural communities located in and adjacent to the construction site. Affected sensitive natural communities could include seasonal wetlands, vernal pools, riparian forest and scrub, oak woodlands, and other sensitive communities.

Mitigation Measure 3.5-2: To avoid or minimize disturbance of sensitive natural communities, Contractors implementing actions in response to the proposed Guidelines shall implement the following measures:

- ***Avoidance of Sensitive Natural Communities*.** The proponent of the action will select sites that will avoid sensitive natural communities, including riparian habitats, by doing the following:
  - To the maximum extent practicable, project elements shall be designed to avoid effects on sensitive natural communities.
  - Flagging or fencing shall be installed by a qualified biologist around any sensitive natural community to be avoided by construction.
  - Flagging or fencing shall remain in place throughout the duration of the construction activities and will be inspected and maintained regularly by a qualified biologist until completion of construction activities. Fencing shall be removed when all construction equipment is removed from the site, the area is cleared of debris and trash, and the area is returned to natural conditions.
  - Where impacts on sensitive natural communities other than waters of the United States or state are unavoidable, impacts shall be compensated for by restoring and/or preserving in-kind sensitive natural communities on-site, or off-site at a nearby site, or by purchasing in-kind restoration or preservation credits from a mitigation bank.
- ***Restoration of Temporarily Affected Areas*.** For any areas temporarily affected by construction activities, the following measures shall be implemented:
  - Prepare a restoration plan for sites with temporary impacts, for review by CDFW.
  - Minimize soil disturbance and stockpile topsoil for later use in any areas to be graded.
  - Amend soil as necessary before installing replacement plants.
  - Use only native plant species for revegetation.

- ***Preservation of Large Trees*.** Existing native vegetation shall be retained as practicable, with special focus on the retention of shade-producing and bank-stabilizing trees and brush with greater than 6-inch-diameter branches or trunks. If large trees must be removed, compensation shall be implemented within 12 months of removal of such large trees. Compensation shall be implemented through one of three mechanisms or some combination thereof: (1) replacement via replanting at a minimum ratio of 1:1 based on a diameter-at-breast-height (DBH) basis, (e.g., planting six 1-inch DBH trees for a single, removed 6-inch DBH tree); (2) permanent preservation of large, native trees, which could include, but not be limited to, establishment of a conservation easement on lands that support native trees; or (3) contribution to the respective, established, approved tree conservation fund where the tree impact occurred.
- ***Avoidance of Excessive Soil Compaction*.** Wherever possible, vegetation disturbance and soil compaction shall be minimized by using low-ground-pressure equipment with a greater reach than other equipment, or that exerts less pressure per square inch on the ground.
- ***Materials and Methods of Native and Invasive Vegetation Removal*.** If riparian vegetation is removed with chain saws or other power equipment, machines that operate with vegetable-based bar oil will be used, if practicable. All invasive plant species (e.g., those rated as invasive by the California Invasive Plant Council or local problem species) shall, if feasible, be removed using locally and routinely accepted agricultural practices. Stockpiling of invasive plant materials is prohibited during the flood season.
- ***Revegetation of Disturbed Areas*.** All temporarily disturbed areas shall be de-compacted and seeded/planted with a mix of native riparian, wetland, and/or upland plant species suitable for the area. The proponent of the action shall develop a revegetation plan, including (as applicable) a schedule; plans for grading of disturbed areas to pre-construction contours; a planting palette with plant species native to the study area; invasive species management; performance standards; and maintenance requirements (e.g., watering, weeding, and replanting).

  Plants for revegetation shall come primarily from active seeding and planting; natural recruitment may also be proposed if site conditions allow for natural recruitment to reestablish vegetation and avoid potential negative risks associated with erosion and impacts on water quality. Plants imported to the restoration areas will come from local stock, and to the extent possible, from local nurseries. Only native plants (genera) will be used for restoration efforts. Certified weed-free native mixes and mulch will be used for restoration planting or seeding.
- ***Revegetation Materials and Methods*.** Following the completion of work, site contours shall be returned to preconstruction conditions or redesigned to provide increased biological and hydrological functions.
  - Any area barren of vegetation as a result of implementation of an action shall be restored to a natural state by mulching, seeding, planting, or other means with native trees, shrubs, willow stakes, erosion control native seed mixes, or herbaceous plant species.
  - Where disturbed, topsoil shall be conserved for reuse during restoration to the extent practicable.
  - Native plant species comprising a diverse community structure (plantings of both woody and herbaceous species, if both are present) that follow a CDFW-approved plant palette shall be used for revegetation of disturbed and compacted areas, as appropriate.

  - Irrigation may also be required to ensure the survival of shrubs, trees, or other vegetation.
  - Soils that have been compacted by heavy equipment shall be de-compacted, as necessary, to allow for revegetation.

- ***Materials and Methods of Revegetation Erosion Control*.** If erosion control fabrics are used in revegetated areas, they shall be slit in appropriate locations to allow for plant root growth. Only non-monofilament, wildlife-safe fabrics shall be used.
- ***Revegetation Monitoring and Reporting*.** All revegetated areas shall be maintained and monitored for a minimum of two years after replanting is complete and until success criteria are met, to ensure that the revegetation effort is successful. The standard for success is 60 percent absolute cover compared to an intact, local reference site. If an appropriate reference site cannot be identified, success criteria will be developed for review and approval by CDFW on a project-by-project basis based on the specific habitat affected and known recovery times for that habitat and geography. A summary report of the monitoring results and recommendations at the conclusion of each monitoring year shall be prepared.

Findings for Impact 5.3-2: Implementation of Mitigation Measures 3.5-2, or equally effective measures, would reduce impacts to existing sensitive natural community resources to a less-than-significant level through avoidance of such resources through project siting and through restoration of temporarily affected areas for construction areas associated with new water treatment facilities. Pursuant to Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1), the Board finds that changes or alterations have been required in, or incorporated into, the Guidelines which will avoid this significant effect or mitigate it to a less than significant level as identified in the EIR. The Board has imposed Mitigation Measures 3.5-2 on the Guidelines as a condition of approval and implementation will be monitored through the MMRP.

Impact 3.5-3: Implementation of the proposed Guidelines could result in a substantial adverse effect on state or federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means.

In response to the proposed Guidelines, Contractors might need to take certain actions to comply with the proposed Guidelines. Actions may include construction and operation of small water treatment facilities (approximately the size of a shed) likely located adjacent to the Friant-Kern Canal right-of-way, or installation of water quality monitoring stations located in the Friant-Kern Canal itself. It is also possible that some actions could occur in areas within Contractors' boundaries. Construction of these potential future actions could directly affect wetlands and waters depending on where they are sited, and/or could indirectly affect wetlands associated with potential siltation, chemical spills, or other discharges into waterways during construction. Habitat disturbance and permanent wetland loss could result from construction activities including general grading, recontouring, and removal of existing facilities (e.g., power poles, utility lines, and piping).

Mitigation Measure 3.5-3: To avoid or minimize disturbance to wetlands and waters, Contractors implementing actions in response to the proposed Guidelines shall implement the following measures:

- ***Avoidance of Jurisdictional Wetlands and Other Waters*.** Sites shall be selected that shall avoid, minimize, and if necessary, compensate for reduction in area and/or habitat quality of wetlands and jurisdictional waters, through the following measures:

- To the maximum extent practicable, elements of Contractor actions shall be designed to avoid effects on wetlands and other waters, including rivers, streams, vernal pools, and seasonal wetlands.
- Flagging or fencing shall be installed by a qualified biologist around any jurisdictional wetland or other aquatic feature to be avoided by construction.
- Flagging or fencing shall remain in place throughout the duration of construction and will be inspected and maintained regularly by a qualified biologist until completion of the project. Fencing shall be removed when all construction equipment is removed from the site, the area is cleared of debris and trash, and the area is returned to natural conditions.
- Staging areas, access roads, and other facilities shall be placed to avoid and limit disturbance to waters of the state and other aquatic habitats (e.g., streambank or stream channel, riparian habitat) as much as possible. When possible, existing ingress or egress points shall be used and/or work shall be performed from the top of the creek banks or from barges on the waterside of the stream or levee bank, or dry gravel beds.
- Wetlands and other waters of the United States, and waters of the state that would be removed, lost, and/or degraded shall be replaced, restored, or enhanced on a "no net loss" basis (in accordance with all permits secured from and related requirements imposed by USACE and State Water Board).

Findings for Impact 5.3-3: Implementation of Mitigation Measures 3.5-3, or equally effective measures, would reduce impacts to wetlands to a less-than-significant level through avoidance of wetlands at construction areas associated with new water treatment facilities. Pursuant to Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1), the Board finds that changes or alterations have been required in, or incorporated into, the Guidelines which will avoid this significant effect or mitigate it to a less than significant level as identified in the EIR. The Board has imposed Mitigation Measures 3.5-3 on the Guidelines as a condition of approval and implementation will be monitored through the MMRP.

Impact 3.5-5: Implementation of the proposed Guidelines could conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

In response to the proposed Guidelines, Contractors might need to take certain actions to comply with the proposed Guidelines. Actions may include construction and operation of small water treatment facilities (approximately the size of a shed) likely located adjacent to the Friant-Kern Canal right-of-way, or installation of water quality monitoring stations located in the Friant-Kern Canal itself. It is also possible that some actions could occur in areas within Contractors' boundaries. Depending on the specific location and design such actions could potentially conflict with local policies and ordinances.

> **Mitigation Measure 3.5-4:** To reduce potential conflicts with adopted local policies or ordinances protecting biological resources, Contractors implementing actions in response to the proposed Guidelines shall Implement Mitigation Measures 3.5-2 and 3.5-3.

Findings for Impact 5.3-4: Implementation of Mitigation Measures 3.5-4, or equally effective measures, would reduce impacts associated with potential conflicts with adopted local policies or ordinances protecting biological resources to a less-than-significant level. See also Findings for Impacts 3.5-2 and 3.5-3 above. Pursuant to Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1), the Board finds that changes or alterations have been required in, or incorporated into, the Guidelines which will avoid this significant effect or mitigate it to a less than significant level as identified

in the EIR. The Board has imposed Mitigation Measures 3.5-4 on the Guidelines as a condition of approval and implementation will be monitored through the MMRP.

4.1.2 Cultural Resources

Impact 3.6-1: Implementation of the proposed Guidelines could cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5.

In response to the proposed Guidelines, Contractors might need to take certain actions to comply with the proposed Guidelines. Actions may include construction and operation of small water treatment facilities (approximately the size of a shed) likely located within or adjacent to the Friant-Kern Canal right-of-way, or installation of water quality monitoring stations located in the Friant-Kern Canal itself. It is also possible that some actions could occur in areas within Contractors' boundaries. If construction and/or operation and maintenance activities were to result in either a direct impact (e.g., physical modification, damage, or destruction) or an indirect impact (e.g., alteration to setting, including visual) on any architectural resources that qualify as historical resources as defined in CEQA Guidelines Section 15064.5, the impact would be potentially significant.

> **Mitigation Measure 3.6-1a:** Before implementation of any construction-related activities associated with the proposed Guidelines, the need for an inventory and significance evaluation of architectural resources i shall be assessed, based upon the type of activity and the potential for architectural resources to be present or disturbed. The assessment shall consist of a review of maps and aerial photos to determine whether existing buildings, dams, levees, roads, or other built features are present. If so, and if these features either are of unknown age or are known to be older than 45 years old, then an inventory and evaluation shall be completed by, or under the direct supervision of, a qualified architectural historian, defined as one who meets the U.S. Secretary of the Interior's Professional Qualifications Standards (SOI PQS) for Architectural History or History. This inventory and evaluation shall include the following:
>
> a. Map(s) and verbal description of the project area that delineates both the horizontal and vertical extents of potential direct and indirect effects —on architectural resources.
>
> b. A records search at the appropriate repository of the California Historical Resources Information System (CHRIS) for the project area and vicinity (typically areas within 0.25 or 0.5 mile, based on setting), to acquire records of previously recorded cultural resources and previously conducted cultural resources studies. This task can be performed by either the qualified archaeologist or the appropriate local CHRIS center staff.
>
> c. Background research on the history of the project area and vicinity for all actions determined to need additional historical architecture assessment.
>
> d. If, after review, features of the built environment are determined to be less than 45 years old, inclusion in the description a summary statement of their age and references for this determination.
>
> e. If architectural resources (45 years of age or older) are determined to likely be present in or near the project area, an architectural field survey of the project area, unless previous architectural field surveys no more than two years old have been conducted for the project area, in which case a new field survey is not necessary. Any architectural resources identified in the project area during the survey shall be recorded on the appropriate California Department of Parks and Recreation (DPR) 523 forms (i.e., site record forms).

f. An evaluation of any architectural resources identified in the project area for California Register eligibility (i.e., whether they qualify as historical resources, as defined in CEQA Guidelines Section 15064.5).

g. An assessment of potential impacts on any historical resources identified in the project area. This shall include an analysis of whether potential impacts on the historical resource would be consistent with the *U.S. Secretary of the Interior's Standards for the Treatment of Historic Properties* and applicable guidelines.

h. A technical report meeting the U.S. Secretary of the Interior's Standards for architectural history technical reporting. This report shall document the mitigation measures taken and any study results. The report shall be submitted to the appropriate CHRIS repository for the project area upon approval by the CEQA lead agency.

Mitigation Measure 3.6-1b: If potentially significant impacts on historical resources are identified through implementation of Mitigation Measure 3.6-1a, an approach for reducing such impacts shall be developed before implementation of the action and in coordination with interested parties (e.g., historical societies, local communities). Typical measures for reducing impacts include:

a. Modification of the action to avoid impacts on historical resources.

b. Documentation of historical resources, to the standards of and to be included in the *Historic American Building Survey*, *Historic American Engineering Record*, or *Historic American Landscapes Survey*, as appropriate. As described in the above standards, the documentation shall be conducted by a qualified architectural historian, defined above, and shall include large-format photography, measured drawings, written architectural descriptions, and historical narratives. The completed documentation shall be submitted to the U.S. Library of Congress.

c. Relocation of historical resources in conformance with the *U.S. Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings*.

d. Monitoring of construction-related and operational vibrations at historical resources.

e. For historical resources that are landscapes, preservation of the landscape's historic form, features, and details that have evolved over time, in conformance with the *U.S. Secretary of the Interior's Guidance for the Treatment of Cultural Landscapes*.

f. Development and implementation of interpretive programs or displays, and community outreach.

Any technical report developed as part of this mitigation measure shall meet the U.S. Secretary of the Interior's Standards for architectural history technical reporting and shall be submitted to the appropriate CHRIS repository for the project area upon approval by the CEQA lead agency.

Findings for Impact 5.6-1: Implementation of Mitigation Measure 3.6-1a would require for construction-related activities an assessment of whether architectural resources that may qualify as historical resources, pursuant to CEQA Guidelines Section 15064.5, would be affected by these activities. If any historical resources that would be affected by the activities are identified through implementation of Mitigation Measure 3.6-1a, Mitigation Measure 3.6-1b would require modification of the proposed activities to avoid the historical resources or, if avoidance is not feasible, documentation or relocation of the historical resources that would be affected, and/or construction monitoring of the activities, and/or development of interpretive programs associated with the historical resources that would be affected. Implementation of Mitigation Measures 3.6-1a and 3.6-1b, or equally effective measures, would reduce

any potential impacts on historical resources to a less-than-significant level. Pursuant to Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1), the Board finds that changes or alterations have been required in, or incorporated into, the Guidelines which will avoid this significant effect or mitigate it to a less than significant level as identified in the EIR. The Board has imposed Mitigation Measures 3.6-1 on the Guidelines as a condition of approval and implementation will be monitored through the MMRP.

Impact 3.6-2: Implementation of the proposed Guidelines could cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.

In response to the proposed Guidelines, Contractors might need to take certain actions to comply with the proposed Guidelines. Actions may include construction and operation of small water treatment facilities (approximately the size of a shed) likely located within or adjacent to the Friant-Kern Canal right-of-way, or installation of water quality monitoring stations located in the Friant-Kern Canal itself. It is also possible that some actions could occur in areas within Contractors' boundaries. Construction of small water treatment facilities could involve ground disturbance which could partially or completely destroy archaeological resources as defined in CEQA Guidelines Section 15064.5.

> **Mitigation Measure 3.6-2a:** Before implementation of any construction-related activity that includes ground disturbance associated actions taken by Contractors in response to the proposed Guidelines, an archaeological records search and sensitivity assessment, and an inventory and significance evaluation of archaeological resources identified in the project area shall be conducted. The inventory and evaluation shall be done by or under the direct supervision of a qualified archaeologist, defined as one who meets the SOI PQS for Archeology, and shall include the following:
>
> a. Map(s) and verbal description of the project area that delineates both the horizontal and vertical extents of potential direct and indirect effects on archaeological resources.
>
> b. A records search at the appropriate CHRIS repository for the project area and vicinity (typically areas within 0.25 or 0.5 mile, based on setting) to acquire records of previously recorded cultural resources and previously conducted cultural resources studies. This task can be performed by either the qualified archaeologist or the appropriate local CHRIS center staff.
>
> c. Outreach to the NAHC, including a request of a search of the Sacred Lands File for the project area and a list of California Native American Tribes culturally and geographically affiliated with the project area, to determine whether any documented Native American sacred sites could be affected by the action.
>
> d. Consultation with California Native American Tribes pursuant to PRC Section 21080.3 to determine whether any indigenous archaeological resource or tribal cultural resources could be affected by the action. The CEQA lead agency shall consult with California Native American Tribes culturally and affiliated with the project area and who have requested to be notified by the CEQA lead agency regarding projects, pursuant to AB 52; this consultation shall consist of the CEQA lead agency providing written notification of the action to any such Tribes and follow-up consultation if any Tribes request, in writing, from the CEQA lead agency consultation on the action within 30 days of receiving the CEQA lead agency's initial notification. Consultation shall include discussion regarding the design of the action, cultural resources survey, protocols for construction monitoring, and any other Tribal concerns.

e. Background research on the history, including ethnography and indigenous presence, of the project area and vicinity.

f. An archaeological sensitivity analysis of the project area based on mapped geologic formations and soils, previously recorded archaeological resources, previous archaeological studies, and Tribal consultation.

g. An archaeological field survey of project area shall be conducted. The field survey shall include, at a minimum, a pedestrian survey. If the archaeological sensitivity analysis suggests a high potential for buried archaeological resources in the project area, a subsurface survey shall also be conducted. If previous archaeological field surveys no more than two years old have been conducted for the project area, a new field survey is not necessary, unless their field methods do not conform to those required above (e.g., no subsurface survey was conducted but project area has high potential for buried archaeological resources). Any archaeological resources identified in the project area during the survey shall be recorded on the appropriate DPR 523 forms (i.e., site record forms).

h. An evaluation of any archaeological resources identified in the project area for California Register eligibility (i.e., as qualifying as historical resources, as defined in CEQA Guidelines Section 15064.5) as well as whether they qualify as unique archaeological resources pursuant to PRC Section 21083.2. Such evaluation may require archaeological testing (excavation), potentially including laboratory analysis, and consultation with relevant California Native American Tribes (for indigenous resources).

i. An assessment of potential impacts on any archaeological resources identified in the project area that qualify as historical resources (per CEQA Guidelines Section 15064.5) and/or unique archaeological resources (per PRC Section 21083.2). This shall include an analysis of whether the potential impacts would materially alter a resource's physical characteristics that convey its historical significance and that justify its inclusion (or eligibility for inclusion) in the California Register or a qualified local register.

j. A technical report meeting the U.S. Secretary of the Interior's Standards for archaeological technical reporting. This report shall be submitted to the appropriate CHRIS repository for the project area upon approval by the CEQA lead agency unless the document contains information that any California Native American Tribes involved in its development determine should not be filed with the CHRIS, in which case the report shall be submitted to the NAHC.

Mitigation Measure 3.6-2b: If potentially significant impacts on archaeological resources that qualify as historical resources (per CEQA Guidelines Section 15064.5) and/or unique archaeological resources (per PRC Section 21083.2) are identified during an action implemented in response to the Guidelines, the Contractor implementing the action shall develop an approach for reducing such impacts, before implementing the action and in coordination with interested or consulting parties (e.g., California Native American Tribes [for indigenous resources], historical societies [for historic-era resources], local communities). Typical measures for reducing impacts include:

a. Modify the action to avoid impacts on resources.

b. Plan parks, green space, or other open space to incorporate the resources.

c. Develop and implement a detailed archaeological resources management plan to recover the scientifically consequential information from archaeological resources before any excavation at the resource's location. Treatment for most archaeological resources consists of (but is not necessarily limited to): sample excavation, artifact collection, site

documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the resource to be affected by the action. The archaeological resources management plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and state repositories, libraries, and interested professionals.

d. Develop and implement interpretive programs or displays and conduct community outreach.

Any technical report developed as part of this mitigation measure shall meet the U.S. Secretary of the Interior's Standards for archaeological technical reporting and shall be submitted to the appropriate CHRIS repository for the project area upon approval by the CEQA lead agency unless the document contains information that any California Native American Tribes involved in its development determine should not be filed with the CHRIS, in which case the report shall be submitted to the NAHC.

Mitigation Measure 3.6-2c: Before any ground-disturbing construction activities related to actions implemented by Contractors in response to the Guidelines, an archaeologist meeting, or under the supervision of an archaeologist meeting, the SOI PQS for Archeology shall conduct a training program for all construction field personnel involved in the ground-disturbing activities. If a California Native American Tribe expresses interest, the CEQA lead agency shall invite the Tribe to participate in the training program. On-site personnel shall attend the training before the start of any ground-disturbing activities. The training shall outline the general archaeological sensitivity of the project area and the procedures to follow in the event that archaeological resources and/or human remains are inadvertently discovered during construction (see Mitigation Measures 3.6-2d and 3.6-2e). Documentation of the training attendance shall be maintained by the CEQA lead agency.

Mitigation Measure 3.6-2d: If archaeological resources are encountered during construction activities, all activity within 100 feet of the find shall cease and the find shall be flagged for avoidance. The CEQA lead agency and a qualified archaeologist, defined as one meeting the SOI PQS for Archeology, shall be immediately informed of the discovery. The qualified archaeologist shall inspect the discovery and notify the CEQA lead agency of their initial assessment. If the qualified archaeologist determines that the resource is or is potentially indigenous in origin, the CEQA lead agency shall consult with California Native American Tribes culturally and geographically affiliated with the project area to assess the find and determine whether it is potentially a tribal cultural resource.

If the CEQA lead agency determines based on recommendations from the qualified archaeologist—and, if the resource is indigenous, from California Native American Tribes culturally and geographically affiliated with the project area—that the resource may qualify as a historical resource (per CEQA Guidelines Section 15064.5), unique archaeological resource (per PRC Section 21083.2), or tribal cultural resource (per PRC Section 21074), then the resource shall be avoided if feasible. If avoidance of an identified indigenous resource is not feasible, the lead agency shall consult with a qualified archaeologist, culturally affiliated California Native American Tribes, and other appropriate interested parties to determine treatment measures to minimize or mitigate any potential impacts on the resource pursuant to PRC Section 21083.2 and CEQA Guidelines Section 15126.4.

Once treatment measures have been determined, the CEQA lead agency shall prepare and implement an archaeological (and/or tribal cultural) resources management plan that outlines

the treatment measures for the resource. Treatment measures typically consist of the following steps:

a. Determine whether the resource qualifies as a historical resource (per CEQA Guidelines Section 15064.5), unique archaeological resource (per PRC Section 21083.2), or tribal cultural resource (per PRC Section 21074) through analysis that could include additional historical or ethnographic research, evaluative testing (excavation), or laboratory analysis.

b. If the resource qualifies as a historical resource (per CEQA Guidelines Section 15064.5) and/or unique archaeological resource (per PRC Section 21083.2), implement measures for avoiding or reducing impacts such as the following:

    i. Modify the action to avoid impacts on resources.

    ii. Plan parks, green space, or other open space to incorporate resources.

    iii. Recover the scientifically consequential information from the archaeological resource before any excavation at the resource's location. This typically consists of (but is not necessarily limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the resource to be affected by the action.

    iv. Develop and implement interpretive programs or displays.

c. If the resource qualifies as a tribal cultural resource (per PRC Section 21074), implement measures for avoiding or reducing impacts such as the following:

    i. Avoid and preserve the resource in place through measures that include but are not limited to the following:

        a. Plan and construct the action to avoid the resource and protect the cultural and natural context.

        b. Plan green space, parks, or other open space to incorporate the resources with culturally appropriate protection and management criteria.

    ii. Treat the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, through measures that include but are not limited to the following:

        a. Protect the cultural character and integrity of the resource.

        b. Protect the traditional use of the resource.

        c. Protect the confidentiality of the resource.

    iii. Implement permanent conservation easements or other interests in real property, with cultural appropriate management criteria for the purposes of preserving or using the resource or place.

Any technical report developed as part of this mitigation measure shall meet the U.S. Secretary of the Interior's Standards for archaeological technical reporting and shall be submitted to the appropriate CHRIS repository for the project area upon approval by the CEQA lead agency unless the document contains information that any California Native American Tribes involved in its development determine should not be filed with the CHRIS, in which case the report shall be submitted to the NAHC.

Findings for Impact 3.6-2: Implementation of Mitigation Measure 3.6-2a would require for construction work an assessment of whether such work would affect archaeological resources that may qualify as

historical resources, pursuant to CEQA Guidelines Section 15064.5, or unique archaeological resources, pursuant to PRC Section 21083.2. If any such resources that would be affected are identified through implementation of Mitigation Measure 3.6-2a, Mitigation Measure 3.6-2b would require that the action be modified to avoid the archaeological resources or, if avoidance is not feasible, that an archaeological resources management plan for the affected archaeological resources be developed and implemented. Additionally, implementation of Mitigation Measure 3.6-2c would require a cultural resources awareness training for construction personnel involved in ground-disturbing activities, and Mitigation Measure 3.6-2d would require implementation of a protocol for assessment and treatment of any potential archaeological resources identified during construction activities. Implementation of Mitigation Measures 3.6-2a to 3.6-2d, or equally effective measures, would reduce any potential impacts on archeological resources, pursuant to CEQA Guidelines Section 15064.5, to a less-than-significant level. Pursuant to Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1), the Board finds that changes or alterations have been required in, or incorporated into, the Guidelines which will avoid this significant effect or mitigate it to a less than significant level as identified in the EIR. The Board has imposed Mitigation Measures 3.6-1 on the Guidelines as a condition of approval and implementation will be monitored through the MMRP.

Impact 3.6-3: Implementation of the proposed Guidelines could disturb human remains, including those interred outside of dedicated cemeteries.

In response to the proposed Guidelines, Contractors might need to take certain actions to comply with the proposed Guidelines. Actions may include construction and operation of small water treatment facilities (approximately the size of a shed) likely located within or adjacent to the Friant-Kern Canal right-of-way, or installation of water quality monitoring stations located in the Friant-Kern Canal itself. It is also possible that some actions could occur in areas within Contractors' boundaries. Construction of small water treatment facilities could involve ground disturbance which could affect human remains.

> **Mitigation Measure 3.6-3:** If human remains are encountered during construction activities, all work shall immediately halt within 100 feet of the find and the CEQA lead agency shall contact the appropriate county coroner to evaluate the remains and follow the procedures and protocols set forth in CEQA Guidelines Section 15064.5(e)(1). If the coroner determines that the remains are Native American in origin, the appropriate county shall contact the NAHC, in accordance with HSC Section 7050.5(c) and PRC Section 5097.98. Per PRC Section 5097.98, the CEQA lead agency shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, of the location of the Native American human remains is not damaged or disturbed by further development activity until the CEQA lead agency has discussed and conferred, as prescribed in PRC Section 5097.98, with the most likely descendants and the property owner regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. Any technical report developed as part of this mitigation measure shall meet the U.S. Secretary of the Interior's Standards for archaeological technical reporting and shall be submitted to the NAHC and the appropriate CHRIS repository for the project area upon approval by the CEQA lead agency unless the document contains information that any California Native American Tribes involved in its development determine should not be filed with the CHRIS, in which case the report shall be submitted only to the NAHC.

Findings for Impact 3.6-3: Implementation of Mitigation Measure 3.6-3 would require implementation of a protocol for assessment and treatment of any potential human remains identified during construction activities. Implementation of Mitigation Measures 3.6-2a through 3.6-2d (described above and 3.6-3, or equally effective measures, would reduce any potential impacts on human remains to a less-than-significant level. Pursuant to Public Resources Code Section 21081(a)(1) and

CEQA Guidelines Section 15091(a)(1), the Board finds that changes or alterations have been required in, or incorporated into, the Guidelines which will avoid this significant effect or mitigate it to a less than significant level as identified in the EIR. The Board has imposed Mitigation Measures 3.6-3 on the Guidelines as a condition of approval and implementation will be monitored through the MMRP.

4.1.3 Noise

In response to the proposed Guidelines, Contractors might need to take certain actions to comply with the proposed Guidelines. Actions may include construction and operation of small water treatment facilities (approximately the size of a small shed) likely located adjacent to the Friant-Kern Canal right-of-way, or installation of water quality monitoring stations located in the Friant-Kern Canal itself. It is also possible that some actions could occur in areas within Contractors' boundaries. Construction activities could include the use of haul trucks and heavy equipment. Construction activities and movement of equipment would involve temporary noise sources. Given the limited size of potential actions and because noise associated with construction activities would be short-term and intermittent, actions in response to the implementation of the proposed Guidelines are not likely to result in the generation of a substantial temporary or permanent increase in ambient noise levels in the study area in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Operational and maintenance activities would be similar to existing conditions and would not result in the generation of a substantial temporary or permanent increase in ambient noise levels in the study area. Operational and maintenance activities would be similar to existing conditions and would not result in the generation of a substantial temporary or permanent increase in ambient noise levels in the study area.

Mitigation Measure 3.13-1: The following measures shall be implemented during construction of any actions implemented by Contractors in response to the proposed Guidelines:

- Noise- and vibration-generating activities shall comply with the applicable general plan and/or noise ordinances for the jurisdiction located within the vicinity of the project.
- Construction equipment shall be located as far away as possible from noise-sensitive receptors to the extent feasible, to reduce noise levels below applicable local standards.
- Construction equipment shall be maintained to manufacturers' recommended specifications, and all construction vehicles and equipment shall be equipped with appropriate mufflers and other approved noise control devices.
- Idling of construction equipment shall be limited to the extent feasible to reduce the time that noise is emitted.
- An individual traffic noise analysis of identified haul routes shall be conducted and mitigation, including but not limited to measures such as reduced speed limits, shall be provided at locations where noise standards cannot be maintained for noise-sensitive receptors.
- The action shall incorporate the use of temporary noise barriers, such as acoustical panel systems, between construction activities and noise-sensitive receptors if it is concluded that they would be needed to ensure compliance with applicable noise standards and effective in reducing noise exposure to sensitive receptors.

Findings for Impact 3.13-1: Implementing Mitigation Measure 3.13-1, or equally effective measures, would reduce the potential impact related to a temporary increase in ambient noise levels from construction of actions to a less-than-significant level. Pursuant to Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1), the Board finds that changes or alterations have

been required in, or incorporated into, the Guidelines which will avoid this significant effect or mitigate it to a less than significant level as identified in the EIR. The Board has imposed Mitigation Measures 3.13-1 on the Guidelines as a condition of approval and implementation will be monitored through the MMRP.

Impact 3.13-2: Implementation of the proposed Guidelines could result in the generation of excessive groundborne vibration or groundborne noise levels.

In response to the proposed Guidelines, Contractors might need to take certain actions to comply with the proposed Guidelines. Actions may include construction and operation of small water treatment facilities (approximately the size of a small shed) likely located adjacent to the Friant-Kern Canal right-of-way, or installation of water quality monitoring stations located in the Friant-Kern Canal itself. It is also possible that some actions could occur in areas within Contractors' boundaries. Construction activities would typically take place during daylight hours when construction-related noise increases would be smaller than those during nighttime hours. Given the limited size of actions, the short-term and intermittent nature of construction activities, and the fact that most actions would likely occur far from residential areas and other sensitive receptors during the day (as discussed in Impact 3.13-1), construction activities are not likely to result in the generation of excessive groundborne vibration or groundborne noise levels. Operational and maintenance activities would be similar to existing conditions and would not result in the generation of excessive groundborne vibration or groundborne noise levels in the study area.

Mitigation Measure 3.13-2: Implement Mitigation Measure 3.13-1 (see above).

Findings for Impact 3.13-2: Implementation of Mitigation Measure 3.13-2, or equally effective measures, would reduce the potential impact related to exposure of noise-sensitive receptors to excessive groundborne vibration or noise levels from construction of actions to a less-than-significant level because construction equipment would be located as far away as possible from noise-sensitive receptors to the extent feasible, construction equipment would be maintained to manufacturers' recommended specifications, and idling of construction equipment would be limited to the extent feasible. Pursuant to Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1), the Board finds that changes or alterations have been required in, or incorporated into, the Guidelines which will avoid this significant effect or mitigate it to a less than significant level as identified in the EIR. The Board has imposed Mitigation Measures 3.13-2 on the Guidelines as a condition of approval and implementation will be monitored through the MMRP.

4.1.4 Tribal Cultural Resources

Impact 3.15-1: Implementation of the proposed Guidelines could cause a substantial adverse change in the significance of a tribal cultural resource, as defined in PRC Section 21074.

in response to the proposed Guidelines, Contractors might need to take certain actions to comply with the proposed Guidelines. Actions may include construction and operation of small water treatment facilities (approximately the size of a shed) likely located within or adjacent to the Friant-Kern Canal right-of-way, or installation of water quality monitoring stations located in the Friant-Kern Canal itself. It is also possible that some actions could occur in areas within Contractors' boundaries. Potential construction of small water treatment facilities could involve ground disturbance and may also affect the biological resources community, visual setting, noise levels, and air quality, among other resources. Such activities are the type that have the potential to affect tribal cultural resources through their partial or complete destruction, introduction of new visual elements to landscapes associated with or composing tribal cultural resources and impacts on biological resources associated with or composing

tribal cultural resources. Construction of small water treatment facilities could partially or completely destroy archaeological resources that may compose tribal cultural resources or could result in as-yet-unidentified impacts on tribal cultural resources if construction were to occur on undisturbed land.

> **Implement Mitigation Measures 3.6-2a, 3.6-2b, 3.6-2c, 3.6-2d, and 3.6-3**. (See above under 4.1.2 Cultural Resources).

Findings for Impact 3.15-1: Implementation of Mitigation Measure 3.6-2a would require for construction-related activities consultation with California Native American Tribes, as well as identification and evaluation of archaeological resources, including any that may qualify as tribal cultural resources. Mitigation Measure 3.6-2b would require additional consultation with California Native American Tribes regarding avoidance of any indigenous archaeological resources, and if avoidance is not feasible, development and implementation of an archaeological resources management plan for the archaeological resources that would be affected. Implementation of Mitigation Measure 3.6-2c would require a cultural resources awareness training for construction personnel involved in ground-disturbing activities, and Mitigation Measure 3.6-2d would require implementation of a protocol for assessment and treatment, including consultation with California Native American Tribes, if the resource is indigenous, of any potential archaeological resources identified during construction activities. Mitigation Measure 3.6-3 would require implementation of a protocol for assessment and treatment of any potential human remains, including any that may be Native American in origin and may constitute a tribal cultural resource, identified during construction activities. Implementation of Mitigation Measures 3.6-2a through 3.6-2d and 3.6-3, or equally effective measures, would reduce any potential impacts on tribal cultural resources associated with construction of actions by Contractors in response to the proposed Guidelines to a less-than-significant level. Pursuant to Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1), the Board finds that changes or alterations have been required in, or incorporated into, the Guidelines which will avoid this significant effect or mitigate it to a less than significant level as identified in the EIR. The Board has imposed Mitigation Measures 3.15-1on the Guidelines as a condition of approval and implementation will be monitored through the MMRP.

5. ENVIRONMENTAL EFFECTS FOUND TO BE LESS THAN SIGNIFICANT OR HAVE NO IMPACT

This section identifies impacts of the project that are less than significant or would have no impact, and do not require mitigation measures. Based on information in the EIR, the Board finds that based upon substantial evidence in the record, the following impacts have been determined to be less than significant or no impact: aesthetics; agriculture and forestry resources; air quality; biological resources, energy resources; geology, soils and paleontological resources; greenhouse gas (GHG) emissions; hazards and hazardous materials; hydrology and water quality; land use and planning; mineral resources; population and housing; public services; recreation; transportation; utilities and service systems; and wildfire.

5.1 AESTHETICS

Impact 3.2-1: Implementation of the proposed Guidelines could have a substantial adverse effect on a scenic vista.

While construction could have an adverse effect on a scenic vista, construction would be short term and within a limited footprint. Given the limited size of potential facilities and the existing land uses in the study area, potential actions are not likely to have a substantial adverse effect on a scenic vista. Operational and maintenance activities, such as water meter installation and water mixing, would be

similar to existing conditions and would not significantly change the visual character of the Friant-Kern Canal or the surrounding viewsheds.

Findings for Impact 3.2-1: The Board finds that, based upon substantial evidence in the record, the potential impact on a scenic vista is less than significant and no mitigation measures are required.

Impact 3.2-2: Implementation of the proposed Guidelines could substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

County goals and policies are in place in the study area to protect scenic resources such as trees, rock outcroppings, and historic buildings within a state scenic highway. Construction activities and features and operational and maintenance activities would be implemented under the guidance of these general plan goals and policies.

Findings for Impact 3.2-2: The Board finds that, based upon substantial evidence in the record, the potential impact on scenic resources is less than significant and no mitigation measures are required.

Impact 3.2-3: Implementation of the proposed Guidelines could, in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings. In an urbanized area, implementation of the proposed Guidelines could conflict with applicable zoning and other regulations governing scenic quality.

Constructed facilities would have a limited size and are likely to be installed near existing water supply facilities, in primarily agricultural areas. Actions would not conflict with existing zoning or other regulations governing scenic quality in urban areas, given the limited size of potential facilities and the largely rural location of the Friant-Kern Canal and adjacent study area. Operational and maintenance activities and Friant actions (metering and water mixing) would be similar to existing conditions. They are not likely to substantially degrade the existing visual character and quality of public views of the site and its surroundings.

Findings for Impact 3.2-3: The Board finds that, based upon substantial evidence in the record, the potential impact on the visual character or quality of public views of the site and its surroundings is less than significant and no mitigation is required.

Impact 3.2-4: Implementation of the proposed Guidelines could create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Construction and operation of small water treatment facilities would likely occur away from residential areas and other areas with views and would typically take place during daylight hours. Given the limited size and scale of facilities and the general protection measures provided by local goals and policies, there would not have an adverse effect on day or nighttime views in the area.

Findings for Impact 3.2-4: The Board finds that, based upon substantial evidence in the record, the potential impact on the creation of substantial light or glare that would adversely affect day or nighttime views is less than significant and no mitigation measures are required.

5.2 AGRICULTURE AND FORESTRY RESOURCES

Conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production; or result in loss of forest land or conversion of forest land to non-forest use.

The study area is not located in forested areas or areas zoned as forest land, timberland, or timberland zoned Timberland Production.

Findings: The Board finds that, based upon substantial evidence in the record, no impact would occur related to conflicts with the existing zoning of forest land, timberland, or timberland zoned Timberland Production.

Impact 3.3-1: Implementation of the proposed Guidelines could convert Farmland to nonagricultural use or conflict with a Williamson Act contract or zoning for agricultural use.

Temporary construction activities associated with potential future actions are not likely to result in the permanent conversion of Farmland to nonagricultural use, given their limited size. Operational and maintenance activities would be similar to existing conditions and would not result in conversion of Farmland to nonagricultural use or conflict with a Williamson Act contract or zoning for agricultural use. The proposed Guidelines would serve agricultural and domestic interests by protecting water quality in the Friant-Kern Canal for sustained use.

Findings for Impact 3.3-1: The Board finds that, based on substantial evidence in the record, potential conflicts with Williamson Act contract or zoning for agricultural use is less than significant and no mitigation measures are required.

Impact 3.3-2: Implementation of the proposed Guidelines could involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to nonagricultural use.

The proposed Guidelines would serve agricultural and domestic interests by protecting water quality for sustained use. Actions taken would be considered consistent uses of the agricultural zones and would not result in the conversion of Farmland given that facilities would be of limited size. Also, they are likely to be installed near existing water supply facilities that are in developed or disturbed areas and that are not actively farmed. Operational and maintenance activities would be similar to existing conditions.

Findings for Impact 3.3-2: The Board finds that, based on substantial evidence in the record, potential conversion of Farmland to nonagricultural use is less than significant impact and no mitigation measures are required.

5.3 AIR QUALITY

Impact 3.4-1: Implementation of the proposed Guidelines could conflict with or obstruct implementation of the applicable air quality plan.

Construction and operational activities would be required to comply with existing rules and regulations, including the San Juaquin Valley Air Pollution Control District (SJVAPCD) air quality management plans, and applicable general plans. Additionally, the nature of the construction activities are small, short-term, and temporary. Therefore, the potential actions would be consistent with SJVAPCD's and state regulations and would not conflict with or obstruct implementation of the air quality plans.

Findings for 3.4-1: The Board finds that, based on substantial evidence in the record, the potential to conflict with or obstruct implementation of the applicable air quality plan is less than significant and no mitigation measures are required.

Impact 3.4-2: Implementation of the proposed Guidelines could result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

Short-term, temporary construction activities could temporarily emit pollutants (e.g., small water treatment facilities, water quality monitoring stations); however, it is anticipated that any emissions would not result in a cumulatively considerable net increase.

Findings for 3.4-2: The Board finds that, based on substantial evidence in the record, the potential for a cumulatively considerable net increase of any criteria pollutant is less than significant and no mitigation measures are required.

Impact 3.4-3: Implementation of the proposed Guidelines could expose sensitive receptors to substantial pollutant concentrations.

Construction activities would not expose sensitive receptors to substantial pollutant concentrations given the temporary nature of construction and the small size of the potential projects, and it is anticipated that any emissions would not result in substantial pollutant concentrations.

Findings for 3.4-3: The Board finds that, based on substantial evidence in the record, the potential to expose sensitive receptors to substantial pollutant concentrations is less than significant and no mitigation measures are required.

Impact 3.4-4: Implementation of the proposed Guidelines could result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Given the types of potential actions anticipated to be implemented in response to the proposed Guidelines and the rural locations of these potential actions, it is anticipated that any emissions would not create objectionable odors adversely affecting a substantial number of people.

Findings for 3.4-4: The Board finds that, based on substantial evidence in the record, the potential for emissions (such as those leading to odors) adversely affecting a substantial number of people is less than significant and no mitigation measures are required.

5.4 BIOLOGICAL RESOURCES

Conflict with the provisions of an adopted HCP, natural community conservation plan, or other approved local, regional, or state HCP.

Although the study area lies within the boundaries of the Pacific Gas and Electric Company (PG&E) Operation and Maintenance Habitat Conservation Plan area (O&M HCP), the construction activities that could be conducted by Contractors in response to the proposed Guidelines are not covered activities under the PG&E O&M HCP, which is applicable only to PG&E facilities.

Findings: The Board finds that, based upon substantial evidence in the record, no impact would occur related to conflicts with provisions of adopted HCPs and no mitigation measures are required.

Impact 3.5-4: Implementation of the proposed Guidelines could interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Water quality monitoring stations would be installed within the Friant-Kern Canal. Wildlife corridors for terrestrial wildlife species could be affected during installation of new small water treatment facilities located adjacent to or near the Friant-Kern Canal or other areas within Contractors' boundaries. The installation of new small water treatment facilities could affect the ability of wildlife to move between areas that are important for different life history functions, such as reproduction and feeding behaviors. Most of the impacts from construction on the movement of wildlife would be temporary. There could be a longer-term impact on local and migratory movement of wildlife if existing vegetation within a wildlife migratory corridor is permanently removed. The small scale of development associated with the individual new water treatment facilities greatly reduces the likelihood that they would have a substantive effect on migration and movement of terrestrial wildlife. General operational activities necessary to support the functionality of constructed facilities would primarily include regularly scheduled inspections and evaluation of facility performance. The level of activity associated with operations and maintenance would be similar to existing conditions and would not adversely affect migration or movement conditions for wildlife.

Findings for Impact 3.5-4: The Board finds that, based upon substantial evidence in the record, the potential impact to interference with wildlife movement is less than significant and no mitigation measures are required.

5.5 CULTURAL RESOURCES

Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5; or disturbance of human remains.

Operational and maintenance-related activities associated with actions that could be implemented by Contractors in response to the proposed Guidelines would be similar to existing conditions with respect to archaeological resources and human remains. Therefore, these are not the types of activities with potential to cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.

Findings for Cultural Resources: The Board finds that, based upon substantial evidence in the record, no impact would occur related to a substantial change of archaeological resources pursuant to CEQA Guidelines Section 15064.5 associated with operation and maintenance activities and no mitigation measures are required.

5.6 ENERGY

Impact 3.7-1: Implementation of the proposed Guidelines could result in the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation.

The amount of time needed for construction would likely range from as short as a few days to a couple of weeks. Therefore, energy use for construction of potential actions would be temporary and minimal compared to the total amount of direct and indirect energy used in the study area. It is assumed that any additional operational energy demand would be similar to existing conditions and would not be anticipated to result in a substantial increase in energy use over existing conditions. Given the nature of construction and operations, it is anticipated that energy use would be efficient and minimal and would not result in wasteful, inefficient, or unnecessary consumption of energy resources.

Findings for Impact 3.7-1: The Board finds that, based on substantial evidence in the record, the potential for wasteful, inefficient, or unnecessary consumption of energy resources is less than significant and no mitigation measures are required.

Impact 3.7-2: Implementation of the proposed Guidelines could conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Energy use for construction activities would be temporary and minimal compared to the total amount of direct and indirect energy used in the study area. Energy use for operations and maintenance would not be anticipated to result in a substantial increase in energy use over existing conditions and would be efficient. Therefore, it is not anticipated to conflict with or obstruct state and local plans for renewable energy or energy efficiency.

Findings for 3.7-2: The Board finds that, based on substantial evidence in the record, the potential to conflict with or obstruct a state or local plan for renewable energy or energy efficiency is less than significant and no mitigation measures are required.

5.7 GEOLOGY AND SOILS AND PALEONTOLOGY

Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

None of the proposed actions would involve construction of habitable structures that could require the use of septic tanks.

Findings: The Board finds that, based upon substantial evidence in the record, no impact would occur related to the use of septic tanks or alternative wastewater disposal systems and no mitigation measures are required.

Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.

The soil conditions throughout the study area vary widely. Soil expansion generally occurs in fine-grained clayey sediments, which could be present within the study area. However, no new homes or businesses are proposed that would pose substantial direct or indirect risks to life or property due to potential effects of expansive soils on such occupancies.

Findings: The Board finds that, based upon substantial evidence in the record, no impact would occur related to expansive soil and no mitigation measures are required.

Impact 3.8-1: Implementation of the proposed Guidelines could directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death due to fault rupture, strong seismic ground shaking, seismic-related ground failure or landslides.

The study area is located in a moderately active seismic area, however the risk of ground failure due to fault rupture is considered low because no active faults are known to cross the study area. Seismic-related liquefaction is not expected for most of the study area due to the deep groundwater table. Because potential water treatment facilities would be small it is assumed that any required excavation would be minor and would not encounter shallow groundwater, and therefore would not be subject to liquefaction associated with a seismic event. The study area is not located in or near areas at-risk for landslides, nor would any actions involve the construction of habitable structures.

Findings for Impact 3.8-1: The Board finds that, based on substantial evidence in the record, the potential to cause direct or indirect substantial adverse effects due to fault rupture, strong seismic ground shaking, seismic-related ground failure or landslides is less than significant and no mitigation measures are required.

Impact 3.8-2: Implementation of the proposed Guidelines could result in substantial soil erosion or the loss of topsoil.

Because potential facilities would be small, ground disturbance associated with construction activities would be minor and associated soil erosion and potential loss of topsoil would also be minor. Further, disturbance of one acre or more during construction would be subject to the requirements of the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharge Associated with Construction and Land Disturbance Activities (Construction General Permit). Operational and maintenance activities would be similar to existing conditions and also would not result in substantial soil erosion or loss of topsoil.

Findings for3.8-2: The Board finds that, based on substantial evidence in the record, the potential to result in substantial soil erosion or the loss of topsoil is less than significant and no mitigation measures are required.

Impact 3.8-3: Implementation of the proposed Guidelines could be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

Potential facilities could be located in areas subject to the potential effects of unstable soil. However, new facilities would not require extensive construction, or any soil-excavation. The study area is not located in any known landslide-prone areas and is located in relatively stable soil; and therefore would not be subject to the damaging effects of these hazards.

Findings for Impact 3.8-3: The Board finds that, based on substantial evidence in the record, the potential for facilities to be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse is less than significant and no mitigation measures are required.

Impact 3.8-4: Implementation of the proposed Guidelines could directly or indirectly destroy a unique paleontological resource or site or unique geologic features.

Given that potential water treatment facilities would be small, and any required excavation would be minor and the majority of the study area is already located in a highly disturbed landscape, the potential to destroy a unique paleontological resource or a unique geologic feature would be minimal.

Findings for Impact 3.8-4: The Board finds that, based on substantial evidence in the record, the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic features is less than significant and no mitigation measures are required.

5.8 GREENHOUSE GAS EMISSIONS

Impact 3.9-1: Implementation of the proposed Guidelines could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Construction equipment exhaust, as required by certain Contractor actions, haul trips, and construction worker commuting associated with these construction activities could generate GHG emissions. Operational and maintenance-related emissions would be similar to existing conditions and therefore would not be anticipated to result in an increase in any long-term or permanent GHG emissions. Construction GHG emissions will be determined using the California Emissions Estimator Model (CalEEMod) to determine if emissions would be less than the 1,100 metric tons of carbon dioxide equivalent (MTCO2e) threshold established by Sacramento Metropolitan Air Quality Management

District (SMAQMD). Operational and maintenance-related emissions would also be quantified to ensure additional electricity demand does not increase GHG emissions under existing conditions. It is anticipated that any emissions would not generate substantial GHG emissions beyond the approved quantitative threshold.

Findings for Impact 3.9-1: The Board finds that, based on substantial evidence in the record, the potential to generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment is less than significant and no mitigation measures are required.

Impact 3.9-2: Implementation of the proposed Guidelines could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Short-term, temporary construction activities could result in GHG emissions. The quantitative significance threshold developed by SMAQMD is considered sufficient to meet the state's GHG emission reduction goals as outlined in the applicable plans, policies and regulations and reduction goals set by AB 32, SB 32, the Scoping Plan, and Executive Orders. Detailed characteristics of potential actions would be used to quantify GHG emissions to determine whether the action would generate GHG emissions that may conflict with an applicable GHG plan, policy, or regulation. Operational and maintenance-related emissions should also be quantified to ensure additional electricity demand does not increase GHG emissions under existing conditions. It is anticipated that emission estimates would not generate substantial GHG emissions beyond the approved quantitative threshold.

Findings for 3.9-2: The Board finds that, based on substantial evidence in the record, the potential to conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases is less than significant and no mitigation measures are required.

5.9 HAZARDS AND HAZARDOUS MATERIALS

Result in a safety hazard or excessive noise for people residing or working in the study area within 2 miles of an airport.

Potential actions would be of limited size, and construction activities would be of short-term duration and would require nominal construction personnel. Furthermore, no occupied structures would be constructed. Therefore, there would be no people residing or working in the study area that would be exposed to a safety hazard or excess noise levels.

Findings: The Board finds that, based upon substantial evidence in the record, no impact would occur related to a safety hazard or excessive noise for people residing or working in the study area within 2 miles of an airport and no mitigation measures are required.

Impact 3.10-1: Implementation of the proposed Guidelines could involve the routine transport, use, or disposal of hazardous materials that, if accidentally released, could create a hazard to the public or the environment, or that could be located within one-quarter mile of a school.

Facilities would be of limited size and construction activities would be short-term and intermittent, the likelihood of creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials in the study area during construction is low. Numerous laws and regulations govern the transport, use, storage, handling and disposal of hazardous materials to reduce the potential hazards associated with these activities. Compliance with existing regulatory requirements would minimize the risk of accidental release of hazardous materials.

Findings for Impact 3.10-1: The Board finds that, based on substantial evidence in the record, the potential to create a hazard to the public or the environment, or be located within one-quarter mile of a school is less than significant and no mitigation measures are required.

Impact 3.10-2: Implementation of the proposed Guidelines could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Construction activities would be required to comply with applicable laws and regulations governing the use, transport, storage, and disposal of small amounts of hazardous materials to minimize risks of release of hazardous materials. Valley fever fungi are known to be present year-round in soils in the study area. Construction activities could involve soil-disturbing activities that could release fungal spores into the area. However, because potential water treatment facilities would be small (size of a small shed), ground disturbance associated with construction activities would be minor and would generate less dust than the intensive, agricultural operations that routinely occur throughout the region. All activities are required to comply with applicable rules and regulations consistent with SJVAPCD and State regulations that address fugitive dust. Operational and maintenance activities would be similar to existing conditions and would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Findings for Impact 3.10-2: The Board finds that, based on substantial evidence in the record, the potential for creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment is less than significant and no mitigation measures are required.

Impact 3.10-3: Implementation of the proposed Guidelines could be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, could create a significant hazard to the public or the environment.

Five hazardous materials sites are located within 0.5 miles of the Friant-Kern Canal. Other sites might be located in other parts of the study area, including within the Contractor boundaries. Construction activities could be located on or near hazardous materials sites that have been included on the Cortese List, which could result in the risk of creating a significant hazard to the public or environment associated with the potential exposure of contaminated soil and/or groundwater. Laws governing the use, transportation, storage, and disposal of hazardous materials would apply to actions proposed on or near Cortese List sites. In addition, sites listed on the Cortese List are under the jurisdiction of a regulatory agency (e.g., Central Valley Regional Water Board, Fresno/Tulare/Kern County, or a local agency). As such, the overseeing regulatory agency requires the owners/operators of listed sites to bring their sites into compliance.

Findings for Impact 3.10-3: The Board finds that, based on substantial evidence in the record, the potential for creating a significant hazard to the public or the environment as a result of being located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 is less than significant and no mitigation measures are required.

Impact 3.10-4: Implementation of the proposed Guidelines could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Construction activities could temporarily increase vehicular traffic in the study area, but this increase would be limited given the small scale of the water treatment facilities or water quality monitoring

stations that may be constructed. Although this traffic could affect emergency access, the construction-related increase in vehicle traffic would be minor and would not substantially affect response times. It is not anticipated that construction work would occur within public roadways, meaning that emergency vehicle access would be preserved. Operational and maintenance activities would be similar to existing conditions and would not result in inadequate emergency access.

Findings for Impact 3.10-4: The Board finds that, based on substantial evidence in the record, the potential to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan is less than significant and no mitigation measures are required.

Impact 3.10-5: Implementation of the proposed Guidelines could expose people or structures, either directly or indirectly, to significant risk of loss, injury, or death involving wildland fires.

The study area generally has a low potential for wildfire and the topography in the area is generally level. There are locations where the study area traverses through moderate and high Fire Hazard Severity Zones in State Responsibility Areas, although there are no areas in or near very high Fire Hazard Severity Zones. No occupied structures would be built that could be exposed to wildfire risks. Construction activities, including the use of construction equipment and the possible temporary on-site storage of fuels and/or other flammable construction chemicals, could pose an increased fire risk resulting in injury to workers or the public. However, construction activities would be of limited size and duration. Additionally, construction activities would be required to comply with State and local regulations for fire protection, such as the California Fire Code, and chemical manufacturer requirements, which would minimize the potential for fire hazards.

Findings for 3.10-5: The Board finds that, based on substantial evidence in the record, the potential to expose people or structures, either directly or indirectly, to significant risk of loss, injury, or death involving wildland fires is less than significant and no mitigation measures are required.

5.10 HYDROLOGY AND WATER QUALITY

Impact 3.11-1: Implementation of the proposed Guidelines could violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.

Construction activities could involve minor excavation, grading, or other ground-disturbing activities that could expose and disturb small areas. The construction period would be of short duration, ranging from as little as a few days to as much as a couple of weeks. Operational and maintenance-related activities would be similar to existing conditions, and thus would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. Given the types of potential actions anticipated, it is not anticipated that surface and groundwater quality standards would be violated, and surface and groundwater quality would not be degraded. Additionally, the proposed Guidelines would require that water quality be monitored according to the in-prism water quality thresholds, further ensuring that there would not be a violation of existing water quality standards (i.e., basin plans) that would otherwise substantially degrade surface and groundwater quality. The proposed Guidelines would serve agricultural and domestic interests by protecting water quality in the Friant-Kern Canal for sustained use; therefore, the proposed Guidelines may improve water quality in the study area.

Findings for Impact 3.11-1: The Board finds that, based on substantial evidence in the record, the potential to violate any water quality standards or waste discharge requirements or otherwise

substantially degrade surface or groundwater quality is less than significant and no mitigation measures are required.

Impact 3.11-2: Implementation of the proposed Guidelines could substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

Excavation associated with construction of these small facilities would be minor and would not be anticipated to reach groundwater in the shallow aquifer (groundwater is well below the depth of any minor foundation that may be constructed); therefore, dewatering would not be anticipated to be required. Operational and maintenance-related activities associated with potential actions would be similar to existing conditions, and thus would not substantially decrease groundwater supplies or interfere with groundwater recharge.

To account for the "leave behind" water that a Contractor may be required to provide, the Contractor may seek alternative water supplies as part of the Contractor's overarching water portfolio management. Additionally, implementation of the proposed Guidelines, and water quality threshold management required for Non-Millerton water introduced into the Friant-Kern Canal, could reduce water supply deliveries via the Cross Valley Canal Intertie (approximately 400 acre-feet total on average), resulting in Contractors needing to seek alternative water supplies as part of Contractors' overarching water portfolio management. If a Contractor chose to utilize groundwater as an alternative supply, groundwater pumping would need to meet all Sustainable Groundwater Management Act (SGMA) requirements as guided by the subbasin's Groundwater Sustainability Plan (GSP) and require avoidance of undesirable results as defined by the applicable GSPs for the subbasin(s) in the study area. Therefore, potential increased groundwater pumping associated with implementation of the proposed Guidelines would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the proposed Guidelines would impede sustainable groundwater management of the basin.

Findings for Impact 3.11-2: The Board finds that, based on substantial evidence in the record, the potential to substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin is less than significant and no mitigation measures are required.

Impact 3.11-3: Implementation of the proposed Guidelines could alter existing drainage patterns.

Construction activities over these small footprints could include establishment and use of staging areas and access and haul roads (paved or unpaved), site preparation activities, and construction site restoration/demobilization. New facilities could introduce new impervious surface cover that could alter drainage patterns; however, because footprints would be small, any associated increase in runoff or change in drainage patterns would not be anticipated to result in substantial erosion or siltation on- or off-site, increase the rate or amount of surface runoff, create or contribute runoff water, or impede or redirect flood flows. Operational and maintenance-related activities would be similar to existing conditions, and thus would not alter existing drainage patterns.

Findings for Impact 3.11-3: The Board finds that, based on substantial evidence in the record, the potential to significantly alter existing drainage patterns is less than significant and no mitigation measures are required.

Impact 3.11-4: Implementation of the proposed Guidelines in flood hazard, tsunami, or seiche zones could risk releases of pollutants due to project inundation.

The study area is not located in a tsunami or seiche zone but is designated on FEMA's current FIRM as being within several flood hazard areas: Zone A, Zone AO, Zone AE, Zone X, and Zone IO-IC. It is anticipated that small amounts of fuels and lubricants would be used during construction and operational activities, but this would not result in risk of release of pollutants due to inundation. Additionally, implementation of a state required Stormwater Pollution Prevention Plan (SWPPP) would further reduce the potential for a release of pollutants. Furthermore, any impervious surface cover would be minimal and would not contribute to increased flooding. Operational and maintenance-related activities would be similar to existing conditions and would not include the storage or use of contaminants.

Findings for Impact 3.11-4: The Board finds that, based on substantial evidence in the record, the potential for risk of release of pollutants due to inundation because of being located in flood hazard, tsunami, or seiche zones is less than significant and no mitigation measures are required.

Impact 3.11-5: Implementation of the proposed Guidelines could conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Construction and operational activities are not anticipated to violate any water quality standards that would otherwise degrade surface and groundwater quality or impede sustainable groundwater management of the basin. Therefore, no potential to conflict with or obstruct implementation of the applicable water quality control plan (i.e., the Tulare Lake Basin Plan) or the GSPs for the applicable subbasin(s) in the study area would occur. The proposed Guidelines would serve agricultural and domestic interests by protecting water quality in the Friant-Kern Canal for sustained use; therefore, the proposed Guidelines may improve water quality and contribute toward sustainable groundwater management in the study area.

Findings for Impact 3.11-5: The Board finds that, based on substantial evidence in the record, the potential to conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan is less than significant and no mitigation measures are required.

5.11 LAND USE AND PLANNING

Impact 3.12-1: Implementation of the proposed Guidelines could conflict with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Land uses in the study area are primarily agricultural and rural residential. The proposed Guidelines are consistent with these uses because they are intended to protect water quality in the Friant-Kern Canal for sustained use and would serve agricultural and domestic interests. Potential facilities also would not conflict with land uses because they would be of limited size and construction activities would be short-term and temporary. Operational and maintenance activities would be similar to existing conditions. Further, pursuant to Government Code Section 53091(e), the location or construction of facilities for the production, generation, storage, treatment, or transmission of water by a special district is not subject to the zoning ordinance of the county in which the project would be located.

Findings for Impact 3.12-1: The Board finds that, based on substantial evidence in the record, the potential for conflicts with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect is less than significant and no mitigation measures are required.

5.12 MINERAL RESOURCES

There are no mines in the study area. The study area does pass through a mineral resource zone in Tulare County or near a mineral resource zone in Kern County; no mineral resource zones are in the

portions of the study area that passes-through Fresno County. However, due to their limited size and temporary nature, construction activities associated with potential actions taken by Contractors in response to the proposed Guidelines (such as the establishment of staging areas, use of access and haul roads, site preparation, construction of features, site restoration and/or demobilization, and disposal of excess materials) for potential action to meet the water quality thresholds in the proposed Guidelines (such as small water treatment facilities or water quality monitoring stations) would not be substantial enough to result in a loss of access to known mineral resource deposits in the study area, or make access more difficult. The implementation of the proposed Guidelines could result in Friant installing small water quality monitoring stations in the Friant-Kern Canal but would not result in Friant making any substantial physical modifications to the Friant-Kern Canal that could result in the loss of a known mineral resources or the availability of locally important mineral resource recovery sites.

Findings for Mineral Resources: The Board finds that, based upon substantial evidence in the record, no impact would occur related to mineral resources and no mitigation measures are required.

5.13 POPULATION AND HOUSING

Construction activities would be limited in size and duration and would require nominal construction personnel. Furthermore, operation and maintenance of such activities would not be anticipated to result in the need for new employees over current conditions. Because of the limited amount of work that would be required during construction, and because the proposed Guidelines would not require a substantial workforce, no new homes, businesses, or public roads would be constructed, and the proposed Guidelines would not have a significant effect on the local workforce. Furthermore, construction is anticipated to occur in the largely rural location of the Friant-Kern Canal and adjacent study area, and would not result in the demolition of homes or displacement of people, necessitating replacement homes elsewhere. Introducing Non-Millerton water into the Friant-Kern Canal provides a supplemental source of water to meet existing and new water demands for farms and residents in the Central Valley. However, population in the study area would develop consistent with the overall framework for growth and development planned in the existing General Plans for the study area. Therefore, the proposed Guidelines would not remove an impediment to growth or result in population beyond that planned by local jurisdictions.

Findings for Population and Housing: The Board finds that, based upon substantial evidence in the record, no impact would occur related to population and housing and no mitigation measures are required.

5.14 PUBLIC SERVICES

There would be no construction of new facilities, housing, or other land uses that could increase the local population that could result in demand for governmental facilities and services, such as fire protection, police protection, schools, or parks over those that currently exist. Therefore, implementation of the proposed Guidelines would not affect response times or other performance objectives for public services and would not require construction of new or altered facilities that could result in a significant environmental impact.

Findings for Population and Housing: The Board finds that, based upon substantial evidence in the record, no impact would occur related to public services and no mitigation measures are required.

5.15 RECREATION

The proposed Guidelines would not involve an increase in population compared to the current population. Therefore, there would be no increased use of recreational facilities that could result in a substantial deterioration or the need to construct new or expand existing recreational facilities.

Findings for Recreation: The Board finds that, based upon substantial evidence in the record, no impact would occur related to recreation and no mitigation measures are required.

5.16 TRANSPORTATION

Impact 3.14-1: Implementation of the proposed Guidelines could conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

Construction activities could include mobilization of off-road equipment and materials and transportation of construction personnel. These activities would add temporary and limited construction vehicle traffic to primarily rural roadways in and around the study area. Potential actions, such as the construction of small water treatment facilities (approximately the size of a shed) or of water quality monitoring stations such as wall-mounted racks, freestanding racks, enclosed stations, compact stations, or floating platforms, would be of limited size and therefore would require limited equipment and personnel to construct. General rule-of-thumb estimates are that two-lane rural roadways have a capacity of at least 5,000 vehicles per day. Construction trips would require minimal temporary action-related traffic within the range of typical daily variation in traffic levels (usually on the order of ±5 percent or 250 vehicles if 5,000 vehicles per day were on the road) that might be expected on major roadways serving the study area. Therefore, temporary limited construction traffic that may occur is not likely to degrade conditions for transit, roadway, bicycle or pedestrian facilities, such that they would conflict with applicable programs, plans, ordinances, or policies addressing the circulation system for those areas.

Findings for Impact 3.14-1: The Board finds that, based on substantial evidence in the record, the potential for conflicts with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities is less than significant and no mitigation measures are required.

Impact 3.14-2: Implementation of the proposed Guidelines could conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).

Tulare County adopted guidelines in June 2020 to determine the significance of transportation impacts. Tulare County's guidelines state that some projects are small enough that they can be presumed to have a less-than-significant transportation impact without doing a detailed vehicle miles traveled (VMT) analysis. For Tulare County, projects that generate fewer than 500 trips per day can be presumed to have a less-than-significant impact. Fresno and Kern counties have not finalized or adopted the regulations of SB 743; therefore, the 110 trips per day small-project screening criterion in the Governor's Office of Planning and Research (OPR) Technical Guidelines is used for this analysis. Potential construction activities would generate minimal temporary trips and operational and maintenance activities would be similar to existing conditions. Potential actions, such as the construction of small water treatment facilities approximately the size of a shed or water quality monitoring stations, would be of limited size and therefore would require limited equipment and personnel to construct. Therefore, daily passenger vehicle trips would be well below OPR's recommended small-project screening criterion threshold of 110 trips per day.

Findings for Impact 3.14-2: The Board finds that, based on substantial evidence in the record, the potential for conflicts or be inconsistencies with CEQA Guidelines Section 15064.3, subdivision (b) is less than significant and no mitigation measures are required.

Impact 3.14-3: Implementation of the proposed Guidelines could substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Neither construction or operational and maintenance activities would require permanent modifications to existing public roadways or other transportation infrastructure. The proposed Guidelines are intended to protect water quality in the Friant-Kern Canal for sustained use and would serve agricultural and domestic interests. Facilities would be of limited size (at most, the size of a shed) and associated construction activities would be limited in scope, short-term, and temporary. Operational and maintenance activities would be similar to existing conditions.

Findings for Impact 3.14-3: The Board finds that, based on substantial evidence in the record, the potential to substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) is less than significant and no mitigation measures are required.

Impact 3.14-4: Implementation of the proposed Guidelines could result in inadequate emergency access.

Construction activities could temporarily increase vehicular traffic in the study area; however, this increase would be limited, given the small scale of the water treatment facilities or water quality monitoring stations that may be constructed. Although this traffic could affect emergency access, the construction-related increase in vehicle traffic would be minor and would not substantially affect response times. It is not anticipated that construction work would occur within public roadways, meaning that emergency vehicle access would be preserved. Operational and maintenance activities would be similar to existing conditions and would not result in inadequate emergency access.

Findings for Impact 3.14-4: The Board finds that, based on substantial evidence in the record, the potential to result in inadequate emergency access is less than significant and no mitigation measures are required.

5.17 UTILITIES AND SERVICE SYSTEMS

Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the action's projected demand in addition to the provider's existing commitments.

Construction activities could temporarily generate wastewater at the construction site. However, generation of wastewater during construction activities would be negligible because such activities would be short-term, ranging from as short as a few days to as long as a couple of weeks. All wastewater generated on site would be collected and disposed of in accordance with state and federal regulations and would cease once construction is complete. Operational and maintenance activities would be similar to existing conditions and would not cause an increase in wastewater.

Findings: The Board finds that, based upon substantial evidence in the record, there would not be a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the action's projected demand in addition to the provider's existing commitments; therefore, no impact would occur and no mitigation measures are required.

Impact 3.16-1: Implementation of the proposed Guidelines could require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

Construction activities could involve the use of small amounts of water during construction for dust suppression. Water needed during construction may be taken from the Friant-Kern Canal from willing sellers, groundwater, or it may be trucked in from outside sources. The amount of water that would be required for construction would be negligible and would not require the relocation or construction of new or expanded water facilities. Similarly, construction activities could also involve minor wastewater generation from certain construction activities. All wastewater generated on-site would be collected and disposed of in accordance with state and federal regulations and would cease once construction is complete. Therefore, no local wastewater treatment or collection systems would be affected.

Because of the small scale of potential facilities, the relocation of stormwater drainage features or power/natural gas/telecommunication facilities would not be required. Proposed facilities would have limited footprints and the duration of construction activities would be short-term (a few days to a couple of weeks), potential impacts associated with relocation of utility lines would be nominal. Furthermore, the construction and operation of the small-scale facilities would also not be anticipated to result in the need to construct new or expand existing utilities.

Findings for Impact 3.16-1: The Board finds that, based on substantial evidence in the record, the potential to require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects is less than significant and no mitigation measures are required.

Impact 3.16-2: Implementation of the proposed Guidelines would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.

Construction activities could involve the use of small amounts of water for dust suppression that could be supplied from the Friant-Kern Canal from willing sellers, groundwater, or trucked in from outside sources. However, construction water demand would be negligible, and operational and maintenance activities would be similar to existing conditions.

Findings for Impact 3.16-2: The Board finds that, based on substantial evidence in the record, the potential for there being insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years is less than significant and no mitigation measures are required.

Impact 3.16-3: Implementation of the proposed Guidelines could generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals, and would comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

Construction activities may temporarily cause an increase in solid waste generation in the study area, such as from construction-related debris from demolition or leftover materials. However, due to the small scale of the potential activities and proper waste management, solid waste would not be created in excess of state or local standards or in excess of the capacity of local infrastructure or impair the attainment of solid waste reduction goals. The generation of solid waste from potential construction

activities would have a negligible impact on the permitted capacity at landfills within the study area given the current available landfill capacities. Operational and maintenance activities would be similar to existing conditions and would not generate new volumes of solid waste.

Findings for Impact 3.16-3: The Board finds that, based on substantial evidence in the record, the potential to generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals, and would comply with federal, state, and local management and reduction statutes and regulations related to solid waste is less than significant and no mitigation measures are required.

5.18 WILDFIRE

The study area generally has a low potential for wildfire and the topography in the area is generally level. There are locations where the study area traverses through moderate and high Fire Hazard Severity Zones in State Responsibility Areas, although there are no areas in or near very high Fire Hazard Severity Zones, which are the focus of the wildfire analysis in Appendix G of the CEQA Guidelines. Further, potential actions would not involve the construction or habitation of occupied structures that could be exposed to wildfire risks.

Findings for Wildfire: The Board finds that, based upon substantial evidence in the record, no impact would occur related to wildfire and no mitigation measures are required.

5.19 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Implementing of actions to meet the water quality thresholds in the proposed Guidelines could indirectly result in the commitment of nonrenewable natural resources used in the construction process and during operation and maintenance activities, including gravel, petroleum products, steel, and other materials. Actions could also result in the commitment of slowly renewable resources, such as wood products. Due to the small scale of proposed facilities, such as small water treatment facilities, earthmoving activities would not generate large amounts of construction waste and operations and maintenance activities also would not generate large amounts of waste. Implementing actions to meet the water quality thresholds in the proposed Guidelines could also result in the commitment of energy resources such as fossil fuels. Construction-related energy consumption would be temporary, occurring only during the construction period (ranging from as short as a few days to as long as a couple of weeks), and use would be minimal given the limited size of facilities. General operation and maintenance activities could require use of electricity for all processes, equipment, and operational lights. However, these activities would be similar to existing conditions and would not be anticipated to result in a substantial increase in energy use over existing conditions. Compliance with all applicable state, county, and local plans, policies, and regulations pertaining to energy standards would ensure that natural resources are conserved to the maximum extent possible. It is therefore concluded that the rate and amount of energy consumed during construction or operation and maintenance activities would not result in the unnecessary, inefficient, or wasteful use of resources, and that energy use would be accomplished in a manner consistent with applicable laws and regulations.

To the extent that actions implemented by Contractors in response to the proposed Guidelines (including small water treatment facilities) would be constructed in currently sensitive natural communities, the potential actions could result in an irreversible conversion of sensitive natural communities; however, temporary and/or permanent conversion would not be considered substantial due to the small size of the facilities and avoidance of such resources through project siting and through restoration of temporarily affected areas for construction areas associated with new water treatment facilities (see Impact 5.3-2 above).

It is not anticipated that actions constructed near agricultural land would result in the conversion of agricultural land nor would construction activities have the potential to result in accidental release of hazardous materials, which may lead to irreversible damage.

Findings for Irreversible and Irretrievable Commitments of Resources: The Board finds that, based upon substantial evidence in the record, the potential impact on irreversible effects is less than significant and no mitigation measures are required.

5.20 GROWTH INDUCING

The proposed Guidelines would not directly induce growth because they do not involve the development of new housing or job centers that would attract an additional population. Although implementation of the proposed Guidelines may include minor construction activities, those activities would be of limited size and duration (such as small water treatment facilities approximately the size of a shed or water quality monitoring stations such as wall-mounted racks, free-standing racks, enclosed stations, compact stations, or floating platforms) and would require nominal numbers of construction workers. Because of the limited amount of work that would be required at any given time, and because the proposed Guidelines would not require a substantial workforce, no new homes, businesses, or public roads would be constructed, and the proposed Guidelines would not require construction workers to relocate to the area or result in the need for additional operations or maintenance employees. The proposed Guidelines also would not increase the area available for development of housing or include infrastructure that could indirectly induce growth. Therefore, the proposed Guidelines would not directly induce growth.

The proposed Guidelines would not indirectly induce growth because construction and maintenance activities would not require a substantial workforce and would not require relocation of employees to the area. No new homes or businesses would need to be constructed. Introduction of Non-Millerton water into the Friant-Kern Canal would provide a supplemental source of water to meet existing and new water demands for farmland and people in Central California; however, population in the study area would develop consistent with the overall framework for growth and development planned in the existing general plans for the study area.

The proposed Guidelines would not remove an impediment to growth or result in indirect population growth because construction of new residences and commercial development would not occur as a result of implementation of the proposed Guidelines.

Findings for Growth Inducing: The Board finds that, based upon substantial evidence in the record, the potential impact on growth-inducing effects is less than significant and no mitigation measures are required.

6. FINDINGS REGARDING ALTERNATIVES ANALYZED IN THE EIR

The alternatives to the proposed Guidelines considered in the Draft EIR were developed based on information gathered during development of the proposed Guidelines and many iterations of water quality thresholds and management protocols were considered. In 2018 a “Friant-Kern Canal Water Quality Ad Hoc Committee” formed with the task of preparing an update to Reclamation’s 2008 Policy. Through a negotiation process, thresholds were established, and management protocols were determined. Various draft versions of the proposed Guidelines were prepared based on input received from Ad Hoc Committee members, Reclamation, and the Friant Board of Directors. The result of this process was the development of the proposed Guidelines.

As part of consideration of alternatives to the proposed Guidelines considered in the Draft EIR, potential alternatives were screened based on their ability to feasibly attain most of the basic project objectives, their feasibility within the limits of Friant's jurisdiction, and their ability to reduce or eliminate any significant environmental impacts of the proposed Guidelines. The alternative considered but rejected was a large-scale, regional desalination plant. This alternative proposed constructing a 90-million-gallon-per-day plant that could process approximately 100,880 acre-feet per year. A desalination plant would meet the project objectives, including protecting the quality of water introduced to or received from the Friant-Kern Canal for sustained domestic and agricultural use. However, the construction and operation of the desalination plant, including the brine disposal, would not avoid or lessen environmental impacts compared to the proposed Guidelines. Therefore, this alternative was rejected from further consideration. As a result of the proposed Guidelines development process and alternatives screening, one feasible alternative, the No Project alternative, was fully evaluated in the Draft EIR.

6.1 NO PROJECT ALTERNATIVE

Description of Alternative: Under the No Project Alternative, water would continue to be introduced into the Friant-Kern Canal consistent with the water quality monitoring requirements of the 2008 Policy. The 2008 Policy provides limited protections for water quality with a focus on domestic use water quality thresholds only. Under the No Project Alternative, there would be no water quality threshold management based on agronomic principles that are protective of the most sensitive crops in the region. No "leave behind" water would be available to provide additional leaching water and support agronomic practices to effectively manage applied salts and long-term salt loading in the root zone, nor would monitoring and communication protocols be implemented. Under the No Project Alternative, Contractors and water users may need to act to appropriately manage applied salts and salt loading as a result of changes to the quality of water conveyed in the Friant-Kern Canal, and to protect their water supply for sustained domestic and agricultural use. Actions that Contractors are currently implementing and may need to implement under the No Project Alternative (i.e., should the 2008 Policy remain unchanged) could include operational and maintenance activities associated with water quality monitoring and reporting. Therefore, Contractors may continue to install small water quality monitoring stations and/or manage applied salts and salt loading under the No Project Alternative.

Under the No Project Alternative, no action would be taken to approve the proposed Guidelines. None of the water quality requirements defined in the proposed Guidelines would be implemented, including water quality threshold management or the quantified "leave behind" water required for Non-Millerton water being introduced into the canal. In addition, potential actions (other than installation of small water quality monitoring stations) that might be taken by Contractors to meet the proposed Guidelines' requirements would not occur.

Environmental Effects: The No Project Alternative would result in construction-related impacts similar to those of the proposed Guidelines, given that ground-disturbing activities may occur. However, the No Project Alternative could result in greater water quality impacts, and potentially greater impacts on agricultural resources and water supply (including groundwater demand or the need for new water supplies or water facilities), than the proposed Guidelines because water quality thresholds and actions would not be implemented for Non-Millerton water entering the Friant-Kern Canal.

6.2 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The proposed Guidelines are considered the environmentally superior alternative because the proposed Guidelines would result in potential impacts on fewer environmental resources than the No Project Alternative. Implementation of appropriate general protection measures, species protection measures, and mitigation measures would minimize the potential for significant impacts from the proposed Guidelines.

The No Project Alternative would result in construction-related impacts similar to those of the proposed Guidelines; however, the No Project Alternative could result in some greater impacts than the proposed Guidelines. In addition, the No Project Alternative would not provide greater protection of the quality of water introduced to or received from the Friant-Kern Canal for sustained domestic and agricultural use. It would not define the water quality thresholds, including the "leave behind" water associated with introduced Non-Millerton water and corresponding water quality, or the methodologies and tools for monitoring and forecasting water quality in the Friant-Kern Canal. The No Project Alternative also would not guide the application review process, implementation procedures, and the responsibilities of water contractors and other parties authorized by Reclamation to introduce or receive Non-Millerton water into or from the Friant-Kern Canal. Therefore, the No Project Alternative does not meet the project objectives of the proposed Guidelines.

7. FINDINGS WITH RESPECT TO MITIGATION OF SIGNIFICANT ADVERSE IMPACTS, AND ADOPTION OF MITIGATION MONITORING AND REPORTING PROGRAM

Based on the entire record before the Board, the Board hereby determines that all feasible mitigation within the responsibility and jurisdiction of the Board and/or Contractors' Boards as required by the Cooperative Agreement has been adopted to reduce or avoid the potentially significant impacts identified in the EIR, and that no additional feasible mitigation or alternatives are available to further reduce significant impacts. The feasible mitigation measures are discussed in Section 2 and are set forth in the MMRP. Section 21081.6 of the Public Resources Code requires the Board to adopt a monitoring or compliance program regarding the changes in the Project and mitigation measures imposed to lessen or avoid significant effects on the environment. The MMRP for the Project is adopted by the Board because it fulfills the CEQA mitigation monitoring requirements:

- The MMRP is designed to ensure compliance with adopted mitigation measures required as required by the Cooperative Agreement to reduce significant impacts associated with actions taken in response to the proposed Guidelines; and
- Measures to mitigate or avoid significant effects on the environment are fully enforceable through conditions of approval, permit conditions, agreements, or other measures.

Final

GUIDELINES FOR ACCEPTING WATER INTO THE FRIANT-KERN CANAL

Final Environmental Impact Report

Prepared for

Friant Water Authority

July 2023

ESA

Final

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2600 Capitol Avenue
Suite 200
Sacramento, CA 95816
916.564.4500
esassoc.com

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CHAPTER 1
Introduction

1.1 Introduction

The Friant Water Authority (Friant), a joint powers authority, has been working with Friant Division long-term contractors (Friant Contractors) and the United States Department of the Interior, Bureau of Reclamation (Reclamation) to develop the proposed *Guidelines for Accepting Water into the Friant-Kern Canal* (proposed Guidelines) to ensure that the quality of water conveyed through the Friant-Kern Canal is protected for sustained domestic and agricultural use.

The proposed Guidelines would be applicable to all Non-Millerton water (water from sources other than Millerton Lake) introduced to or diverted from the Friant-Kern Canal including but not limited to: groundwater pump-ins, surface water diversions and pump-ins, recaptured and recirculated San Joaquin River Restoration Program Restoration Flows, and water introduced at the Friant-Kern Canal–Cross Valley Canal (CVC) intertie and delivered via reverse flow on the Friant-Kern Canal. The proposed Guidelines define the water quality thresholds and required "leave behind" water associated with introduced Non-Millerton water and corresponding water quality, as well as the methodologies and tools for monitoring and forecasting water quality in the Friant-Kern Canal. The proposed Guidelines describe the Friant review process for applications to Reclamation to introduce Non-Millerton water into the Friant-Kern Canal; implementation procedures; and the responsibilities of water contractors and other parties authorized to introduce or receive Non-Millerton water into or from the Friant-Kern Canal (referred to collectively as "Contractors").

Implementation of the proposed Guidelines would not result in Friant making any physical modifications to the Friant-Kern Canal; however, in response to the proposed Guidelines, Contractors may need to take certain actions to ensure that a proposed introduction of Non-Millerton water meets the water quality thresholds of the Guidelines. These actions may include blending of water, changes to the timing of the introduction or discharge of Non-Millerton water, use of alternative water supplies, or construction and operation of small water treatment facilities at the source of the pump-in. In addition, Friant or Contractors may need to construct and/or maintain facilities for monitoring and forecasting water quality (e.g., water quality monitoring stations).

Pursuant to the California Environmental Quality Act (CEQA), Friant is the lead agency and prepared a Draft Environmental Impact Report (EIR) to analyze potentially significant impacts that could result from implementation of the proposed Guidelines. This document is the Final EIR for the proposed Guidelines. The Final EIR has been prepared in accordance with the CEQA and together with the Draft EIR (and appendices) constitutes the EIR for the proposed Guidelines.

1.2 Environmental Review and Approval Process

1.2.1 Notice of Preparation and Public Scoping Period

Friant issued a notice of preparation (NOP) on Tuesday, December 6, 2022, to satisfy the requirements of CEQA and CEQA Guidelines Section 15082 (State Clearinghouse #2022120093). The purpose of the NOP is twofold: (1) to notify the public, responsible agencies, trustee agencies, the Governor's Office of Planning and Research, potentially affected public agencies, involved federal agencies, and tribes regarding Friant's intent to prepare an EIR for the proposed Guidelines; and (2) to solicit input from the public and those agencies as to the scope and content of the environmental information to be included in the Draft EIR.

The issuance of the NOP began the 30-day public comment period, which closed at 5 p.m. on Monday, January 9, 2023. In accordance with Public Resources Code (PRC) Section 21080.4(a) and CEQA Guidelines Section 15082(b), each responsible agency, trustee agency, and involved federal agency was requested to provide, in writing, the scope and content of the environmental information to be included in the Draft EIR related to its area of statutory responsibility. The NOP was also sent to public agencies, organizations, and individuals that requested receipt of Friant's public notices, to invite them to provide input. The NOP and the current draft of the *Guidelines for Accepting Water into the Friant-Kern Canal* were also made available for review on Friant's website at the following locations:

NOP: https://friantwater.org/s/Friant_WQ_Guidelines_NOP_120622.pdf

Proposed Guidelines: https://friantwater.org/public-notices

The NOP and the proposed Guidelines were also made available for review at the Friant Water Authority office at 854 N. Harvard Avenue, Lindsay, CA 93247.

A virtual public meeting was held during the 30-day NOP review period to solicit comments on the scope and content of the Draft EIR, and to provide information to the public, including a description of the proposed Guidelines. The meeting was held at 3:00 p.m. on Tuesday, December 13, 2022, via the Zoom web conference application. Written comments were accepted throughout the 30-day public NOP comment period and at the scoping meeting; verbal comments were recorded at the scoping meeting. Written comments were accepted via both U.S. Mail and email. One comment letter was received and is included in **Appendix A**, *Notice of Preparation*, of the Draft EIR which includes the NOP and the comment letter.

1.2.2 Notification of California Native American Tribes

Assembly Bill (AB) 52 requires lead agencies to notify California Native American tribes that are traditionally and culturally affiliated with the geographic area of an individual restoration project, if they have requested notice of projects proposed in that area. No California Native American Tribes have reached out to Friant to be consulted with on Friant projects as per PRC Sections 21080.3.1, 21080.3.2, and 21082.3. Therefore, no tribal consultation efforts outside of the Native American Heritage Commission (NAHC) correspondence were conducted.

1.2.3 Draft EIR

The Draft EIR was made available to federal, state, and local agencies and interested organizations and individuals to review and comment on the adequacy of the analysis. The Draft EIR circulated for 45-days beginning Friday May 12, 2023, and ending at 5:00 p.m. on Monday June 26, 2023. Comments were addressed to:

Friant Water Authority
c/o Ian Buck-Macleod
854 N. Harvard Avenue
Lindsay, CA 93247
ibuckmacleod@friantwater.org

A Notice of Availability (NOA) for the Draft EIR was made available at the Fresno, Kern and Tulare County Clerks offices and published in The Fresno Bee and The Bakersfield Californian on Friday May 12, 2023. The Draft EIR was also available for review on Friant's website: https://friantwater.org/public-notices, and at the Friant Water Authority office at 854 N. Harvard Avenue, Lindsay, CA 93247.

During the 45-day review period, a virtual public meeting was held on Tuesday May 30, 2023 at 3:00 p.m. via the Zoom web conference application. Information about the Draft EIR public meeting can be found on Friant's website: https://friantwater.org/public-notices. No comments were received at the public meeting. In addition, no comments were received on the Draft EIR by the close of the 45-day public comment period.

1.3 Requirements for EIR Certification and Guidelines Approval Process

Before Friant makes a decision with regard to the proposed Guidelines, CEQA Guidelines Section 15090(a) requires that Friant first certify that the EIR has been completed in compliance with CEQA, that Friant has reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment and analysis of Friant.

In the event Friant approves the proposed Guidelines, CEQA requires that it file a Notice of Determination (NOD) and adopt appropriate findings as set forth in CEQA Guidelines Section 15091. Under CEQA Guidelines Section 15092, a lead agency may only approve or carry out a project subject to an EIR if it determines that: (1) that project will not have a significant effect, or (2) that the agency has eliminated or substantially lessened all significant effects on the environment where feasible and any remaining significant effects on the environment that are found to be unavoidable are acceptable due to overriding considerations. This EIR may also be used by Contractors, as responsible agencies under CEQA, in their discretionary approval processes within their jurisdictions to meet their obligations under CEQA.

1.4 Organization and Format of this Document

This Final EIR is organized as follows:

- **Chapter 1, *Introduction*:** This chapter states the purpose and use of this Final EIR, explains the purpose of the Draft EIR and the Final EIR, and provides an overview of the environmental review process for the EIR.

- **Guidelines for Accepting Water into the Friant-Kern Canal**: The final Guidelines are included as **Appendix A** to this Final EIR.

- **Mitigation Monitoring and Reporting Program**: As part of the approval process, Friant prepared a Mitigation Monitoring and Reporting Program (MMRP), as required by PRC Section 21081.6 and Section 15097 of the CEQA, for mitigation measures recommended in the Draft EIR. The MMRP is included as **Appendix B** to this Final EIR.

Appendix A

Guidelines for Accepting Water into the Friant-Kern Canal

Friant
WATER AUTHORITY

Guidelines for Accepting Water into the Friant-Kern Canal

Table of Contents

Guidelines for Accepting Water into the Friant-Kern Canal

Overview

These Guidelines apply to all water introduced into the Friant-Kern Canal ("**FKC**") other than directly from Millerton Lake to the headworks of the FKC (collectively, "**Non-Millerton water**").

These Guidelines describe the Friant Water Authority's ("**FWA**") application review process, implementation procedures, and the responsibilities of water contractors and other parties authorized to introduce or receive Non-Millerton water into or from the FKC (collectively, "**Contractors**"). These Guidelines define the water quality thresholds and the required mitigation associated with introduced Non-Millerton water and corresponding water quality, as well as the methodologies and tools for monitoring and forecasting water quality in the FKC. These Guidelines are intended to ensure that water quality is protected for sustained domestic and agricultural use.

These Guidelines are applicable to all Non-Millerton water introduced or diverted into the FKC including but not limited to:

- Groundwater pump-ins (e.g., groundwater wells or previously banked water)
- Surface water diversions and pump-ins
- Recaptured and recirculated San Joaquin River Restoration Program Restoration Flows
- Water introduced at the FKC-Cross Valley Canal ("**CVC**") intertie and delivered via reverse flow on the FKC

A Water Quality Advisory Committee composed of Friant Division long-term contractors ("**Friant Contractors**") involved in either introducing or receiving Non-Millerton water to or from the FKC has been established to provide recommendations to FWA on operations and monitoring requirements of the FKC. The Water Quality Advisory Committee will operate under an established charter (see Attachment A). The Water Quality Advisory Committee will appoint a Monitoring Subcommittee to assist FWA in the implementation of the Guidelines.

These Guidelines are subject to review and modification by FWA if any of the following conditions occurs:

- A future regulatory cost or equivalent fee is imposed on Friant Contractors and a portion of such fee can reasonably be attributed to the incremental difference of water quality conditions in the FKC.
- When Friant Division Class 1 contract allocation is less than or equal to 25 percent, the Water Quality Advisory Committee will convene as outlined in Attachment A. In these years, mitigation will be accounted for as presented in these Guidelines, but will be deferred to a mutually agreed to later date unless those responsible for the put and take mutually agree to put and take the

mitigation in the critical year. All monitoring requirements will remain as presented in these Guidelines.

- There is a significant, regulatory change or scientifically based justification and three out of the following five Friant Contractors agree and work with the Water Quality Advisory Committee to recommend a change: (1) Arvin-Edison Water Storage District, (2) Shafter Wasco Irrigation District, (3) Delano-Earlimart Irrigation District, (4) South San Joaquin Municipal Utility District, and (5) Kern-Tulare Water District.

The Bureau of Reclamation (**Reclamation**) may also propose and/or require modifications to these Guidelines in coordination with FWA and reserves the right to implement additional water quality requirements as needed to protect water quality within the FKC. FWA will provide written notice of any proposed modification that are relevant to these Guidelines to all Contractors prior to adoption and implementation.

A. General Requirements for Discharge of Water into the Friant-Kern Canal

1. Guidelines Compliance Determination

A Contractor wishing to discharge Non-Millerton water into the FKC must, concurrent with its application for a contract or other applicable approval from Reclamation in such form and contents as may be required by Reclamation, obtain a determination from FWA as to compliance with the Guidelines or demonstrate to FWA and Reclamation that the proposed discharge will be subject to comparable and adequate alternative water quality mitigation measures. The application will not be approved until FWA has provided its determination that the applicant is compliant with the Guidelines or the provision of alternative mitigation measures is adequately demonstrated and incorporated into the proposed discharge project. Figure 1 shows the concurrent process that a Contractor must pursue to obtain these approvals. The Contractor will be responsible for securing all other requisite Federal, State or local permits.

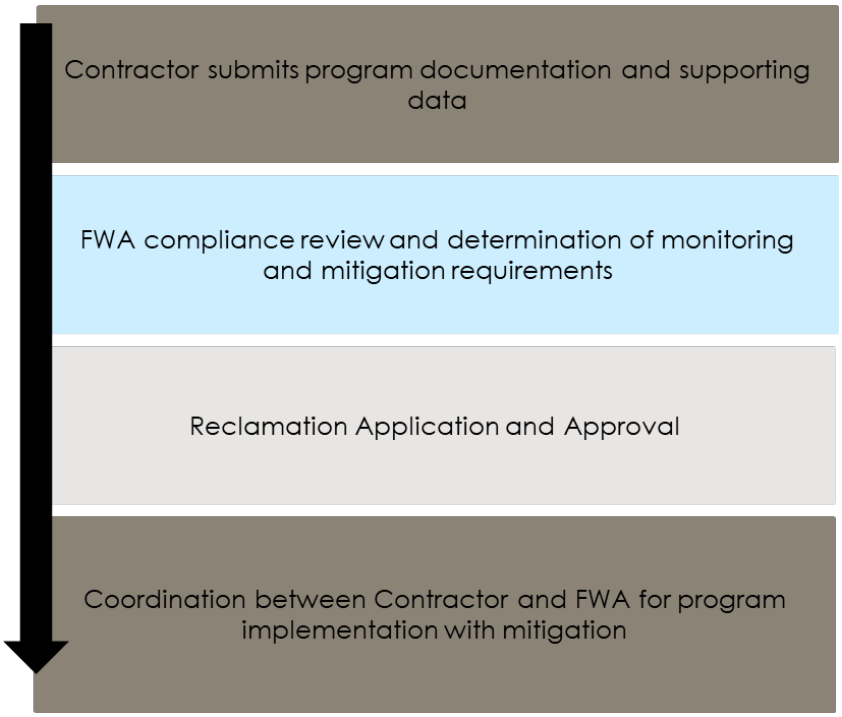


Figure 1. Approval Process Diagram

2. Discharge Facility Approval

The approvals for the erection and maintenance of each discharge facility into the FKC must be approved and documented in the manner required by Reclamation, in coordination with FWA.

3. Other Discharge and Conveyance Requirements

The discharge of Non-Millerton water into the FKC may not in any way limit the ability of either FWA or Reclamation to operate and maintain the FKC for its intended purpose nor may it adversely impact existing water delivery contracts or any other water supply or delivery agreements. The discharge of Non-Millerton water into the FKC will be permissible only when there is capacity in the system as determined by FWA and/or Reclamation.

B. Water Quality Monitoring and Reporting Requirements

1. General Discharge Approval Requirements

Each source of Non-Millerton water discharged into the FKC must be correctly sampled, completely analyzed, and approved by FWA and Reclamation prior to introduction into the FKC. The Contractor must pay the cost of collection and analyses of the water required under these Guidelines. Other costs associated with the implementation of these Guidelines to be paid by the Contractors are described in Section E below.

2. Water Quality Monitoring and Management

The monitoring program requirements are detailed below. In addition, the requirements are summarized in a single table in Attachment B.

(a) Monitoring Requirements for Discharged Water

Prior to introduction to the FKC, all Non-Millerton water discharged into the FKC must be tested at the source (i.e., grab samples at each pump location for groundwater pump-ins or in-prism (i.e., in-situ) grab samples for water being introduced via other conveyances) and sampled by an appropriate party every three years for the complete list of water quality constituents listed in the then current version of Table 1. In addition, all Non-Millerton water discharged into the FKC must be tested and sampled by an appropriate party annually for the short list of water quality constituents listed in Table 4. The analytical laboratory must be a facility with Environmental Laboratory Accreditation Program (**ELAP**) certification. The laboratory analytical report and summary of water quality analytical results must be reported to FWA and Reclamation's **Contracting Officer** (i.e., the Area Manager for the South-Central California Area Office) for review. All monitoring requirements are summarized in Attachment B.

If analytical results show an exceedance of 80% of the threshold for any water quality constituents, defined in Table 4, discharged Non-Millerton water will be tested weekly for the targeted constituents of concern until four consecutive grab samples show consistent water quality results. The appropriateness of the threshold buffer (i.e., 80% of the threshold) will be evaluated by the Water Quality Advisory Committee.

If the water quality analytical results show exceedance of any constituent above its threshold in Table 1, 3 or 4 (i.e., not the threshold buffer but the threshold itself), at the discretion of Reclamation such water may not be allowed to be introduced into the FKC. FWA will evaluate monitoring requirements on a case-by-case basis and may impose additional requirements including but not limited to monitoring of the discharge source and downstream in prism quality at the cost of the Contractor.

(b) In-Prism Water Quality Monitoring

FWA will cause to be implemented continuous, real-time monitoring of in-prism water quality conditions in the FKC. Conductivity meters (or sondes) will measure and record real-time in-prism electrical conductivity ("**EC"**), measured as microsiemens per centimeter (µS/cm), every 15 minutes at the FKC check structures and corresponding mileposts shown in Table 2. Collected EC data will be uploaded to FWA's Intellisite Operation System (**IOS**) in real-time. These continuous, in-prism measurements of EC will provide real-time data on incremental water quality changes and mixing in the canal and will assist in water quality threshold management.

If the Friant Water Quality Model forecasts an in-prism exceedance of 80% of the threshold for any water quality constituents, defined in Table 4, water samples from the FKC will be collected each week by appropriate FWA staff until the sampled concentrations, supported through Friant Water Quality Model forecasted simulations, show four consecutive weeks below the 80% threshold. Each weekly collection will consist of one sample from each downstream check structure shown in Table 2 and where water quality changes are expected, plus one duplicate sample. FWA will deliver the samples to a laboratory

with ELAP certification. FWA expenses for all water quality monitoring and sampling are subject to reimbursement from Contractors through fees and charges. As was the case for the discharged water, the appropriateness of the threshold buffer will be evaluated by the Water Quality Advisory Committee.

Additional water quality sampling and analysis will be performed during specific FKC operations. FWA will cause to be measured EC using hand-held conductivity meters as needed, such as during:

- servicing of real-time monitoring equipment;
- unexpected real-time monitoring equipment outages;
- confirmation of real-time monitoring equipment measurements; and,
- targeted in-prism measurements.

(c) CVC In-Prism Water Quality Monitoring

Upon initiation of reverse-flow, pump-back activities and/or if it is anticipated that operations within the CVC will significantly change mixed water quality conditions (i.e., influence from California Aqueduct, Kern River, Kern Fan), grab samples will be collected by FWA within the CVC near the FKC/CVC Intertie, and provided to a third-party laboratory with ELAP certification for testing of water quality constituents listed in Table 1. In addition, during reverse-flow pump-back operations, weekly water quality sampling will be performed within the CVC near the FKC/CVC Intertie. Grab samples will be collected by FWA and provided to a third-party, ELAP certified laboratory for testing. At a minimum, grab samples collected during reverse-flow pump-back operations will be analyzed for the short list of water quality constituents listed in Table 4.

The Water Quality Advisory Committee will evaluate water quality monitoring, sampling, and analysis requirements on a regular basis and provide recommendations for modification of the described requirements.

(d) In-Prism Water Quality Management

FKC in prism water quality will be managed per the following thresholds. If the below thresholds are exceeded, systematic cessation of pump-in or pump-back operations will occur.

1. Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 116270-116755), and Title 22 of the California Code of Regulations (Sections 6440 et seq.), as amended. In prism water quality constituent concentrations may not exceed the Maximum Contaminant Level (**MCL**) as defined in Table 1, except those constituents listed in Table 3 and Table 4. Current State of California requirements at the time of sampling will prevail over those in the accepted version of this document if MCLs in Table 1 are changed in the future.

2. Water quality thresholds defined in Table 3. Water quality thresholds are representative of constituent thresholds of sensitive crops; leaching requirements; and crop thresholds for regulated

deficit irrigation practices that occur during almond hull split from July 1 through August 31; and flexible thresholds in the second half of the contract year, from September 1 through February 28, depending on observed water quality in the first portion of the contract year.

i. Table 3 presents alternative water quality thresholds for Period 3 (September 1 – February 28) that are dependent on the measured water quality during Period 1 (March 1 – June 30). If the measured average chloride concentration for Period 1 exceeds 70 milligrams per liter (mg/L), the chloride threshold remains at 102 mg/L for Period 3a. If the measured average chloride concentrations for Period 1 are less than or equal to 70 mg/L, the allowable chloride concentration increases from 102 mg/L to 123 mg/L for Period 3b.

ii. It is estimated that an average of one week is required for in-prism water quality to turnover. Prior to the onset of the defined hull split period requirements (July 1), current FKC operations and water quality conditions will be evaluated to determine if this one-week period should be adjusted.

If water quality thresholds are exceeded, or based on modeling appear likely to be imminently exceeded, or operations in the FKC need to change per Guidelines requirements, FWA will immediately notify the Water Quality Advisory Committee, which must convene a meeting of the Monitoring Subcommittee within three days of receiving notification from FWA. The Monitoring Subcommittee and FWA will review operations and water quality data and will seek consensus on determining the best management actions to improve water quality; provided, however, the final operational decision will be made by FWA. In addition, the Monitoring Subcommittee will seek 1:1, unleveraged, and cost-neutral exchanges to limit potential Project water impacts. Notwithstanding the foregoing, FWA retains the right to determine and take immediate management actions with respect to groundwater pump-ins in accordance with the applicable approvals, but will work in good faith with the Water Quality Advisory Committee and Monitoring Subcommittee to evaluate options. If required, management actions including any reductions or cessation of pump-in volume must occur within three days of the meeting between FWA and the Monitoring Subcommittee. FWA will order any reduction in pump-in volume in order of greatest mass loading. Finally, the Monitoring Subcommittee will set an appropriate review period to assess if implemented management actions are working and, if not, will agree to reconvene to discuss additional actions necessary to improve water quality.

(e) Uncontrolled Season

Non-Millerton water may not be introduced to the FKC during the Friant Division uncontrolled season as declared by Reclamation unless:

- Deliveries are necessary due to FKC capacity constraints, and if the Non-Millerton water delivered from the CVC remains below the Shafter Check, or

- The Non-Millerton water is below the determined baseline EC threshold of 200 µS/cm and, therefore, does not require mitigation.

- Introduction of Non-Millerton water does not impact Friant Division flood operations.

3. Water Quality Mitigation

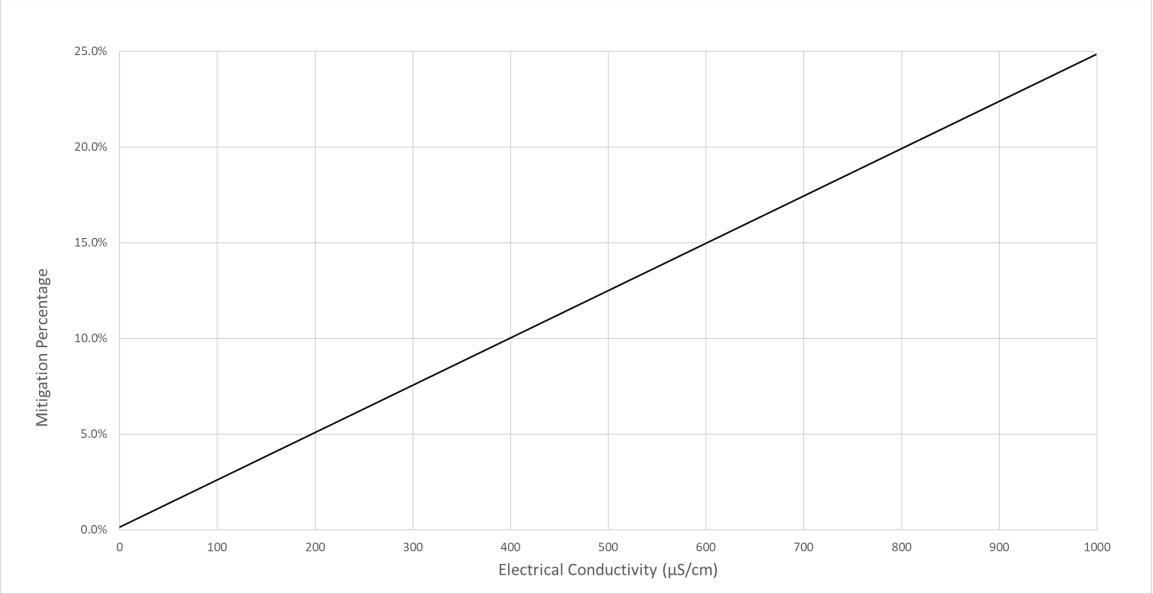
Mitigation for impacted water quality is quantified through use of the Water Quality Mitigation Ledger ("**Ledger**"). The Ledger tracks and accounts for all inflows into and diversions from the FKC in order to determine appropriate mitigation for impacted water quality (attributable to the introduced Non-Millerton water or "**Put**"[1]). The volume of additional surface water needed for mitigation, expressed as a percentage of the introduced water, or Put, is determined using an established mitigation rating curve. The mitigation rating curve is based on (1) constituent concentrations, and (2) agronomic principles that focus on leaching requirements to prevent constituent accumulation in the rootzone and resulting impacts on crops. This approach aims to balance concerns related to long-term groundwater quality with a multi-layered assessment of agronomic impacts as a durable solution. The process for developing the agronomic impacts evaluation and mitigation rating curve can be found in *Attachment C– Agronomic Impacts and Mitigation.*

The Ledger quantifies mitigation for Friant Contractors that have an expectation to receive water consistent with quality conditions of Millerton Lake. Specifically, mitigation applies to the "**Take**" (or delivery) of Friant Division Class 1, Class 2, Recovered Water Account (RWA [Paragraph 16b]), and Unreleased Restoration Flows supplies. Friant Contractors and/or other Contractors, including but not limited to third parties, whose supplies are not delivered to the headworks of the FKC are not eligible to receive mitigation.

Mitigation percentage is based on the EC of the Put above the established baseline. The established baseline is based on assumptions of current, minimum leaching practices by water users, or growers, in the region. Consistent with good agricultural practices, it is assumed that growers are currently applying at least a five percent (5%) leaching fraction. Under the mitigation rating curve shown in Figure 2, this corresponds to an approximate EC of 200 µS/cm. It is assumed that growers are already managing the effects of applied water quality conditions up to 200 µS/cm of EC, and mitigation is only required for water quality conditions with incremental EC that exceed the baseline EC threshold of 200 µS/cm. Note that the mitigation rating curve extends beyond the maximum EC and mitigation percentage shown in Figure 2 (i.e., at 1,000 µS/cm and 25%) at the same slope of 5% mitigation per 200 µS/cm of EC.

A mitigation volume is calculated based on the Put volume and corresponding mitigation percentage. Mitigation volumes for each Put are distributed to each Friant Contractor receiving an eligible Take, or "**Taker**," downstream based on the volumetric proportion of the Take on a weekly basis. Mitigation occurs in real time by the Contractor and offsets a like volume of each Taker's supply at the end of a reporting period. Additional mitigation is not required to account for the water quality conditions of the mitigation volumes. Water quality conditions and flows are tracked daily. The ledger and required mitigation volumes are balanced weekly and reported and transferred monthly. Accounting and reporting are detailed in *Attachment D – Standard Operating Procedures*.

[1] Existing FKC inlet drains are exempt from providing mitigation.



Key:
µS/cm = microsiemens per centimeter (1 µS/cm = 1 µmhos/cm = 1/1,000 dS/m)

Figure 2. Proposed Mitigation Rating Curve Based on Boron Sensitivity and Normalized to Electrical Conductivity

4. Critical Year Management

When Friant Division Class 1 contract allocation is less than or equal to 25 percent, the Water Quality Advisory Committee will convene as outlined in Attachment A. In these years, mitigation will be accounted for as presented in these Guidelines, but will be deferred to a mutually agreed later date unless those responsible for the Put and Take mutually agree to put and take the mitigation in the critical year. All monitoring requirements will remain as presented in these Guidelines.

C. Resolution of Disputes

In the event a Contractor is dissatisfied with the application or interpretation of these Guidelines by FWA staff or consultants, the following dispute resolution procedures will apply:

1. A Contractor may request FWA refer the dispute to Reclamation's Contracting Officer's Representative for initial review. FWA will prepare and deliver a written summary of the dispute for Reclamation's Contracting Officer's Representative, who will then confer with the parties and issue an advisory opinion regarding the dispute in a timely manner.

2. In addition to or in lieu of the meet and confer process with Reclamation's Contracting Officer's Representative above, a Contractor may submit a written appeal to be heard by the FWA Board of Directors. The written appeal must be submitted to the office of the Chief Executive Officer, who will then place the dispute on the agenda of the Board of Directors for a hearing at a board meeting no later than 60 days from the date of receipt. The decision of the Board of Directors will be final and FWA and the other party(ies) must promptly comply with such decision until the same is stayed, reversed, or modified by a decision of a court of competent jurisdiction.

The Cooperative Agreement between the Contractors and FWA provides additional dispute resolution procedures. In the event of any conflict between the dispute resolution procedures in these Guidelines and the Cooperative Agreement, the provisions in the Cooperative Agreement will control.

D. Water Quality Forecasting and Communications

1. Friant-Kern Canal Water Quality Model

Water quality monitoring and collection of water quality data will be evaluated using the FKC Water Quality Model, a volumetric mass-balance model of the entire FKC. The FKC Water Quality Model will serve as a predictive, water quality forecast tool to assist Friant Contractors and FWA in making real-time operation decisions. The weekly application of this model will require compilation of surface water quality data collected, as described above, as well as forecasts of water orders and periodic model updates.

2. Water quality reporting and communications

IOS will report real-time, continuous FKC in-prism EC measurements. In addition, FWA will cause to be provided a weekly summary report to Friant Contractors and Reclamation on:

- FKC current and forecasted operations;
- FKC current in-prism monitoring and forecasted water quality conditions; and,
- Pertinent pump-in programs' operations and water quality conditions.

E. Implementation Responsibilities and Costs

FWA will be responsible for the following actions:

- Maintain and calibrate conductivity meters
- Perform water quality sampling during pump-in operations
- Coordinate laboratory water quality testing
- Coordinate with Contractors on water quality data monitoring and analysis
- Manage in-prism water quality and manage operations database
- Perform weekly water quality reporting and forecasting using FKC Water Quality Model
- Perform weekly analysis to determine mitigation and distribution to respective Friant Contractors or any other Contractor party(ies) using the FKC Water Quality Mitigation Ledger
- Coordinate with Reclamation's SCCAO on water quality reporting, mitigation, and contractual requirements

- Coordinate and facilitate the work of Water Quality Advisory Committee and the Monitoring Subcommittee.

Costs for implementation and administration of these Guidelines will be initially paid out of the FWA Operation, Maintenance, and Replacement (OM&R) budget, and subsequently will be reimbursed by Contractors. The Contractor will pay a dollar per acre-foot ($/acre-foot) surcharge ("**Guidelines Surcharge**") for introduced Non-Millerton water, that will be credited to the FWA OM&R budget. The Guidelines Surcharge will be adopted by the FWA Board of Directors and will be based on an estimate of total annual costs divided by average annual deliveries of pump-in programs into the FKC. The Guidelines Surcharge will be applied to all introduced Non-Millerton water even if mitigation is not required

Annual costs and deliveries will be reassessed every year and compared to estimates provided in Attachment E to determine if any adjustments are required to the Guidelines Surcharge.

Definitions

Contractors: Water contractors and other parties authorized to introduce or receive Non-Millerton water into or from the FKC.

Contracting Officer: The Area Manager of Reclamation's South-Central California Area Office.

Cooperative Agreement: The agreement between FWA and the participating Contractors regarding the establishment, implementation and management of these Guidelines.

CVC: Cross Valley Canal

EC: Salinity measured as electrical conductivity

ELAP: Environmental Laboratory Accreditation Program

Friant Contractors: Friant Division contractors with long-term contracts with Reclamation.

FWA: Friant Water Authority, a California joint powers agency.

Guidelines Surcharge: The surcharge imposed by FWA on Contractors on a per acre feet basis for Non-Millerton water introduced into the FKC to cover the costs of implementing the Guidelines.

IOS: Intellisite Operation System

Ledger: The Water Quality Mitigation Ledger that tracks and accounts for all inflows into and diversions from the FKC in order to determine appropriate mitigation for impacted water quality attributable to the introduced Non-Millerton water.

Maximum Contaminant Level (MCL): Usually reported in milligrams per liter (parts per million) or micrograms per liter (parts per billion).

Non-Millerton water: All water introduced into the Friant-Kern Canal other than directly from Millerton Lake to the headworks of the FKC.

OM&R: Operation, Maintenance and Replacement.

Put: The introduction of Non-Millerton water into the FKC.

Project: The Friant Division of the Central Valley Project, specifically the Friant-Kern Canal.

Reclamation: U.S. Department of the Interior, Bureau of Reclamation.

SCCAO: Reclamation's South-Central California Area Office.

Take: The delivery of Friant Division Class 1, Class 2, Recovered Water Account (RWA [Paragraph 16b]), and Unreleased Restoration Flows supplies.

Taker: A Friant Contractor receiving an eligible Take.

Title 22: The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 116270-116755), and California Code of Regulations (Sections 6440 et seq.), as amended.

Tables

Table 1. Water Quality Constituents

Table 2. Check Structure Locations for Real-Time Measurements of Electrical Conductivity

Table 3. Friant-Kern Canal In-Prism Water Quality Thresholds

Table 4: Friant-Kern Canal Water Quality Constituents Short List.

Attachments

Attachment A: Water Quality Advisory Committee Charter

Attachment B: Monitoring Program Summary

Attachment C: Agronomic Impacts and Mitigation

Attachment D: Ledger Standard Operating Procedures

Attachment E: FKC Water Quality Guidelines Cost Allocation

The non-Project water discharged into Federal Facilities must comply with the California Drinking Water standards (Title 22)[2] listed in Table 1. However, selenium thresholds cannot exceed 2 micrograms per liter as defined in Table 4.

Table 1 Title 22 Water Quality Standards

Constituent	Units	MCL	Detection Limit for Reporting	CAS Registry Number	Recommended Analytical Method
Primary					
Aluminum	mg/L	1 (1)	0.05 (2)	7429-90-5	EPA 200.7
Antimony	mg/L	0.006 (1)	0.006 (2)	7440-36-0	EPA 200.8
Arsenic	mg/L	0.010 (1)	0.002 (2)	7440-38-2	EPA 200.8
Asbestos	MFL	7 (1)	0.2 MFL>10µm (2)	1332-21-4	EPA 100.2
Barium	mg/L	1 (1)	0.1 (2)	7440-39-3	EPA 200.7
Beryllium	mg/L	0.004 (1)	0.001 (2)	7440-41-7	EPA 200.7
Cadmium	mg/L	0.005 (1)	0.001 (2)	7440-43-9	EPA 200.7
Chromium, total	mg/L	0.05 (1)	0.01 (2)	7440-47-3	EPA 200.7
Copper	mg/L	1.3	0.050 (2)	7440-50-8	EPA 200.7
Cyanide	mg/L	0.15 (1)	0.1 (2)	57-12-5	EPA 335.2
Fluoride	mg/L	2.0 (1)	0.1 (2)	16984-48-8	EPA 300.1
Hexavalent Chromium	mg/L	0.010 (1)	0.001 (2)	18540-29-9	EPA 218.7
Lead	mg/L	0.015 (9)	0.005 (2)	7439-92-1	EPA 200.8
Mercury	mg/L	0.002 (1)	0.001 (2)	7439-97-6	EPA 245.1
Nickel	mg/L	0.1 (1)	0.01 (2)	7440-02-0	EPA 200.7
Nitrate (as nitrogen)	mg/L	10 (1)	0.4 (2)	7727-37-9	EPA 300.1
Nitrate + Nitrite (sum as nitrogen)	mg/L	10 (1)		14797-55-8	EPA 353.2
Nitrite (as nitrogen)	mg/L	1 (1)	0.4 (2)	14797-65-0	EPA 300.1
Perchlorate	mg/L	0.006 (1)	0.004 (2)	14797-73-0	EPA 314/331/332
Selenium	mg/L	0.002 (10)	0.001	7782-49-2	EPA 200.8
Thallium	mg/L	0.002 (1)	0.001 (2)	7440-28-0	EPA 200.8
Thiobencarb	mg/L	0.07		28249-77-6	EPA 527
Secondary					
Aluminum	mg/L	0.2 (6)		7429-90-5	EPA 200.7
Chloride	mg/L	500 (7)		16887-00-6	EPA 300.1
Color	units	15 (6)			EPA 110
Copper	mg/L	1.0 (6)	0.050 (8)	7440-50-8	EPA 200.7
Iron	mg/L	0.3 (6)		7439-89-6	EPA 200.7
Manganese	mg/L	0.05 (6)		7439-96-5	EPA 200.7
Methyl-tert-butyl ether (MTBE)	mg/L	0.005 (6)		1634-04-4	EPA 502.2/524.2
Odor -threshold	units	3 (6)			SM 2150B
Silver	mg/L	0.1 (6)		7440-22-4	EPA 200.7
Specific Conductance	µS/cm	1,600 (7)			SM 2510 B

[2] California Code of Regulations, Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 4010 4037), and Administrative Code (Sections 64401 et seq.), as amended https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dw_regulations_2019_03_28.pdf

Constituent	Units	MCL	Detection Limit for Reporting	CAS Registry Number	Recommended Analytical Method
Sulfate	mg/L	500 (7)		14808-79-8	EPA 300.1
Thiobencarb	mg/L	0.001 (6)		28249-77-6	EPA 527
Total Dissolved Solids	mg/L	1,000 (7)			SM 2540 C
Turbidity	units	5 (6)			EPA 190.1/SM2130B
Zinc	mg/L	5.0 (6)		7440-66-6	EPA 200.7
Other Required Analyses					
Boron	mg/L	2.0 (13)		7440-42-8	EPA 200.7
Molybdenum	mg/L	0.01 (11)		7439-98-7	EPA 200.7
Sodium	mg/L	200 (12)		7440-23-5	EPA 200.7
Radioactivity					
Gross alpha*	pCi/L	15 (3)			SM 7110C
Organic Chemicals					
(a) Volatile Organic Chemicals (VOCs)					
Benzene	mg/L	0.001 (4)	0.0005 (5)	71-43-2	EPA 502.2/524.2
Carbon Tetrachloride	mg/L	0.0005 (4)	0.0005 (5)	56-23-5	EPA 502.2/524.2
1,2-Dichlorobenzene.	mg/L	0.6 (4)	0.0005 (5)	95-50-1	EPA 502.2/524.2
1,4-Dichlorobenzene.	mg/L	0.005 (4)	0.0005 (5)	106-46-7	EPA 502.2/524.2
1,1-Dichloroethane	mg/L	0.005 (4)	0.0005 (5)	75-34-3	EPA 502.2/524.2
1,2-Dichloroethane	mg/L	0.0005 (4)	0.0005 (5)	107-06-2	EPA 502.2/524.2
1,1-Dichloroethylene	mg/L	0.006 (4)	0.0005 (5)	75-35-4	EPA 502.2/524.2
cis-1,2-Dichloroethylene	mg/L	0.006 (4)	0.0005 (5)	156-59-2	EPA 502.2/524.2
trans-1,2-Dichloroethylene	mg/L	0.01 (4)	0.0005 (5)	156-60-5	EPA 502.2/524.2
Dichloromethane.	mg/L	0.005 (4)	0.0005 (5)	75-09-2	EPA 502.2/524.2
1,2-Dichloropropane.	mg/L	0.005 (4)	0.0005 (5)	78-87-5	EPA 502.2/524.2
1,3-Dichloropropene.	mg/L	0.0005 (4)	0.0005 (5)	542-75-6	EPA 502.2/524.2
Ethylbenzene.	mg/L	0.3 (4)	0.0005 (5)	100-41-4	EPA 502.2/524.2
Methyl-tert-butyl ether	mg/L	0.013 (4)	0.003 (5)	1634-04-4	EPA 502.2/524.2
Monochlorobenzene	mg/L	0.07 (4)	0.0005 (5)	108-90-7	EPA 502.2/524.2
Styrene.	mg/L	0.1 (4)	0.0005 (5)	100-42-5	EPA 502.2/524.2
1,1,2,2-Tetrachloroethane	mg/L	0.001 (4)	0.0005 (5)	79-34-5	EPA 502.2/524.2
Tetrachloroethylene (PCE)	mg/L	0.005 (4)	0.0005 (5)	127-18-4	EPA 502.2/524.2
Toluene	mg/L	0.15 (4)	0.0005 (5)	108-88-3	EPA 502.2/524.2
1,2,4-Trichlorobenzene	mg/L	0.005 (4)	0.0005 (5)	120-82-1	EPA 502.2/524.2
1,1,1-Trichloroethane	mg/L	0.200 (4)	0.0005 (5)	71-55-6	EPA 502.2/524.2
1,1,2-Trichloroethane	mg/L	0.005 (4)	0.0005 (5)	79-00-5	EPA 502.2/524.2
Trichloroethylene (TCE)	mg/L	0.005 (4)	0.0005 (5)	79-01-6	EPA 502.2/524.2
Trichlorofluoromethane	mg/L	0.15 (4)	0.005 (5)	75-69-4	EPA 502.2/524.2
1,1,2-Trichloro-1,2,2-Trifluoroethane	mg/L	1.2 (4)	0.01 (5)	76-13-1	SM 6200B
Vinyl Chloride	mg/L	0.0005 (4)	0.0005 (5)	75-01-4	EPA 502.2/524.2
Xylenes	mg/L	1.750* (4)	0.0005 (5)	1330-20-7	EPA 502.2/524.2
(b) Non-Volatile Synthetic Organic Chemicals (SOCs)					
Alachlor	mg/L	0.002 (4)	0.001 (5)	15972-60-8	EPA 505/507/508
Atrazine	mg/L	0.001 (4)	0.0005 (5)	1912-24-9	EPA 505/507/508
Bentazon	mg/L	0.018 (4)	0.002 (5)	25057-89-0	EPA 515.1
Benzo(a)pyrene	mg/L	0.0002 (4)	0.0001 (5)	50-32-8	EPA 525.2
Carbofuran	mg/L	0.018 (4)	0.005 (5)	1563-66-2	EPA 531.1
Chlordane	mg/L	0.0001 (4)	0.0001 (5)	57-74-9	EPA 505/508
2,4-D	mg/L	0.07 (4)	0.01 (5)	94-75-7	EPA 515.1

Constituent	Units	MCL	Detection Limit for Reporting	CAS Registry Number	Recommended Analytical Method
Dalapon	mg/L	0.2 (4)	0.01 (5)	75-99-0	EPA 515.1
Dibromochloropropane	mg/L	0.0002 (4)	0.00001 (5)	96-12-8	EPA 502.2/504.1
Di(2-ethylhexyl)adipate	mg/L	0.4 (4)	0.005 (5)	103-23-1	EPA 506
Di(2-ethylhexyl)phthalate	mg/L	0.004 (4)	0.003 (5)	117-81-7	EPA 506
Dinoseb	mg/L	0.007 (4)	0.002 (5)	88-85-7	EPA 5151-4
Diquat	mg/L	0.02 (4)	0.004 (5)	85-00-7	EPA 549.2
Endothall	mg/L	0.1 (4)	0.045 (5)	145-73-3	EPA 548.1
Endrin	mg/L	0.002 (4)	0.0001 (5)	72-20-8	EPA 505/508
Ethylene Dibromide	mg/L	0.00005 (4)	0.00002 (5)	106-93-4	EPA 502.2/504.1
Glyphosate (Roundup)	mg/L	0.7 (4)	0.025 (5)	1071-83-6	EPA 547
Heptachlor.	mg/L	0.00001 (4)	0.00001 (5)	76-44-8	EPA 508
Heptachlor Epoxide	mg/L	0.00001 (4)	0.00001 (5)	1024-57-3	EPA 508
Hexachlorobenzene	mg/L	0.001 (4)	0.0005 (5)	118-74-1	EPA 505/508
Hexachlorocyclopentadiene	mg/L	0.05 (4)	0.001 (5)	77-47-4	EPA 505/508
Lindane (gamma-BHC)	mg/L	0.0002 (4)	0.0002 (5)	58-89-9	EPA 505/508
Methoxychlor	mg/L	0.03 (4)	0.01 (5)	72-43-5	EPA 505/508
Molinate	mg/L	0.02 (4)	0.002 (5)	2212-67-1	EPA 525.1
Oxamyl	mg/L	0.05 (4)	0.02 (5)	23135-22-0	EPA 531.1
Pentachlorophenol	mg/L	0.001 (4)	0.0002 (5)	87-86-5	EPA 515.1-3
Picloram	mg/L	0.5 (4)	0.001 (5)	1918-02-1	EPA 515.1-3
Polychlorinated Biphenyls	mg/L	0.0005 (4)	0.0005 (5)	1336-36-3	EPA 130.1
Simazine	mg/L	0.004 (4)	0.001 (5)	122-34-9	EPA 505
Thiobencarb (Bolero)	mg/L	0.07 (4)	0.001 (5)	28249-77-6	EPA 527
Toxaphene	mg/L	0.003 (4)	0.001 (5)	8001-35-2	EPA 505
1,2,3-Trichloropropane	mg/L	0.000005 (4)	0.000005 (5)	96-18-4	SRL 524M
2,3,7,8-TCDD (Dioxin)	mg/L	3×10^{-8} (4)	5×10^{-9} (5)	1746-01-6	EPA 130.3
2,4,5-TP (Silvex)	mg/L	0.05 (4)	0.001 (5)	93-72-1	EPA 515.1
Other Organic Chemicals					
Chlorpyrifos	µg/L	0.015 (11)		2921-88-2	EPA 8141A
Diazinon	µg/L	0.10 (11)		333-41-5	EPA 8141A

Sources:

- Recommended Analytical Methods: https://www.nemi.gov/home/
- Maximum Contaminant Levels (MCL): Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 4010-4037), and Administrative Code (Sections 64401 et seq.), as amended.

(1) Title 22. Table 64431-A Maximum Contaminant Levels, Inorganic Chemicals
(2) Title 22. Table 64432-A Detection Limits for Reporting (DLRs) for Regulated Inorganic Chemicals
(3) Title 22. Table 64442 Radionuclide Maximum Contaminant Levels (MCLs) and Detection Levels for Purposes of Reporting (DLRs)
(4) Title 22. Table 64444-A Maximum Contaminate Levels, Organic Chemicals
(5) Title 22. Table 64445.1-A Detection Limits for Purposes of Reporting (DLRs) for Regulated Organic Chemicals
(6) Title 22. Table 64449-A Secondary Maximum Contaminant Levels "Consumer Acceptance Contaminant Levels"
(7) Title 22. Table 64449-B Secondary Maximum Contaminant Levels "Consumer Acceptance Contaminant Level Ranges"
(8) Title 22. Table 64678-A DLRs for Lead and Copper
(9) Title 22. Section 64678 (d) Lead Action level
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dw_regulations_2019_03_28.pdf

- California Regional Water Quality Control Board, Central Valley Region, Fourth Edition of the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins. Revised June 2015

(10) Basin Plan, Table III-1 (ug/L) (selenium in Grasslands water supply channels)
(11) Basin Plan, Table III-2A. 4-day average (chronic) concentrations of chlorpyrifos & diazinon in San Joaquin River from Mendota to Vernalis
https://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/delta_op_pesticide/

- Ayers, R. S. and D. W. Westcot, Water Quality for Agriculture, Food and Agriculture Organization of the United Nations - Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985).

(12) Ayers, Table 1 (mg/L) (sodium)
(13) Ayers, Table 1 (mg/L) (boron)
http://www.fao.org/3/T0234E/T0234E00.htm

- (14) Requested by State Water contractors, no MCL specified.

- California Regional Water Quality Control Board. PFAS Per-and Polyfluoroalkyl Substances. (15) Testing Methods in California Drinking Water https://www.waterboards.ca.gov/pfas/

Table 2. Check Structure Locations for Real-Time Measurements of Electrical Conductivity

Check Structure	Milepost
Little Dry Creek	5.50
Kings River	28.52
Sand Creek	46.04
Dodge Ave	61.03
Kaweah River	71.29
Rocky Hill	79.25
Fifth Ave	88.22
Tule River	95.67
Deer Creek	102.69
White River	112.90
Reservoir (Woollomes)	121.51
Poso Creek	130.03
Shafter	137.20
Kern River	151.81

Table 3. Friant-Kern Canal In-Prism Water Quality Thresholds

Period	Salinity expressed as EC (µS/cm)	Chloride (mg/L)	Boron (mg/L)[1]	Turbidity (NTU)[6]	Total Suspended Solids (ppm)[6]	SAR[7]	Sodium (mg/L)[7]
Period 1 March 1 – June 30	1,000[2]	102[3]	0.4	40	20	3	69
Period 2 July 1 – August 31	500[4]	55[4]	0.4	40	20	3	69
Period 3a September 1 – February 28	1,000[2]	102[3]	0.4	40	20	3	69
Period 3b September 1 – February 28	1,000[2]	123[5]	0.4	40	20	3	69

Notes:

Thresholds adapted from Grieve, C.M., S.R. Grattan and E.V. Maas. 2012. Plant salt tolerance. In. (W.W. Wallender and K.K. Tanji, eds). Agricultural Salinity Assessment and Management (2nd edition). ASCE pp 405-459; and Ayers, R.S. and D.W. Westcot 1985. Water quality for agriculture. FAO Irrigation and Drainage Paper 29 (rev 1). Food and Agriculture Organization of the United Nations. Rome

For addition detail, see Attachment C – Agronomic Impacts and Mitigation.

When Friant-Kern Canal in-prism water quality conditions in this table are exceeded, Friant Division Long-Term Contractors will work together to seek 1:1, unleveraged, and cost-neutral exchanges for pump-in and pump-back programs. This does not apply to spot-market or third-party exchanges.

[1] Grapes are used as a representative crop for boron sensitivity and are prevalent in the Friant Division. They are used as a surrogate for many other sensitive crop types such as apricots, figs, and grapefruits. Threshold assumes conventional irrigation with minimum 20 percent leaching fraction applied.

[2] Threshold assumes minimum of 20 percent leaching requirement applied and adjusted to account for regulated deficit irrigation during almond hull split period (July 1 – August 31) to not exceed maximum EC_{et}. Almonds on Nemaguard rootstock are used as a representative crop for salinity sensitivity and are prevalent in the Friant Division. They are used as a surrogate for many other sensitive crop types such as apples, cherries, pears, pistachios, and walnuts.

[3] Threshold assumes minimum of 20 percent leaching requirement applied and then adjusted to account for regulated deficit irrigation during almond hull split period (July 1 – August 31) to not exceed maximum Cl-et. Almonds on Nemaguard rootstock used as a representative crop for chloride sensitivity. They are used as a surrogate for other sensitive crops including cherries, pistachios, and walnuts. If the measured average chloride concentration for Period 1 exceeds 70 mg/L, the chloride threshold remains at 102 mg/L.

[4] Threshold applies to almond hull split period when regulated deficit irrigation is applied to avoid hull rot. This threshold is used assuming irrigation applications are reduced to 50 percent of the tree water requirement and subsequently thresholds applied for the remainder of the year have been adjusted to account for additional salt accumulation. This threshold was developed with consideration of existing program operations, historical water quality data, and absolute water quality thresholds.

[5] If the measured average chloride concentration in Period 1 (March 1 – June 30) is less than or equal to 70 mg/L, the allowable chloride threshold for Period 3 (September 1 – February 28) is increased to 123 mg/L.

[6] Applied TSS and turbidity thresholds from section 3 of the Final Initial Study/Negative Declaration for: Warren Act Contract and License, and Operation and Maintenance Agreement to Introduce Floodwaters from Reclamation District 770 into the Friant-Kern Canal, March 2017. Additional detail provided in Attachment C – Agronomic Impacts and Mitigation

[7] SAR and Sodium are managed together. If the measured SAR value exceeds 3 AND the measured sodium concentration exceeds a threshold of 69 mg/L, management will be necessary. SAR is derived from Ayers Table 1 and assumes surface irrigation. The sodium threshold is also derived from Ayers Table 1 and suggests that irrigation waters <3 meq/L (69 mg/L) is suitable for crops that are sprinkler irrigated.

Key:

µS/cm = microsiemens per centimeter (1 µS/cm = 1 µmhos/cm = 1/1,000 dS/m)
ASCE = American Society of Civil Engineers
Cl^-_{et} = maximum chloride threshold of the saturated soil paste
EC = electrical conductivity of applied water
EC_{et} = Soil salinity threshold for a given crop
FAO = Food and Agriculture Organization of the United Nations
Friant Division = Friant Division of the Central Valley Project
mg/L = milligrams per liter
SAR = sodium adsorption ratio
TDS = total dissolved solids

Table 4: Friant-Kern Canal Water Quality Constituents Short List

Constituent	Units	Thresholds
1,2,3 TCP	(µg/L)	0.005
Arsenic	(mg/L)	0.010
Bicarbonate	(mg/L)	--
Boron	(mg/L)	See Table 3
Bromide	(mg/L)	--
Calcium	(mg/L)	--
Chloride	(mg/L)	See Table 3
Chromium, total	(mg/L)	0.05
Hexavalent chromium	(mg/L)	0.010
Iron	(µg/L)	300
Magnesium	(mg/L)	--
Manganese	(µg/L)	50
Nitrate	(mg/L)	10
pH		--
SAR		See Table 3
Salinity (as EC)	(µS/cm)	See Table 3
Selenium	(µg/L)	2
Sodium	(mg/L)	See Table 3
Sulfate	(mg/L)	500
TDS	(mg/L)	-- *
Total Organic Carbon	(mg/L)	--
TSS	(ppm)	See Table 3
Turbidity	(NTU)	See Table 3
Gross alpha	pCi/L	15

Notes:
Thresholds are Title 22 MCLs unless otherwise noted.
Constituent with threshold denoted as "--" do not have an established MCL.
Refer to Table 1 and Notes for Table 1 for additional details.
*TDS MCL not listed for the purposes of these Guidelines. TDS and EC are both a measure of salinity and the EC thresholds shown in Table 3 are controlling.

Attachment A. Water Quality Advisory Committee Charter

Background and Objective

The Guidelines for Accepting Water into the Friant-Kern Canal ("Guidelines") were adopted by the Friant Water Authority (FWA) based on the voluntary consensus of and written agreement with a significant majority of the contractors of the Friant Division of the Central Valley Project ("Friant Division"). The Guidelines address concerns regarding the implementation of programs and projects that could introduce water of a lesser quality to the Friant-Kern Canal ("FKC"), when compared to water quality of historic deliveries from Millerton Lake. The Guidelines include water quality constituent thresholds based on agronomic principles and a ledger mechanism to determine the required mitigation for introducing water of lesser quality into the FKC.

The Guidelines provide that FWA will appoint a Water Quality Advisory Committee ("Committee") composed of Friant Division long-term contractors ("Friant Contractors") involved in either introducing water to or receiving water from the FKC. The Committee will provide recommendations to FWA and Reclamation on operations and water quality monitoring requirements of the FKC as well as potential revisions to the Guidelines. This document describes Committee membership and Committee roles and responsibilities.

Water Quality Advisory Committee Membership

The appointed Committee will be composed of Friant Contractors who may either be introducing water to or receiving water from the FKC. Committee membership is described in Table 1. New members in replacement of an existing member or as a new addition to the membership list requires majority approval following notice to and the consent of the FWA Board of Directors.

Table 1. Water Quality Advisory Committee Membership

Members
Arvin-Edison Water Storage District
Delano-Earlimart Irrigation District
Kern-Tulare Water District

Lindsay Strathmore Irrigation District
Lower Tule River Irrigation District
Pixley Irrigation District
Porterville Irrigation District
Saucelito Irrigation District
Shafter Wasco Irrigation District
South San Joaquin Municipal Utility District
Terra Bella Irrigation District

Roles and Responsibilities

The Committee will convene on an annual basis prior to the irrigation season or planned reverse flow operations. The Committee will:

- Evaluate current year operations related to Guidelines implementation including but not limited to Ledger operation modifications, potential schedule changes, and potential changes to mitigation deliveries.
- Review and approve annual monitoring.
- Make recommendations regarding the costs and budgets associated with administering and implementing the Guidelines.

The Committee may also convene on an as needed basis under the following conditions:

- When Friant Division Class 1 contract allocation is less than or equal to 25 percent.
- If a future regulatory cost or equivalent fee is imposed on Friant Contractors and a portion of such fee can reasonably be attributed to the incremental difference of water quality conditions in the FKC.
- If there is a significant, scientifically based justification and three out of the following five water contractors agree that a change to Guideline principles and/or criteria should be discussed: Arvin-Edison Water Storage District, Shafter Wasco Irrigation District, Delano-Earlimart Irrigation District, South San Joaquin Municipal Utility District, or Kern-Tulare Water District.

- If FKC water quality continuously exceeds one or more constituent thresholds and pump-in operations must cease.

The Committee will make recommendations to the FWA Board via consensus decision making. If 100% consensus cannot be reached, a recommendation will be made, and minority viewpoints will also be communicated. The Committee with provide all recommendations to the FWA Board. Single-year modifications to Guidelines implementation, monitoring, and/or pump-in operations will be noticed to all Friant Contractors. Recommendations requiring substantial modifications or updates to the Guidelines will be provided to the FWA Board and the FWA will coordinate with Reclamation to implement recommended changes.

Monitoring Subcommittee

The Committee will appoint at least three and no more than five representatives of its members to serve on a Monitoring Subcommittee that will coordinate with FWA on the implementation of the Guidelines particularly with respect to potential or actual exceedance of the water quality thresholds established under these Guidelines and the implementation of required mitigation, including the reduction of discharges of Non-Millerton water into the FKC. The Subcommittee will make recommendations to FWA in accordance with Section B.2.d above, but the final operational decisions will be made by FWA.

Attachment B. Monitoring Program Summary

Summary of requirements for monitoring campaign specified in the Guidelines for Accepting Water into the Friant-Kern Canal

Sample Source/Type		Trigger	Constituents/Bacterial Organisms	Frequency	Location	Communication
Source of Discharge Water						
1	Non-Millerton Lake Source	Routine sampling.	All in Table 1	Every three years	Discharge Location.	Reported to FWA and Reclamation FKC's Contracting Office for review. FWA will report to Friant contractors.
2	Non-Millerton Lake Source	Routine sampling.	All in Table 4	Annually	Discharge Location.	
3	Non-Millerton Lake Source	If routine sampling of Table 4 water quality constituents shows exceedance of an established threshold buffer. **	Any in Table 4 exceeding the established threshold buffer.	Weekly for targeted constituents of concern, until four consecutive tests show consistent water quality results.	Discharge Location.	
4	Non-Millerton Lake Source	Reclamation on a case-by-case basis per condition of program operations.	Any	Any	Any	
Blended Canal Water						
5	FKC Water	Routine sampling (continuous).	EC	Real-time, Every 15 minutes	Check structures and mile posts in Table 2	Uploaded to FWA's IOS. FWA will regularly calibrate equipment.
6	FKC Water	If Friant Water Quality Model forecasts exceedance of an established threshold buffer. **	Any in Table 4 exceeding the established threshold buffer.	Weekly. Until sampled data, supported through modeling, show four consecutive tests below the established threshold buffer.	Check structures and mile posts in Table 2, where water quality changes are expected.	FWA will deliver to ELAP certified lab. Forecasted and measured in-prism water quality will be communicated by FWA to Friant contractors.
7	FKC Water	Specific operation disruptions (servicing of real-time equipment, unexpected outages, etc.).	EC	Any	Any	
8	CVC	Reverse-flow, and pump-back operations.	All in Table 4	Weekly	CVC, near Intertie	FWA will deliver to ELAP certified lab. Water quality data will be communicated via FWA's IOS.
9	CVC	Initiation of pump-back operations, and/or anticipated that CVC operations will significantly change water quality	All in Table 1 and Table 4	As needed	CVC, near Intertie	FWA will deliver to ELAP certified lab. Water quality data will be communicated via FWA's IOS.

Notes: References to tables above (Table 1, 2, 4) from Friant Water Authority draft Guidelines for Accepting Water into the Friant-Kern Canal.

**Threshold buffers that will trigger continued monitoring are 80% of the thresholds established in Table 4.

Key:

EC = electrical conductivity

CVC = Cross Valley Canal

ELAP = Environmental Laboratory Accreditation Program

FKC = Friant-Kern Canal

IOS = Intellisite Operation System

Reclamation = U.S. Department of the Interior, Bureau of Reclamation

Attachment C. Agronomic Impacts and Mitigation

CONTENTS

FIGURES

TABLES

ACRONYMS AND ABBREVIATIONS

µmhos/cm	micromhos per centimeter (1 µmhos/cm = 1 µS/cm = 1/1,000 dS/m)
µS/cm	microsiemens per centimeter (1 µS/cm = 1 µmhos/cm = 1/1,000 dS/m)
Ad hoc Committee	Ad hoc Water Quality Committee
AEWSD	Arvin-Edison Water Storage District
ATP	adenosine triphosphate
AW	applied water
B	boron
B_e	boron concentration of the saturated soil paste (rootzone boron)
B_{et}	maximum boron threshold of the saturated soil paste
B_w	boron concentration of applied irrigation water
B_{sw}	boron threshold for soil water concentration
Ca	calcium
Ca^{2+}	calcium ion
$CaCO_3$	calcite or calcium carbonate
cfs	cubic feet per second
Check 21	Check Structure 21 at milepost 172,40 on the California Aqueduct
Cl^-	chloride ion
Cl^-_e	chloride concentration of the saturated soil paste (rootzone chloride)
Cl^-_{et}	maximum chloride threshold of the saturated soil paste
Cl^-_w	chloride concentration of applied irrigation water
CO_2	carbon dioxide
CO_3^{2-}	carbonate ion
CVC	Cross Valley Canal
DEID	Delano-Earlimart Irrigation District
dS/m	deciSiemens per meter (1 dS/m = 1,000 µmhos/cm = 1,000 µS/cm)
EC	electrical conductivity
EC_e	electrical conductivity of the saturated soil paste (rootzone salinity)
EC_{dw}	electrical conductivity/salinity of irrigation drainage water
EC_w	electrical conductivity/salinity of applied irrigation water
ET	evapotranspiration
F_c	concentration factor
FKC	Friant-Kern Canal
Friant Division	Friant Division of the Central Valley Project
FWA	Friant Water Authority

HCO_3^-	bicarbonate
Intermediate	Water quality representing the average of California Aqueduct Check 21 and Cross Valley Canal water qualities
KTWD	Kern Tulare Water District
LF	leaching fraction
LR	leaching requirement
Mg^{2+}	magnesium ion
Mg	magnesium
meq/L	milliequivalents per liter
mg/L	milligrams per liter (equivalent to ppm)
Na^+	sodium ion
Na	sodium
pH	Measure of acidity or alkalinity
Policy	Friant-Kern Canal Water Quality Policy
ppm	parts per million (equivalent to mg/L)
RDI	regulated deficit irrigation
SAR	sodium adsorption ratio
SAR_{adj}	adjusted sodium adsorption ratio
SID	Saucelito Irrigation District
SSJMUD	South San Joaquin Municipal Utility District
SWID	Shafter-Wasco Irrigation District
TDS	total dissolved solids

BACKGROUND

The Guidelines for Accepting Water into the Friant-Kern Canal (Guidelines) were developed in response to concerns regarding the implementation of programs and projects that could introduce water of a lesser quality to the Friant-Kern Canal (FKC), when compared to water quality of historic deliveries from Millerton Lake. The Guidelines define requirements for discharging water into the FKC, water quality monitoring and reporting requirements, mitigation requirements, and forecasting and communication protocols. The Guidelines propose a ledger mechanism to determine the required mitigation for introducing water of lesser quality into the FKC. This attachment to the Guidelines provides additional information on agronomic effects, mitigation requirements, and approach for defining maximum water quality thresholds for key constituents. The thresholds are specific to irrigation periods that correspond to the growing season and agricultural management practices during the year.

AGRONOMIC EFFECTS

When assessing the suitability of water for irrigation, three main hazards or "agronomic thresholds" are considered (Ayers and Westcot, 1985): (1) the salinity hazard (electrical conductivity of the applied irrigation water [EC_w]), (2) the hazard posed by specific ions (chloride [Cl^-], boron [B], and sodium [Na^+]), and (3) the infiltration hazard (sodium adsorption ratio [SAR] and ECw). There are other parameters, such as acidity (pH) or alkalinity, sediments and nutrients that can affect calcite ($CaCO_3$) deposits, emitter clogging, crop development, and corrosion, but these do not fall under "agronomic thresholds."

The primary source of imported water is proposed to come from the Friant-Kern Canal/Cross Valley Canal Intertie (Intertie) and conveyed via reverse-flow, pump-back operations. Water being introduced at the Intertie might include previously banked groundwater of Kern Fan water quality, Cross Valley Contract supplies, recaptured and recirculated San Joaquin River Restoration Program Restoration Flows, and other colors. Water quality conditions from the Cross Valley Canal (CVC)could range from existing conditions in the Cross Valley Canal (CVC) to that from the California Aqueduct, depending on respective canal operations. For the analysis presented herein, both CVC and California Aqueduct (measured at Check 21) water qualities were used, as well as a weighted average of those two sources (Intermediate) applied to show the range of potential imported water qualities. Source water quality concentrations are shown in Table 1 and Table 2.

Table 1. Average Concentrations of Various Irrigation Water Quality Constituents

LOCATION	WATER QUALITY CONSTITUENTS			
	TDS (/L)	EC_w (µS/cm)	Boron (B) (mg/L)	Chloride (Cl^-) (mg/L)
FKC[1, 2]	24	40	0.04	1.9
CVC[1, 3]	180	340	0.11	45.0
Intermediate[4]	232	420	0.16	63.2
Check 21[5]	283	500	0.21[6]	81.3

Note:
[1] Water quality data from AEWSD grab samples lab data from 2010 – 2019. Averages exclude months when mixing occurred.
[2] Sample taken at terminus of FKC.
[3] Sample taken at AEWSD CVC, Pumping Plant 6 or 6B Forebay.
[4] Weighted average of CVC and Check 21 water quality.
[5] California Aqueduct measured at Check 21 from 2009-2017.
[6] Check 21 Boron measurements only available for years 1967 – 1976.
Key:
AEWSD = Arvin Edison Water Storage District
Check 21 = Check Structure 21 at milepost 172,40 on the California Aqueduct
CVC = Cross Valley Canal
µS/cm = microsiemens per centimeter (1 µS/cm = 1 µmhos/cm = 1/1,000 dS/m)
EC_w = electrical conductivity of applied water
FKC = Friant-Kern Canal
Intermediate = Water quality representing the average of California Aqueduct Check 21 and Cross Valley Canal water qualities
mg/L = milligrams per liter
TDS = total dissolved solids

Table 2. Average Monthly Electrical Conductivity, Chloride, and Boron Concentrations by Source and Year Type

MONTH	CVC[1]			CHECK 21[2]		
	Wet[3]	Average[4]	Dry[5]	Wet[6]	Average[4]	Critical[7]
Average Monthly Electrical Conductivity Concentrations by Source and Year Type (µS/cm)						
January	431	369	287	309	523	598
February	570	433	378	269	551	680
March	261	273	275	248	545	671
April	240	270	277	255	500	616
May	--	306	306	195	479	575
June	385	384	383	174	471	597
July	257	292	307	206	385	542
August	286	308	335	249	425	643
September	323	326	329	247	524	689
October	429	360	315	539	573	628
November	396	356	330	480	529	614
December	368	349	337	532	554	624
Average Monthly Chloride Concentrations by Source and Year Type (mg/L)						
January	74.5	54.4	27.7	34.0	84.5	99.0
February	104.0	63.0	46.6	31.5	87.4	104.3
March	21.0	21.8	22.0	27.5	82.9	104.3
April	19.0	21.4	22.0	33.5	72.1	100.0
May	--	31.4	31.4	25.0	73.0	88.7
June	48.5	46.1	45.2	19.0	73.4	98.3
July	28.5	33.7	35.8	25.5	55.8	84.0
August	39.6	40.7	42.0	31.0	70.3	109.0
September	53.0	48.4	43.8	22.0	92.6	116.7
October	76.0	55.0	41.0	105.5	101.6	106.7
November	68.5	54.8	45.7	90.5	86.8	95.7
December	55.5	46.7	40.8	101.0	95.5	103.0
Average Monthly Boron Concentrations by Source and Year Type (mg/L)[8]						
January	0.12	0.11	0.10	0.23	0.20	0.20
February	0.16	0.15	0.14	0.30	0.26	0.25
March	0.10	0.11	0.11	0.33	0.31	0.30
April	0.11	0.12	0.12	0.30	0.29	0.10
May	--	0.12	0.12	0.27	0.25	0.20
June	0.16	0.15	0.14	0.20	0.18	0.20
July	0.11	0.11	0.12	0.13	0.16	0.20
August	0.09	0.10	0.12	0.10	0.19	0.20
September	0.08	0.09	0.11	0.10	0.16	0.10
October	0.11	0.10	0.09	0.25	0.19	0.15
November	0.11	0.11	0.11	0.20	0.18	0.15
December	0.11	0.11	0.12	0.20	0.19	0.15

Note:
[1] Water quality data from AEWSD grab samples lab data from 2010 – 2019.
[2] California Aqueduct measured at Check 21 from 2009-2017.
[3] CVC wet year averages represent the monthly average for San Joaquin Index year types below normal, above normal, and wet and excludes months where there is mixing.
[4] Average concentrations shown represent the average of all year types and excludes months where there is mixing.
[5] CVC dry year averages represent the monthly average for San Joaquin Index year types dry and critical and excludes months where there is mixing.
[6] Check 21 wet year averages represent the monthly average for San Joaquin Index wet year types only.
[7] Check 21 critical year averages represent the monthly average for San Joaquin Index critical years only.
[8] Check 21 Boron measurements represent years 1967 – 1976 per available data.
Key:
-- = no available data. CVC water quality in wet years during May were only mixed water quality.
AEWSD = Arvin-Edison Water Storage District
Check 21 = Check Structure 21 at milepost 172,40 on the California Aqueduct
CVC = Cross Valley Canal
µS/cm = microsiemens per centimeter (1 µS/cm = 1 µmhos/cm = 1/1,000 dS/m)
mg/L = milligrams per liter

SALINITY EFFECTS ON CROPS

The effects of salinity on crops are due to two separate properties in the saline media that can impact the crop individually but more often collectively (Läuchli and Grattan, 2012): (1) Salinity increases the electrical conductivity (EC) of the soil solution which reduces its the osmotic potential and (2) specific ions (I.e. Cl-, Na+ and B) in the soil solution can potentially be toxic to certain crops.

Osmotic effects occur when the concentration of salt in the soil solution is too high to allow for normal for crop growth. Dissolved salts reduce the osmotic potential of the soil solution. Plants must adjust osmotically through either the absorption of ions from the soil solution, or the synthesis and/or accumulation of organic solutes in the root cells. The synthesis of compatible organic solutes allows a plant to adjust osmotically and survive, but at the expense of plant growth (Munns and Tester, 2008). The synthesis of organic solutes requires a considerable amount of metabolic energy (i.e., adenosine triphosphate (ATP)) that is used for cell maintenance and osmotic adjustment that could otherwise be used for growth. As a result, salt-stressed plants are stunted, even though they may appear healthy in all other regards. Both processes of adjustment (accumulation of ions and synthesis of organic solutes) occur but the extent by which one process dominates depends on the type of crop and level of salinity (Läuchli and Grattan, 2012). And in a cell, compartmentalization is critical to keep toxic ions away from sensitive metabolic processes in the cytoplasm (Hasegawa et al., 2000). Such compartmentation is controlled by transport processes in the plasma membrane and tonoplast (i.e., vacuolar membrane). The efficiency of ion transport processes, as well as metabolic costs for organic-solute synthesis, differ from crop to crop and even within a species giving rise to different salinity tolerances.

TOXIC ION EFFECTS

Specific ions (i.e., Na^+, Cl^-, and B) in the soil solution can cause direct injury to crops, causing further crop damage from what occurs from osmotic effects. Typically, toxic ion effects are commonly found in woody perennials, such as tree and vine crops, while most annual row crops remain injury free unless salinity stress is severe. Woody perennial crops have little ability to exclude sodium or chloride from their leaves, and the plants are long-lived; hence, they often suffer toxicities at even moderate soil salinities. Typically, toxic ion effects become more critical to sensitive tree and vine crops over the years.

Chloride

Chloride and sodium toxicity can damage a plant/tree physically, biochemically and physiologically. As sodium and chloride move in the transpiration stream, they are deposited in the leaves. Older leaves have more water transpire from them and consequently have higher concentrations of sodium and chloride. Once accumulated in a leaf, sodium and chloride typically do not remobilize to other tissues. As the concentration in that leaf increases, the salts can physically desiccate cells causing injury in the form of leaf burn. Necrotic leaves no longer photosynthesize and produce carbohydrates for the tree, which in turn, will impact growth and production. But even before salts accumulate in leaves to levels that cause physical injury, those salts can reduce the chlorophyll content in leaves (Dejampour et al., 2012) and interfere with enzymatic activities affecting key metabolic pathways in both respiration and photosynthesis (Munns and Tester, 2008).

Boron

Although not a main “salinizing” constituent in applied irrigation water, boron can also cause injury to the crop. Boron is an essential micronutrient for plants, but the concentration range of plant-available boron in the soil solution optimal for growth for most crops is very narrow. Above this narrow range, toxicity occurs (Grieve et al., 2012). Boron toxicity, including how and where it is expressed in the plant, is related to the mobility of boron in the plant. Boron is thought to be immobile in most species where it accumulates in the margins and tips of the oldest leaves where injury occurs. However, boron can be re-mobilized by some species due to high concentrations of sugar alcohols (polyols) where they bind with boron and carry it to younger tissues (Brown and Shelp, 1997). These boron-mobile plants include almond, apple, grape, and most stone fruits. For these crops, boron concentrations are higher in younger tissue than in older tissue, and injury is expressed in young, developing tissues in the form of twig die back, gum exudation, and reduced

bud formation. Boron-immobile plants such as pistachio, tomato, and walnut do not have high concentrations of polyols, and the boron concentrates in the margins of older leaf tissues. Injury in these crops is expressed as the classical necrosis on leaf tips and margins.

Sodium

Sodium can be problematic to a crop in several ways. It can be directly toxic to the plant, it can interfere with the nutritional status of the plant (e.g., Na^+-induced calcium [Ca^{2+}] deficiency), or it can indirectly affect the crop due to its adverse effect on soil structure. Some trees are very sensitive and can develop Na^+ toxicity when concentrations of Na^+ are as low of 5 milliequivalents per liter (meq/L) (115 mg/L) in the soil water. However, this observation was made before scientists realized the importance of adequate Ca^{2+} in the soil water for root membrane stability to maintain their selectivity for ion uptake. With adequate Ca^{2+}, such as that provided by gypsum applications, sodium toxicity may never be observed in these sensitive trees at such low sodium concentrations. Therefore, rather than having a threshold for Na^+ per se, the sodium-calcium ratio in the soil solution is a better indicator of Na^+ toxicity. The SAR of the applied irrigation water has been used as a surrogate for the sodium-calcium ratio, and the general rule is an SAR < 3 is not problematic.

$$SAR = \frac{Na^+}{\sqrt{\frac{(Ca^{2+} + Mg^{2+})}{2}}}$$

Where Na^+, Ca^{2+}, and magnesium ion (Mg^{2+}) concentrations are expressed in meq/L.

This is different when assessing sodium's indirect effect on soil structural stability (see the Infiltration Hazard section that follows). Table 3 shows critical SAR of the applied irrigation water above which can cause injury or nutritional distress in sensitive crops. Table 4 shows the seasonal average SAR for various water sources.

Table 3. Critical SAR of Applied Irrigation Water

CROP[1]	CRITICAL SAR OF APPLIED IRRIGATION WATER
All Crops	< 3

Note:
[1] Many tree crops are sensitive to Na+ toxicity after several years when sapwood converts to heartwood releasing Na^+ from the root to the shoot. Most annual crops are insensitive to Na^+ per se provided there is sufficient Ca^{2+} in the soil solution to maintain membrane integrity and ion selectivity. Hence, the ratio of sodium to calcium is more critical (Grattan and Grieve, 1992).

Key
Ca^{2+} = calcium ions
Na^+ = sodium ions
SAR = sodium adsorption ratio

Table 4. Seasonal Average SAR for Various Water Sources

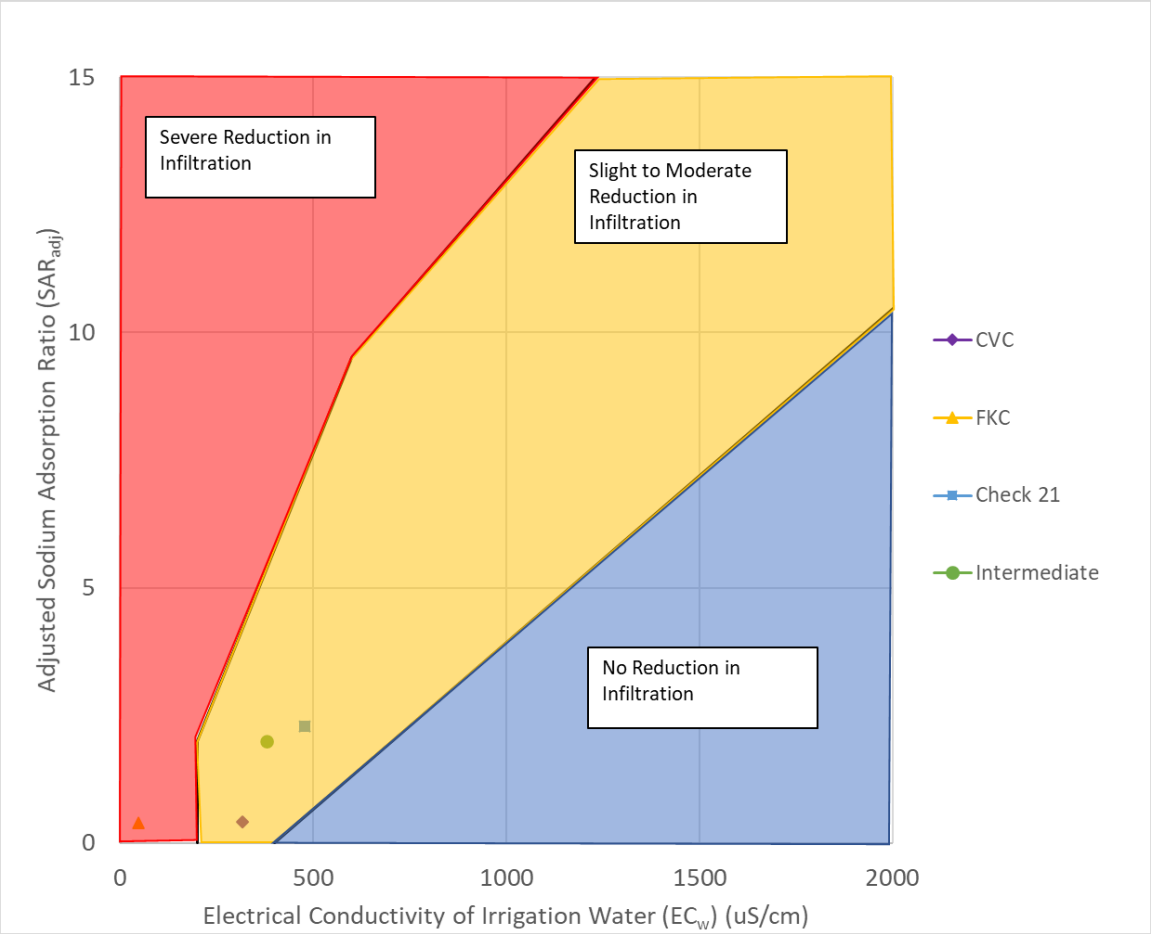
VALUE[1]	FKC[2, 3]	CVC[2, 4]	INTERMEDIATE[5]	CHECK 21[6]
Average	0.46	1.68	1.99	2.27
Maximum	0.87	2.04	2.46	2.96
Minimum	0.28	1.10	1.61	1.79

Note:
[1] March through October period.
[2] Water quality data from AEWSD grab samples lab data from 2011 – 2017.
[3] Sample taken at terminus of FKC.
[4] Sample taken at AEWSD CVC, Pumping Plant 6 or 6B Forebay.
[5] Weighted average of CVC and Check 21 water quality.
[6] California Aqueduct measured at Check 21 from 1968-2017.
Key
AEWSD = Arvin Edison Water Storage District
Check 21 = Check Structure 21 at milepost 172,40 on the California Aqueduct
CVC = Cross Valley Canal
FKC = Friant-Kern Canal
Intermediate = Water quality representing the average of California Aqueduct Check 21 and Cross Valley Canal water qualities
SAR = sodium adsorption ratio

INFILTRATION HAZARD

Sodium Adsorption Ratio

The SAR has been the standard used for assessing the infiltration hazard of applied irrigation water (Ayers and Westcot, 1985). But the actual infiltration hazard is assessed by balancing the opposite effects of salinity (EC_w) and sodicity (i.e., SAR) on aggregate stability. High salinity and low SAR are both important in maintaining adequate soil structure, which promotes better infiltration. Even though coarse-textured soils infiltrate faster than fine-textured soils, the hazard exists for all soil types. Typically, the adjusted SAR (SAR_{adj}) is used rather than the SAR as it more accurately accounts for $CaCO_3$, precipitation, and dissolution processes in the soil solution near the soil surface that control the free Ca^{2+} concentration. Figure 1 shows the relationship between the EC_w of the applied irrigation water and the SAR_{adj} as it relates to zones of "likely reductions" in infiltration rates (red), "slight to moderate reductions" in infiltration rates (yellow) and "no reductions" in infiltration rates (blue), adapted from Hanson et al., 2006. The threshold value is, therefore, variable and is considered to be the line that separates the "blue" and "yellow" zones on Figure 1. It is very important to note that low EC_w concentration (i.e., EC_w < 200 µS/cm) causes a reduction in water infiltration regardless of the SAR. Figure 1 also compares this relationship with various water sources. Note that FKC water falls in the red "severe reduction in infiltration" zone because of its low EC_w concentration, while water from the CVC or mixed with CVC water falls in the yellow "slight to moderate reduction in infiltration" zone. The addition of gypsum to FKC water increases the EC_w concentration, moving the point to the right and away from the "severe reduction in infiltration" zone while slightly reducing the SAR.



Key:
µS/cm = microsiemens per centimeter
Check 21 = California Aqueduct Check 21
CVC = Cross Valley Canal
FKC = Friant-Kern Canal
Intermediate = Water quality representing the average of California Aqueduct Check 21 and Cross Valley Canal water qualities

Figure 1. Comparison of Various Water Source Relationship between the Salinity of Applied Irrigation Water and the Adjusted Sodium Adsorption Ratio

Calcium-Magnesium Ratio

Calcium nutrition can be problematic under several conditions. Calcium deficiency can occur under low-saline conditions when the concentration of free calcium [Ca^{2+}] is $\leq$ 1-2 millimoles/L in the soil solution. Deficiency can also occur under high sodic conditions where the SAR exceeds 10-15 in sensitive plants due to high sodium-calcium ratios or in alkaline conditions where Ca^{2+} precipitates out of the soil solution as it forms $CaCO_3$. Due to competition in the plant between calcium and magnesium at the root membrane, calcium nutrition could potentially be compromised when the calcium-magnesium ratio is generally less than 1 (Rhoades, 1992). Table 5 shows the seasonal average calcium-magnesium ratio for various water sources. Note the ratios for both FKC and CVC water are considerably higher than 1, while the ratio at California Aqueduct Check 21 is very close to 1 but will likely increase in the soil solution as the infiltrating water dissolves existing gypsum in the soil from previous amendment use. Therefore, calcium deficiencies, using CVC or Check 21 water or any mixture of the two, are unlikely.

Table 5. Seasonal Average Calcium-Magnesium Ratio for Various Water Sources

VALUE[1]	FKC,[2 3]	CVC[2, 4]	INTERMEDIATE[5]	CHECK 21[6]
Average	3.54	4.37	1.55	0.92
Maximum	6.16	8.24	2.00	1.00
Minimum	0.17	2.14	1.20	0.77

Note:
Based on molar or equivalent concentrations.
[1] March through October period.
[2] Water quality data from AEWSD grab samples lab data from 2011 – 2017.
[3] Sample taken at terminus of FKC.
[4] Sample taken at AEWSD CVC, Pumping Plant 6 or 6B Forebay.
[5] Weighted average of CVC and Check 21 water quality.
[6] California Aqueduct measured at Check 21 from 1968-2017.
Key
AEWSD = Arvin Edison Water Storage District
Check 21 = Check Structure 21 at milepost 172,40 on the California Aqueduct
CVC = Cross Valley Canal
FKC = Friant-Kern Canal
Intermediate = Water quality representing the average of California Aqueduct Check 21 and Cross Valley Canal water qualities
SAR = sodium adsorption ratio

PH AND BICARBONATE EFFECTS

The pH of both the applied irrigation water and the soil solution are important factors that may affect either the suitability of water for irrigation or its effect on nutrient availability to the crop. And many of the adverse effects of pH are associated with combined high alkalinity (high concentrations of bicarbonate [HCO_3^-] and carbonate [CO_3^{-2}]). In slightly alkaline waters (pH 7- 8.3), the alkalinity is from bicarbonate. Only when the pH exceeds 8.3 does carbonate become present. The pH of the water is an indication of the activity of the hydrogen ion. The numerical pH value is expressed on a negative log scale such that a one-unit increase or decrease corresponds to a ten-fold increase or decrease in the hydrogen ion activity. Therefore, a change of soil pH from 6 to 8 corresponds to a hundred-fold decrease in the hydrogen ion activity.

The pH of applied irrigation water can affect irrigation equipment or cause calcite (i.e. lime) deposits on vegetation. Regarding irrigation equipment, the pH is one of several water quality factors than can influence corrosion of galvanized pipes or other metallic parts. The pH can also influence precipitation of calcite ($CaCO_3$) at the orifices of drip emitters or minisprinklers which will affect the system's overall performance. This can be problematic if alkaline irrigation water, combined with sufficiently high bicarbonate and calcium concentrations, is used over the long term without periodic acid flushes to reduce scale buildup. Calcite precipitation becomes more problematic if the pH of the applied irrigation water exceeds 8.5. In addition, if such water is sprinkler irrigated above the canopy, it can cause unsightly white deposits that form on leaves and fruit. While these deposits typically do not cause harm to the crop, they nonetheless can affect the aesthetic quality. Acid additions to the irrigation water will not only reduce the pH but will reduce the [HCO_3^-], reducing the potential for $CaCO_3$ precipitation. Acid additions convert bicarbonate to carbon dioxide (CO_2) gas.

As the applied irrigation water infiltrates the soil, it interacts with the soil minerals. Therefore, the pH of the infiltrating water will change as it interacts with soil minerals, but soils are typically well buffered, as are soils in the FWA service area. Well buffered soils resist large changes in pH in the soil solution. The seasonal average pH of the irrigation water ranges from 7.1 to 8.4 depending upon the mixture of FKC water and California Aqueduct water. Because of the buffering capacity of the soil, this range in applied irrigation water pH will make little impact of the pH of the soil solution.

The pH of the soil solution has a profound influence on plant nutrient availability, nutrient uptake and ion toxicity to plants. The vast majority of soils that are cultivated for crop production around the world fall within the neutral, slightly acid and slightly basic pH range (i.e. pH 6-8). This is the general range where nutrient availability is optimal. However, there are those soils where the pH falls far from this normal range and these,

if not corrected to an adequate range, can pose adverse effects on crops. Soils that are highly acidic (pH < 5.5) or highly alkaline (pH > 8.5) present a spectrum of challenges for the plant including nutrient availability, ion toxicities, and nutrient imbalances influencing the ion relations and nutrition within the plant itself (Läuchli and Grattan, 2012).

Most nutrients are not equally available to plants across the pH spectrum (Epstein and Bloom, 2005). Several mineral nutrients are severely affected in these non-optimal pH soils, particularly calcium, potassium, phosphorus, and iron. The reactions of plants to these nutrient elements under extreme soil pH conditions can affect plant growth, physiological processes and their morphological development (Läuchli and Grattan, 2012). The majority of the soils irrigated with waters from districts within the FWA, however, fall in the slightly alkaline range with the pH in the rootzone between 7.5 and 8.3 (UC Davis Soilweb https://casoilresource.lawr.ucdavis.edu/gmap/). Therefore, these soils are slightly alkaline, based largely on the natural abundance of calcite in the soil, and are at the upper end of the optimal pH range. Depending on the alkalinity of the soil water and [Ca^{2+}], some of the Ca^{2+} can precipitate out as $CaCO_3$ which decreases the calcium-magnesium ratio. Intermittent injection of acids in the applied irrigation water will reduce the pH and, consequently, the alkalinity of the water. Not only is this a maintenance measure to reduce calcite buildup on the orifices of drip emitters and minisprinklers, it drops the pH of the water which decreases bicarbonate, increases the [Ca^{2+}] and availability of other plant nutrients. Most growers in the San Joaquin Valley have some maintenance, acid-injection program in place. However, in Kern county, this may not be common practice in all districts. Acid applications, the residual gypsum in the soil and periodic applications of additional gypsum, are all a means of providing sufficient free Ca^{2+} in soils in Kern country. Moreover, increasing the [Ca^{2+}] in the soil water simultaneously improves the calcium-magnesium ratio.

Sprinkler irrigated fruit and vegetable crops (approximately 20% of studied districts) could be susceptible to formation of white deposits on leaves and fruit, or “white wash,” and reduced marketability if bicarbonate concentrations, or [HCO_3], in applied irrigation water are too high (> 1.5 meq/L, leaving a white residue on the crop surface. Bicarbonate concentrations in the California Aqueduct water theoretically could cause “white washing” under sprinkler irrigation, especially during dry and breezy conditions. “White washing” is a concern to some growers and has been seen by growers occasionally in the study area; however, it is not known what the exact cause of the “white washing” was, whether it was from undiluted California Aqueduct water or some other source. Bicarbonate levels of 1.5 meq/L or 92 mg/L and higher may increase formation of white deposits. The seasonal average for [HCO_3] of CVC water is 78.5 mg/L. While this concentration is less than 92 mg/L, special management practices may be needed to mitigate or avoid “white wash” impacts during periods of elevated bicarbonate levels. These may include blending with higher quality sources or changing irrigation methods away from sprinklers that wet the foliage (Provost & Pritchard, 2012).

CORROSION AND DEGRADATION OF MATERIALS

The comparison of corrosion potential of California Aqueduct water and FKC water from Millerton Lake was performed by Provost & Pritchard in 2012 on several chemical constituents and calculated indices including: pH, Langelier Index, Ryzner Index, EC, resistivity, sulfates, and chlorides. This comparison generally showed that FKC water has a slight tendency to degrade concrete structures by leaching out minerals, but metallic corrosion will be low. Comparatively, California Aqueduct water will have a lower tendency to leach out minerals from concrete, and will have a more corrosive effect on metals, although there is only a slight difference between the two water sources in either case (Provost and Pritchard, 2012).

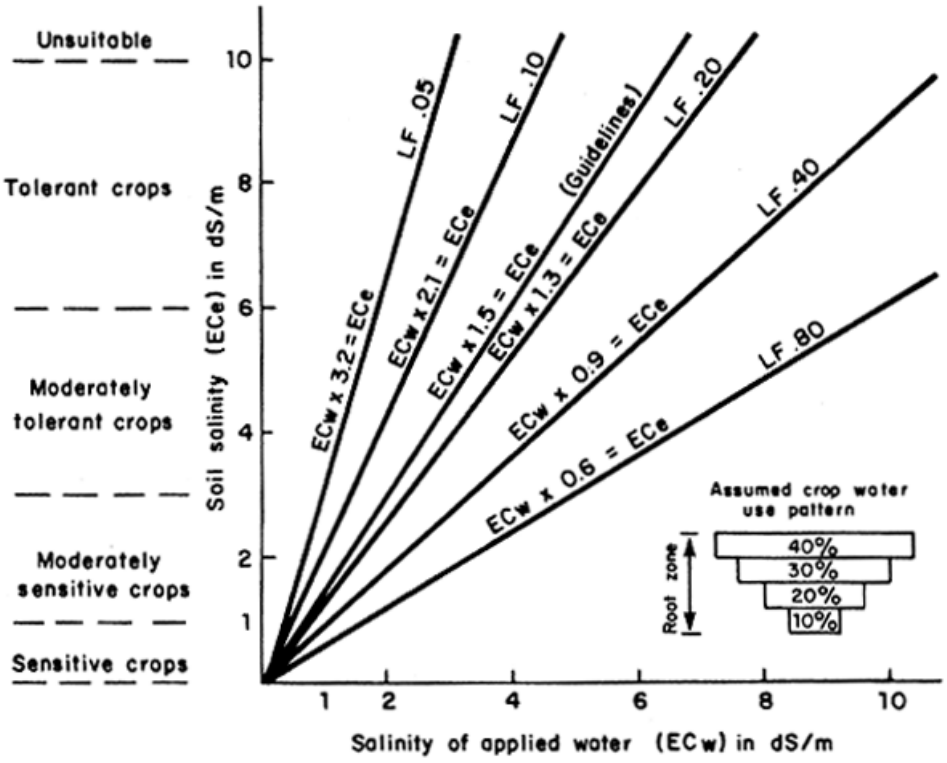
Materials such as brass, bronze, PVC, polyethylene, and stainless steel usually have a high corrosion tolerance, and therefore would not likely be affected by the exchange of source waters. The forecasted increase in corrosion from using more California Aqueduct water is likely manageable with the use of special coatings and proper selection of new materials and would likely result in minor increase in O&M costs (Provost and Pritchard, 2012).

AGRONOMIC LEACHING REQUIREMENTS

Agronomic leaching is the application of irrigation water in excess of the soil water holding capacity to neutralize the agronomic effects associated with increased salinity and ion toxicity in the crop rootzone. This approach aims to balance concerns related to long-term groundwater quality with a multi-layered assessment of agronomic impacts as a durable solution. The amount of leaching required, referred herein as maintenance leaching, depends upon the sensitivity of the crop to salinity and the irrigation water salinity. The higher the salinity of the applied irrigation water and the more sensitive the crop is to salinity, the greater the amount of leaching is required. This same leaching concept can also be applied to chloride and boron.

LEACHING FRACTION VS LEACHING REQUIREMENT

Often, leaching fraction (LF) and leaching requirement (LR) are used interchangeably. The two, in fact, are different. The LF is defined as the volume of water that drains below the rootzone divided by the volume of water that infiltrates the soil surface (equivalent to applied irrigation water assuming no surface runoff or evaporation). The LF can also be estimated based on the salinity of the applied irrigation water, or [EC_w], and that of the drainage water, or [EC_{dw}], where LF = EC_w/EC_{dw}. The crop roots extract water from the rootzone leaving the salts behind. If the crop rootzone is divided in quarters, typically the top quarter uses 40% of the water, the second quarter 30%, third quarter 20% and bottom quarter 10%. Therefore, the salt concentration increases with soil depth. The lower the LF, the more salts accumulate and concentrate at lower depths. Figure 2 is a representation of this relationship under conventional irrigation. The relationship between irrigation water salinity (EC_w) and soil salinity (EC_e) is linear but the slopes of the relationships are dependent upon the LF. The slopes decrease with increasing LF. The higher the LF, the higher the irrigation water salinity can be to maintain the yield of a crop. In Figure 2, note the dashed lines along the y-axis indicating the general salt tolerant categories as the salinity of the applied irrigation water changes.



Key:
dS/m = deciSiemens per meter (1 µS/cm = 1 µmhos/cm = 1/1,000 dS/m)
LF = leaching fraction

Figure 2. Relationship Between Soil Salinity (EC_e) and Salinity of the Applied Irrigation Water (EC_w) under a Series of Steady-State Leaching Fractions (0.05 to 0.80) (from Ayers and Westcot, 1985)

The LF concept is attractive in that it allows predictions of average rootzone salinity (EC_e) conditions from the applied irrigation water EC (EC_w) and assumed LF. Knowing the scientifically determined salinity threshold value (EC_{et}) for a particular crop, one can use this relationship to determine the maximum irrigation water salinity (EC_w) for a given LF. The relationship between EC_w, EC_e, and LF also depends on irrigation management. That is, EC_e = Concentration Factor (F_c) * EC_w where 'F_c' depends not only on the LF but the type of irrigation method. Applicable F_c values for conventional irrigation methods such as furrow or flood, and high frequency irrigation methods, such as drip and minisprinklers, are provided in Table 6.

Table 6. Concentration Factor Values for Conventional and High Frequency Irrigation (adapted from Suarez, 2012)

LEACHING FRACTION (LF)	CONCENTRATION FACTOR (F_C)	
	Conventional Irrigation	High Frequency Irrigation
0.05	2.79	1.79
0.10	1.88	1.35
0.20	1.29	1.03
0.30	1.03	0.87
0.40	0.87	0.77
0.50	0.77	0.70

The difference in F_c values between conventional and high frequency irrigation is largely based on how crop roots respond to the salinity in the rootzone. Under conventional irrigation, crops typically respond to the average rootzone salinity (i.e. the seasonal average of the four rootzone quarters of salinity). Under high frequency irrigation, crops respond to the water uptake weighted salinity (i.e. the salinity in the top quarter is weighted 40 percent, salinity in the second quarter is weighted 30 percent, and so on). Because the salinity in the top quarter is lower where evapotranspiration (ET) is higher and higher in bottom where ET is lower, the average rootzone salinity is lower under high frequency irrigation.

The LR, on the other hand, is the lowest LF needed to sustain maximum yield given the applied irrigation water salinity concentration, or [EC_w], and yield threshold for the given crop. In other words, it is the minimum leaching needed, given the crop type and water quality, to maintain the salinity (or chloride or boron), at the maximum rootzone concentration in the rootzone that the crop can tolerate. Any increase in rootzone concentration above this maximum level will cause injury or yield reductions. LR is an attractive concept because, given an irrigation water quality and crop sensitivity, the minimum leaching needed to sustain the rootzone salinity EC_e, rootzone chloride (Cl^-_e), or rootzone boron (B_e) at levels that would avoid or reduce damage or yield losses can be estimated.

LR can be estimated using the following equation (Rhoades and Merrill, 1976; Ayers and Westcot, 1985):

$$LR\% = \frac{EC_w}{5(EC_{et}) - EC_w}\ x\ 100$$

EC_w= Electrical conductivity of irrigation water
EC_{et}= Soil salinity threshold for a given crop

Note that the LR relationship can apply to chloride and boron by substituting their respective irrigation water concentrations (i.e. Cl^-_w or B_w) and their threshold values (Cl^-_{et} or B_{et}). The LR equation assumes that crops respond to an average rootzone salinity created by a 40-30-20-10% root water extraction pattern, similar to LF predictions using conventional irrigation. The difference is that LR predicts the minimal LF to achieve maximal yields whereas the LF approach assumes an LF first, then predicts what the EC_e will be given the EC_w of the irrigation water. Both are similar but solve the problem from different directions.

LIMITATIONS TO THE STEADY-STATE LEACHING CONCEPT

The leaching fraction or requirement is an attractive concept but has limitations. First, the leaching concept assumes steady-state conditions and thus has no time element. Therefore, there is no accounting for how long leaching will take, which will differ depending upon the permeability of the soils. Second, the evapotranspiration (ET) of the crop is assumed to be independent of the average rootzone salinity, but it is not (Letey and Feng, 2007). A salt-stressed crop will use less water than a non-stressed crop. Consequently, crop ET will be reduced, and leaching, with the same quantity of applied irrigation water, will be increased. And third, in drip irrigated fields, actual LFs are difficult to quantify because LF, soil salinity, soil water content, and root density all vary with distance and depth from the drip lines.

In light of these limitations, recent studies have shown that the EC_w and EC_e relations described by Ayers and Westcot (1985), which are based on steady-state LF conditions, tend to be too conservative and overestimate soil salinity and, therefore, overestimate yield losses in most cases (Corwin and Grattan, 2018; Letey et al., 2011). Transient-state models may more accurately predict soil salinity, as well as soil chloride, sodium and boron, but they are more complicated and require many more site-specific inputs and assumptions. Therefore, transient models are still too cumbersome and time consuming to replace steady-state models.

The LF and LR concepts are both steady-state, so they assume the amount of irrigation is not limiting. The amount of water needed for irrigation can be estimated as:

$$AW = ET/(1-LR)$$

AW = applied water
ET = evapotranspiration or crop water requirement
LR = leaching requirement

The units for applied water (AW) and ET or crop requirement are typically depths of water (i.e. inches or millimeters). But in many cases, the amount of water is limiting and therefore crops can be under-irrigated and therefore not achieve the required leaching. In this case, the salts in the crop rootzone will increase over time. At some point, depending upon the salinity of the imported water and crop sensitively, the salt content (or chloride or boron) can exceed the threshold level. Because the threshold values are based on seasonal averages, exceedances above the threshold are allowed to some degree without experiencing a reduction in yield. For example, if the average Cl^-_e was 100 mg/L for the first 2/3 the season and then reached 200 mg/L for the last 1/3 of the season due to insufficient leaching, almonds on "Nemaguard" rootstock would not be expected to be damaged because the seasonal average Cl^-_e would be 133 mg/L given the Cl^-_e threshold is 150 mg/L. Nevertheless, if the required leaching is not achieved, reclamation leaching would be required. Similarly, if the preseason soil salinity is over 150 mg/L and little to no leaching is applied during the season, injury would be expected to develop on almonds on "Nemaguard" rootstock. Therefore, the LR values for various crops and salinities are based on soils where the maintenance leaching fraction is achieved each irrigation. If the pre-existing soil salinity is initially high, then the soil is not at steady-state.

DIFFERENCE BETWEEN MAINTENANCE LEACHING AND RECLAMATION LEACHING

There is a distinct difference between maintenance leaching and reclamation leaching. Maintenance leaching occurs during each irrigation by applying more irrigation water than the soil can hold. This is the leaching fraction or requirement concept described above. Therefore, the AW is higher than the ET to accommodate the necessary leaching (see equation above). Reclamation leaching, on the other hand, occurs at the end of the irrigation season by applying excess irrigation water to flush the salts from the crop rootzone. Ideally, reclamation leaching would not be required if correct maintenance leaching is achieved each irrigation during the irrigation season. However, because some fields may not get the necessary leaching, salts can accumulate, and fields may require reclamation leaching at some time. In addition, low pressure systems such as drip and mini-sprinkler systems produce characteristic salt accumulation patterns in fields, even with sufficient downward leaching. Whether salts are building up in the rootzone or between drippers or

minisprinklers, reclamation leaching is a valuable preventative measure from time to time at the end of the irrigation season.

At the end of the irrigation season, salt can be removed by sprinkler irrigation (i.e equivalent to intermittent ponding). Figure 3 shows the extent of leaching needed to address rootzone salinity. For example, if the average rootzone salinity (ECe) at the end of the season is 3000 µS/cm and the goal is to reduce the salinity in the soil down to 600 µS/cm the salinity needs to be reduced to 600/3000 = 0.2 (y-axis) or 20% of what it was before leaching. Then the amount of sprinkler irrigation water to apply is 0.5 ft (x-axis) for every foot of soil to reclaim. If the goal is to reduce the top 2 feet, then 0.5 x 2ft = 1ft of water would be needed. This assumes the combined rainfall and applied reclamation leaching water needed.

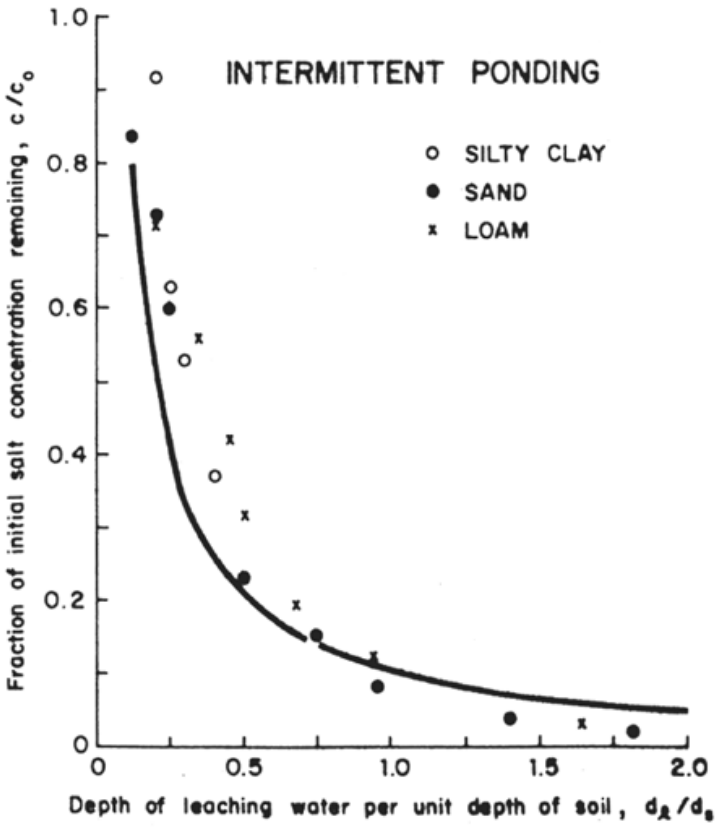


Figure 3. Reclamation Leaching Function under Sprinkler Irrigation or Intermittent Ponding (Ayers and Westcot, 1985).

The amount of reclamation leaching can be reduced by the amount of effective rainfall. To take advantage of rainfall, reclamation leaching should ideally take place after the rainfall season but before spring budding and leaf out begins, typically from October/November through March.

LEACHING AND NITROGEN MANAGEMENT

It is also important to address nitrogen management strategies combined with the salt leaching strategies. Unlike salts, nitrogen is very dynamic in the rootzone as it undergoes form changes from organic pools to inorganic fractions (primarily nitrate [NO_3^-] and ammonium [NH_4^+]). Ammonium, and particularly nitrate, are the forms primarily taken up by plants. Nitrate, being an anion, is relatively mobile in soils and is highly susceptible to leaching below the rootzone. Once nitrate leaches below the rootzone, chemical transformations are less likely to occur, and nitrate commonly continues leaching downward and eventually ends up in the aquifers. A 2002 study conducted by the Lawrence Livermore National Laboratory concluded that nitrate contamination in groundwater is “the number-one contaminant threat to California’s drinking water supply” (LLNL 2002).

Rootzone salinity control and nitrogen management is a conflicting problem. It is necessary to leach salt from the rootzone to avoid damage from salinity or ion toxicity, but nitrates will unavoidably be leaching below the

rootzone as well. If soil salinity is low at the beginning of the irrigation season (see reclamation versus maintenance leaching), then leaching at less than the critical LR is possible to avoid salt damage. Then, salinity in the profile will steadily build up over the season while soil nitrogen will be depleted due to crop uptake. At the end of the irrigation season, salinity will be the highest, and nitrate will be the lowest. Therefore, reclamation leaching can be implemented at the end of the irrigation season, and the process cycle repeats itself.

MITIGATION LEACHING REQUIREMENTS

ESTIMATING LEACHING REQUIREMENTS FOR MOST SENSITIVE CROPS

The most sensitive crops in the Friant Division were used for this analysis. Crops selected were based on their varied sensitivities to salinity, chloride, and boron. By using the most sensitive crops, all crops with higher tolerances should also be protected. The most salt-sensitive crops, or those with the lowest soil salinity threshold (EC_{et}), are beans, carrots, onions (seed), melons, and strawberries. All have an EC_{et} of 1000 µS/cm. For chloride, the most sensitive crops are almonds and other stone fruits on "Nemaguard" rootstock. The threshold Cl^-_{et}[1] is estimated to be 150 mg/L. The relationship between boron in the applied irrigation water and the saturated soil paste is more complicated because of boron's high affinity to adsorb onto the soil. Irrigation water with higher boron concentrations than predicted can be used until the boron saturates the soil adsorption sites. Because of this complexity, Ayers and Westcot (1985) concluded that the "...maximum concentration (of boron) in the irrigation water are approximately equal to these values (boron tolerance reported based on soil water bases) or slightly less," suggesting that applied irrigation water tolerances would be 0.5 – 0.75 mg/L which would protect the most sensitive crops.. However, over the long term (more than several years), boron will behave similarly to salts and chloride (D. Suarez, US Salinity Laboratory, personal communication). With the boron threshold for soil water ranging from 0.5 – 0.75 mg/L, the B_{et} is equivalent to half of the soil water concentration, or 0.25 – 0.375 mg/L. For more information on conversions from saturated soil paste to soil water concentrations, see Ayers and Westcot (1985). To be conservative, and based on the above tree and vine crop sensitivities, the B_w threshold is assumed to be 0.25 mg/L.

Table 7 shows the acreage and percentage of sensitive crops for representative water districts, and sensitivities to boron, chloride, and EC within each representative water district.

[1] It is important to note that most 'threshold' values for chloride and boron reported in literature (e.g. Grieve et al., 2012) are based on the soil water concentration. The saturated soil paste concentration (i.e. Cl^-_e or B_e) for most mineral soils is about half this value over the long-term (Ayers and Westcot 1985).

Table 7. Percentage and Area of Sensitive Crop Types within Representative Water Districts

	WATER DISTRICT											
	AEWSD		DEID		KTWD		SID		SSJMUD		SWID	
CROP TYPE	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres
Boron Sensitive[5]	**15%**	**18,883**	**5%**	**2,842**	**30%**	**5,969**	**6%**	**1,211**	**8%**	**4,629**	1%	**358**
Berries[1]	1%	761	2%	873	1%	200	n/a		<1%	63	n/a	
Cherries	2%	2,196	<1%	228	1%	160	<1%	22	<1%	211	1%	358
Citrus	11%	15,024	2%	1,301	28%	5,609	4%	825	7%	4,355	n/a	
Stone Fruits[4]	1%	902	1%	440	n/a		2%	364	n/a		n/a	
Chloride Sensitive[6]	**6%**	**7,593**	**22%**	**12,399**	**5%**	**1,040**	**17%**	**3,366**	**22%**	**13,577**	**56%**	**21,649**
Almonds (Nemaguard rootstock)	6%	7,593	22%	12,399	5%	1,040	17%	3,366	22%	13,577	56%	21,649
EC Sensitive[7]	**7%**	**8,490**	**<1%**	**175**	**n/a**		**<1%**	**50**	**1%**	**375**	**2%**	**862**
Carrots	3%	3,748	<1%	100	n/a		n/a		<1%	148	2%	784
Melons[2]	1%	777	<1%	74	n/a		<1%	50	n/a		<1%	75
Onions[3]	3%	3,961	n/a		n/a		n/a		<1%	228	<1%	1
Strawberries	<1%	4	n/a		n/a		n/a		n/a		<1%	2

Source: Data compiled from California Department of Water Resources Land Use Viewer (2017) developed by LandIQ using 2014 land use data. Districts provided updates to 2017 land use data where appropriate. DEID data was provided by the District, and data gaps were filled with LandIQ data.

Notes:

Grape Crops in DEID take up 43% (26,443 ac) of the District's land area.

"n/a" indicates that there is zero amount of a crop type in a district.

[1] Data Source lists Berries as "Bush Berries"

[2] Data Source groups Melons with Squash and Cucumbers

[3] Data Source groups Onions with Garlic

[4] Stone Fruits include Apricots, Nectarines, Peaches, Plums, and Prunes

[5] Boron Sensitive Crops include Berries, Citrus, and Stone Fruits

[6] Chloride Sensitive Crops include Almonds

[7] EC Sensitive Crops include Carrots, Melons, Onions, and Strawberries

Key:

% = percentage

AEWSD = Arvin-Edison Water Storage District

DEID = Delano-Earlimart Irrigation District

KTWD = Kern-Tulare Water District

n/a = not applicable

SID = Saucelito Irrigation District

SSJMUD = South San Joaquin Municipal Utility District

SWID = Shafter-Wasco Irrigation District

DEVELOPING MITIGATION LEACHING CURVES

This section describes quantification of mitigation based on leaching requirements for sensitive crops. This approach does not directly address the physical characteristics or dynamic nature of the rootzone, but rather is specific to sensitive crop types grown in the region and implementing sufficient leaching volumes to prevent crop injury. In addition, the volumetric mitigation quantified through this approach is not specific to a water district but is representative of all crops grown in the Friant Division.

For salinity, EC_{et} values were used to calculate LR values, as presented in Table 8 in percentages. For chloride or boron the same LR equation is used except irrigation water concentrations (i.e. Cl^-_w and B_w) in mg/L are used in place of EC_w and respective threshold Cl^-_e and B_e are used in place of EC_{et}. At each location, the quantified LR by water quality constituent is based on the most stringent LR, which assumes all water is applied to the most sensitive crop. Analysis shows a long-term LR between 5.2 and 19 percent, using the average, seasonal statistics for EC, chloride, and boron concentrations.

Table 8. Leaching Requirements for Various Sensitive Crops by Water Source and Water Quality Constituent

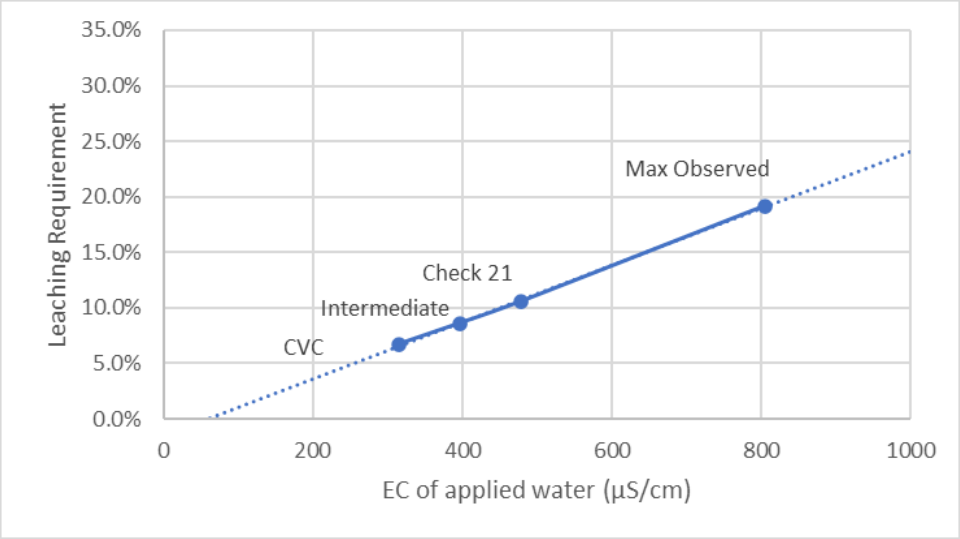
MOST SENSITIVE CROP	CVC			INTERMEDIATE			CHECK 21		
	EC	Cl^-	B	EC	Cl^-	B	EC	Cl^-	B
Carrots, onions, melons, strawberries	6.7%	-	-	8.6%	-	-	10.6%	-	-
Almonds (Nemaguard rootstock)	-	5.2%	-	-	8.1%	-	-	11.1%	-
Stone fruits, citrus, berries	-	-	8.0%	-	-	13.6%	-	-	19.0%

Key:
B = boron
Check 21 = Check Structure 21 at milepost 172,40 on the California Aqueduct
Cl^- = chloride
CVC = Cross Valley Canal
EC = electrical conductivity
Intermediate = Water quality representing the average of California Aqueduct Check 21 and Cross Valley Canal water qualities

Figures 4 through 6 show mitigation rating curves based on LR percentages, source water quality, and constituents of concern. Each mitigation rating curve was extended to show the maximum observed concentration from historical water quality data for both CVC and California Aqueduct Check 21 sources.

The LR percentages presented in Table 8 and Figures 4 through 6 represent quantified volumetric mitigation that would be applied as maintenance leaching. Maintenance leaching occurs at each irrigation by applying more water than the soil can hold, or in other words, the applied irrigation water is more than the crop requirement to accommodate the necessary leaching. The quantified LR assumes long-term steady-state conditions and does not account for leaching from rain or end-of-season reclamation practices. Any rain or end-of-season leaching will decrease the presented values.

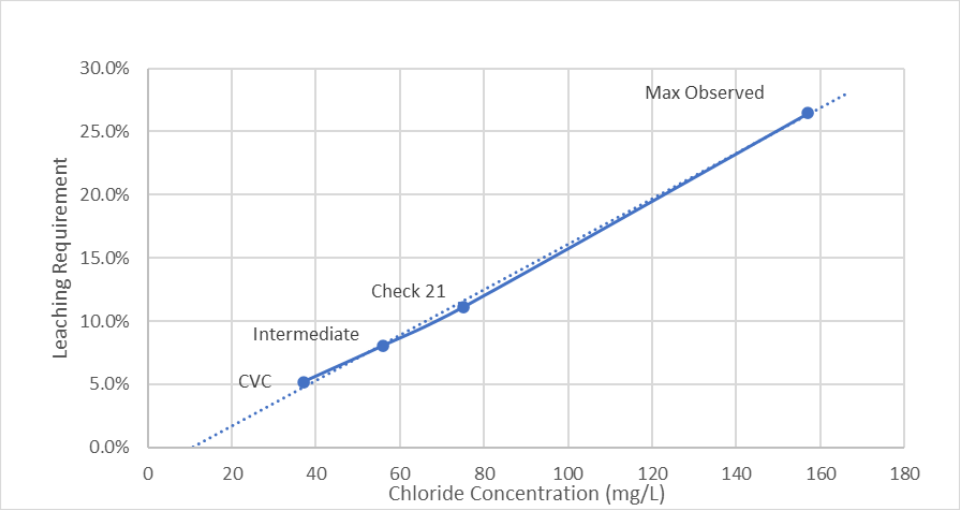
The quantified LR assumes mitigation water is delivered and applied at the same time as surface water delivery is taken. In addition, it assumes mitigation water is of the same water quality as the surface water delivery. Therefore, mitigation is only quantified for water of the same imported quality and not for both reverse flow pump-back and Millerton Lake supplies. If maintenance leaching practices are followed, reclamation leaching is unnecessary, except for in driest of years when surface supply does not meet irrigation demand or to leach salts that have accumulated between drip emitters and mini sprinklers. Using the most stringent LR, it is assumed all mitigation water is applied to the most sensitive crop.



Key:

Check 21 = California Aqueduct Check 21
CVC = Cross Valley Canal
EC = electrical conductivity
µS/cm = microsiemens per centimeter (1 µS/cm = 1 µmhos/cm = 1/1,000 dS/m)
Intermediate = Water quality representing the average of California Aqueduct Check 21 and Cross Valley Canal water qualities

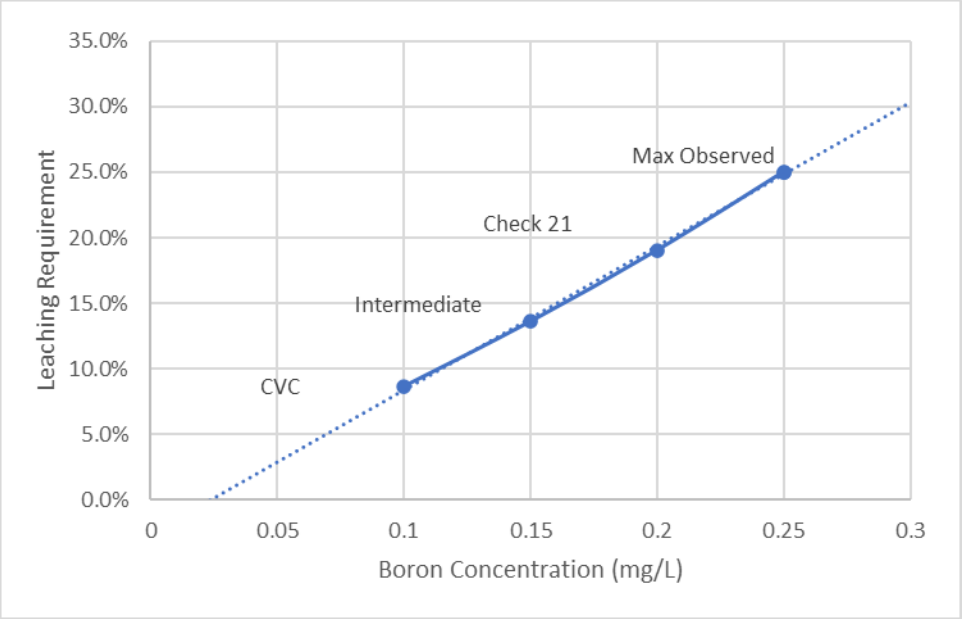
Figure 4. Leaching Requirement for Electrical Conductivity



Key:

Check 21 = California Aqueduct Check 21
CVC = Cross Valley Canal
EC = electrical conductivity
Intermediate = Water quality representing the average of California Aqueduct Check 21 and Cross Valley Canal water qualities
mg/L = milligrams per liter

Figure 5. Leaching Requirement for Chloride

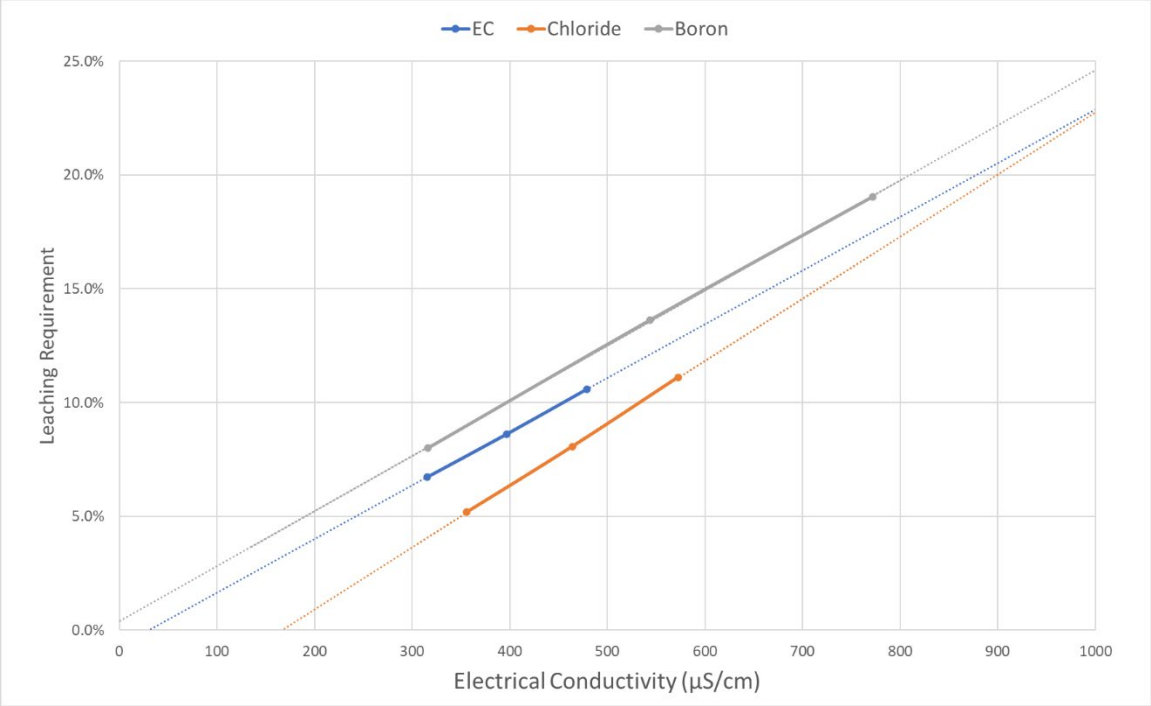


Key:
Check 21 = California Aqueduct Check 21
CVC = Cross Valley Canal
Intermediate = Water quality representing the average of California Aqueduct Check 21 and Cross Valley Canal water qualities
mg/L = milligrams per liter

Figure 6. Leaching Requirement for Boron

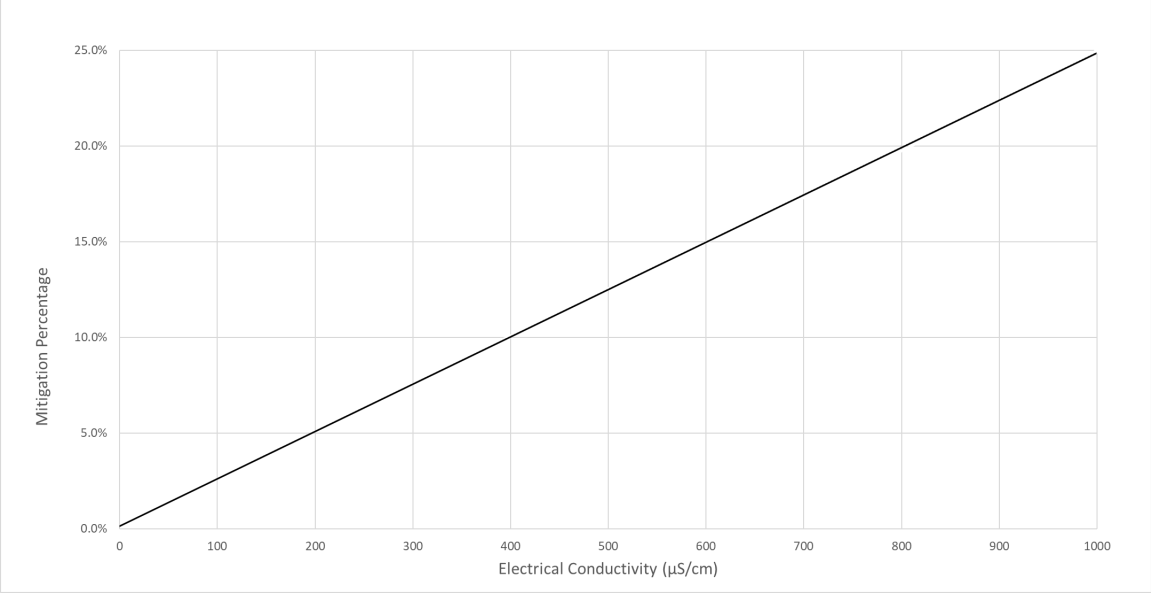
Leaching Requirement Normalization

In order to best understand the LR relationships amongst EC, chloride, and boron and to confirm the dominant constituent trend, individual rating curves were normalized to an EC concentration scale. The EC concentration was used as it can be easily measured in real-time. Figure 7 shows the stacked, normalized mitigation rating curves for all three constituents of concern. Boron is the dominant or driving constituent and has the highest LR, regardless of source water quality. The required leaching based on that curve would be sufficient to prevent crop injury due to increased EC or chloride concentrations in applied irrigation water, and, therefore, the boron curve is the proposed mitigation rating curve for the Water Quality Mitigation Ledger (Figure 8). The method for normalizing each constituent curve is described below.



Key:
µS/cm = microsiemens per centimeter (1 µS/cm = 1 µmhos/cm = 1/1,000 dS/m)
EC = electrical conductivity

Figure 7. Rootzone Leaching Curves for Electrical Conductivity, Chloride, and Boron Normalized to an Electrical Conductivity



Key:
µS/cm = microsiemens per centimeter (1 µS/cm = 1 µmhos/cm = 1/1,000 dS/m)

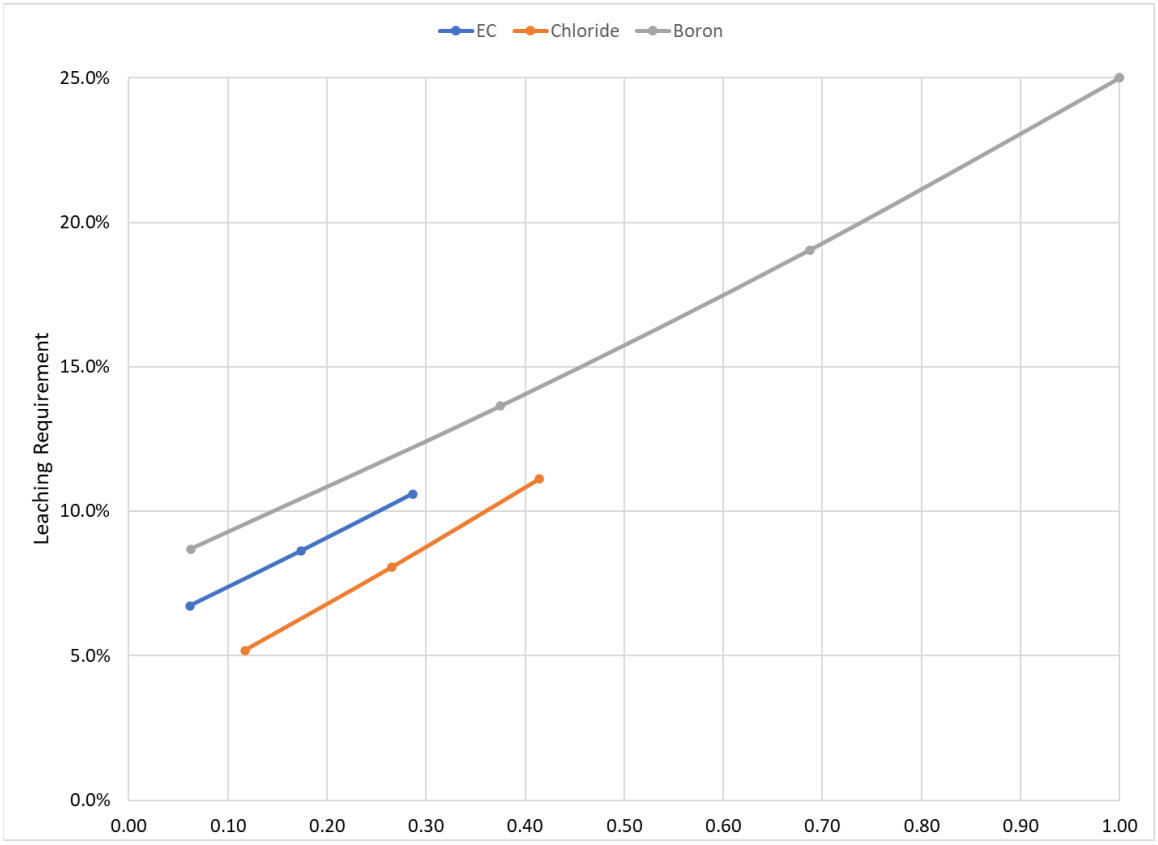
Figure 8. Proposed Mitigation Rating Curve based on Boron Sensitivity and Normalized to Electrical Conductivity

Normalization Method

As the three constituent curves have differing concentration scales and they do not show direct correlations to each other, the constituents were normalized to a common scale using the below equation.

$$X_{new} = \frac{X - X_{min}}{X_{max} - X_{min}}$$

In the equation, X represents the constituent concentration for EC, chloride, or boron. X_{min} is the minimum average, seasonal, observed concentration for a given constituent from either California Aqueduct Check 21 or CVC water quality data. The maximum observed concentration corresponded with varying leaching requirements for each of the constituents. To ensure that all constituents were normalized to the same scale and the full range of possible constituent concentrations was considered beyond the highest observed concentration for California Aqueduct Check 21 water, X_{max} represents the constituent concentration corresponding to a 25 percent LR. Figure 9 displays the normalized curves, and Table 9 presents the normalized data.



Key:
EC = electrical conductivity

Figure 9. Normalized Leaching Requirement curves for Electrical Conductivity, Chloride, and Boron

Normalized concentration values were then converted back to EC using the equation below, where X_{norm} represents the normalized concentration for chloride or boron. LR curves were then replotted using an EC scale (Figure 7).

$$EC = X_{norm}(EC_{max} - EC_{min}) + EC_{min}$$

Table 9. Constituent Normalization

SOURCE WATER	ELECTRICAL CONDUCTIVITY			CHLORIDE			BORON		
	Observed Concentration (µS/cm)	Normalized Value	Leaching Requirement	Observed Concentration (Seasonal Average) (mg/L)	Normalized Value	Leaching Requirement	Observed Concentration (Seasonal Average) (mg/L)	Normalized Value	Leaching Requirement
CVC	315	0.06	6.7%	37.00	0.12	5.2%	0.10	0.06	8.0%
Intermediate	397	0.17	8.6%	56.00	0.27	8.1%	0.15	0.38	13.6%
Check 21	479	0.29	10.6%	75.00	0.41	11.1%	0.20	0.69	19.0%
Maximum Observed	805	0.73	19.2%	157.00	1.05	26.5%	0.25	1.00	25.0%
Maximum normalization (25% Leaching Requirement)	1000	1.00	25.0%	150.00	1.00	25.0%	0.25	1.00	25.0%

Key:
CVC = Cross Valley Canal
µS/cm = microsiemens per centimeter
mg/L = milligrams per liter

APPLIED AGRONOMIC THRESHOLDS

The Policy includes maximum water quality thresholds for the FKC. Although the mitigation rating curve quantifies mitigation water to account for appropriate maintenance leaching, FKC water quality thresholds for EC, chloride, boron, turbidity, total suspended solids (TSS), and SAR and sodium were developed and are proposed herein. These thresholds aim to (1) balance supply reliability, water quality concerns, and agricultural practices, such as regulated deficit irrigation (RDI); and (2) ensure that the EC_{et}, Cl^-_{et}, or B_{et} limits are not exceeded for the most prevalent and sensitive crops in the Friant Division. The thresholds are specific to three irrigation periods that correspond to the growing season and agricultural management practices during the year:

- Period one represents the beginning of the growing season (March 1 – June 30);
- Period 2 represents timing of hull split and the duration of RDI practices in the Friant Division (July 1 – August 31); and
- Period 3 is inclusive of the remainder of the growing season and contract year (September 1 – February 28).

Table 10 shows the established water quality constituent thresholds for each period as defined in the Policy. The threshold variations in Period 3, shown as Periods 3a and 3b, are described in more detail in the Threshold Flexibility subsection below.

Sections below describe methods applied to account for annual RDI practices; development of water quality thresholds, including thresholds for RDI; and adjustments to water quality thresholds to accommodate flexibility for water management within the Friant Division.

Table 10. Friant-Kern Canal In-Prism Water Quality Thresholds

Period	Salinity expressed as EC (µS/cm)	Chloride (mg/L)	Boron (mg/L)[1]	Turbidity (NTU)[6]	Total Suspended Solids (ppm)	SAR[7]	Sodium (mg/L)[7]
Period 1 March 1 – June 30	1,000[2]	102[3]	0.4	40	20	3	69
Period 2 July 1 – August 31	500[4]	55[4]	0.4	40	20	3	69
Period 3a September 1 – February 28	1,000[2]	102[3]	0.4	40	20	3	69
Period 3b September 1 – February 28	1,000[2]	123[5]	0.4	40	20	3	69

Notes:

Thresholds adapted from Grieve, C.M., S.R. Grattan and E.V. Maas. 2012. Plant salt tolerance. In. (W.W. Wallender and K.K. Tanji, eds). Agricultural Salinity Assessment and Management (2nd edition). ASCE pp 405-459; and Ayers, R.S. and D.W. Westcot 1985. Water quality for agriculture. FAO Irrigation and Drainage Paper 29 (rev 1). Food and Agriculture Organization of the United Nations. Rome

For addition detail, see Attachment C – Agronomic Impacts and Mitigation.

When Friant-Kern Canal in-prism water quality conditions in this table are exceeded, Friant Division Long-Term Contractors will work together to seek 1:1, unleveraged, and cost-neutral exchanges for pump-in and pump-back programs. This does not apply to spot-market or third-party exchanges.

1 Grapes are used as a representative crop for boron sensitivity and are prevalent in the Friant Division. They are used as a surrogate for many other sensitive crop types such as apricots, figs, and grapefruits. Threshold assumes conventional irrigation with minimum 20 percent leaching fraction applied.

2 Threshold assumes minimum of 20 percent leaching requirement applied and adjusted to account for regulated deficit irrigation during almond hull split period (July 1 – August 31) in order to not exceed maximum EC_{et}. Almonds on Nemaguard rootstock are used as a representative crop for salinity sensitivity and are prevalent in the Friant Division. They are used as a surrogate for many other sensitive crop types such as apples, cherries, pears, pistachios, and walnuts.

3 Threshold assumes minimum of 20 percent leaching requirement applied and then adjusted to account for regulated deficit irrigation during almond hull split period (July 1 – August 31) in order to not exceed maximum Cl-et. Almonds on Nemaguard rootstock used as a representative crop for chloride sensitivity. They are used as a surrogate for other sensitive crops including cherries, pistachios, and walnuts.

4 Threshold applies to almond hull split period when regulated deficit irrigation is applied to avoid hull rot. This threshold is used assuming irrigation applications are reduced to 50 percent of the tree water requirement and subsequently thresholds applied for the remainder of the year have been adjusted to account for additional salt accumulation. This threshold was developed with consideration of existing program operations, historical water quality data, and absolute water quality thresholds.

5 If the measured average chloride concentration in Period 1 (March 1 – June 30) is less than or equal to 70 mg/L, the allowable chloride threshold for Period 3 (September 1 – February 28) is increased to 123 mg/L.

6. Turbidity threshold is taken from section 3 of the Final Initial Study/Negative Declaration for: Warrant Act Contract(s) and License, and Operation and Maintenance Agreement, to Introduced Floodwaters from Reclamation District 770 into the Friant-Kern Canal, March 2017.

7. SAR and Sodium are managed together. If the measured SAR value exceeds 3 AND the measured sodium concentration exceeds a threshold of 69 mg/L, management will be necessary. SAR value is derived from Ayers Table 1 and the 69 mg/L sodium is derived and converted from the Ayers Table 6.

Key:

µS/cm = microsiemens per centimeter (1 µS/cm = 1 µmhos/cm = 1/1,000 dS/m)
ASCE = American Society of Civil Engineers
Cl^-_{et} = maximum chloride threshold of the saturated soil paste
EC = electrical conductivity of applied water
EC_{et} = Soil salinity threshold for a given crop
FAO = Food and Agriculture Organization of the United Nations
Friant Division = Friant Division of the Central Valley Project
mg/L = milligrams per liter
SAR = sodium adsorption ratio
TDS = total dissolved solids

REGULATED DEFICIT IRRIGATION

This section describes methods applied to account for annual RDI practices in the Friant Division for EC and chloride agronomic thresholds, specific to almonds. Note, grapes may also be deficit irrigated during the blooming period; however, the deficit irrigation period for grapes is not aligned with that of almonds, and grapes are most prone to boron toxicities. Consequently, a similar RDI analysis and threshold adjustment is unnecessary for grapes. See Boron Thresholds subsection in Water Quality Thresholds section for additional discussion on applied boron thresholds for grapes in the Friant Division.

Hull Rot Control

Hull rot is problematic in almond orchards in the San Joaquin Valley, and trees are particularly sensitive during the hull split period. Hull split is where 1 percent of the almonds exhibit split, and it typically lasts one to two weeks. The initiation of hull split depends on the almond variety, weather conditions, and tree stress. Although variety has the largest influence on hull-split timing, the temperature 90 days after flowering also affects the hull split initiation. Unseasonably cool temperatures delay hull split while unseasonably warm weather accelerates it.

Hull rot occurs due to infestation by one of two types of fungi, *Monilinia fructicola* or *Rhizopus stolonifera* (Holtz, 2009). Some almond varieties, particularly Nonpareil and Monterey, are more susceptible to fungal attack than are other varieties. High nitrogen application to an orchard combined with full irrigation, or irrigation to completely meet tree ET demands, at the time of hull split can make trees considerably more vulnerable to hull rot.

Hull rot can be largely controlled through a combination of nitrogen management, water management, and antifungal sprays. It is best controlled by RDI practices. A 2001 study showed that by cutting back irrigation to 50 percent of the trees' water requirements between June 1 to July 31 (70 percent regulated) or July 1 to July 15 (85 percent regulated), hull rot was substantially reduced as evidenced by fewer dead leaf clusters and fewer dead spurs and branches (Teviotdale et al., 2001). Such mild to moderate water stress results in drier hull conditions, making trees less vulnerable to fungal attack. Many almond growers in the San Joaquin Valley have adopted RDI practices to help synchronize hull split timing and reduce potential for hull rot. To monitor the degree of tree stress, these growers have implemented the University of California recommendation of trying to maintain a stem water potential between -14 to -16 bars using pressure chambers by drying down the soil rootzone (B. Sanden, Personal communication, April 5-6, 2020). The more negative the number, the more stress the tree experiences. It could take between one to six weeks to achieve this stress level, depending on soil type and irrigation systems (B. Lampinen, personal communication, April 7, 2020). Growers should take care to not to stress trees too much because that could compromise kernel size as kernels continue to grow at the onset of hull split (Doll and Shackel, 2015). After almond harvest, irrigation is critical to maximize floral bud development for the subsequent season.

During the RDI period when there is no effective leaching, irrigation application is reduced to 50 percent of the tree water requirement, and some additional salts and chlorides accumulate in the rootzone. Absent leaching, the steady-state model breaks down because the salt content in the applied water would need to be zero to maintain the same rootzone salinity. In this situation, preseason irrigation management should target an adjusted soil salinity to maintain the appropriate soil salinity thresholds and avoid crop injury.

Regulated Deficit Irrigation Analysis

The RDI analysis applied a predictive model based on timing of flowering to estimate hull split for various types of almond varieties in different parts of the Central Valley (UC Fruit & Nut Research & Information Center, 2020). From the model and historical California Irrigation Management Information System (CIMIS) data from the AEWSD weather station, hull split was determined to typically initiate around the end of June or beginning of July and, depending upon the variety, continue through mid-August (B. Sanden, personal communication, April 6, 2020). To account for potential variances in hull split initiation in the Friant Division, an 8-week period (July 1 to August 31) was assumed for this RDI analysis. Determination of water quality

thresholds during the RDI practices period, or Period 2, also considered effective rootzone depth, applied irrigation water quality, soil capacity, and irrigation requirements. The RDI analysis is considered to be conservative because: (1) rainfall was not considered; (2) surface irrigation was assumed, despite the fact that crops under high frequency drip irrigation (typical for most water districts in the Friant Division) are able to tolerate higher salinity for the same assumed LF; and (3) steady-state models typically overestimate rootzone salinity (Corwin and Grattan, 2018).

The RDI analysis was completed for both EC and chloride. Salt accumulation was quantified as a percentage increase, and then rootzone and applied irrigation water thresholds (assuming 20 percent maintenance leaching) were adjusted to maintain maximum EC_{et} or Cl^-_{et} through the season. Assuming steady-state leaching, the analysis targeted maintenance of rootzone salinity at soil salinity thresholds of 150 mg/L for chloride, and 1,500 µS/cm for EC, resulting in adjustments to Cl^-_w and EC_w thresholds.

The RDI calculation assumed the effective rootzone to be between three and five feet (UC Almond Rootzone Workgroup, 2015). Soil was considered to be at field capacity meaning that volumetric soil moisture content was 25 percent, based on monthly average ET or irrigation water requirements for mature almonds in Kern County during months of July and August, 9.5 inches and 8.8 inches, respectively (Sanden, personal communication, April 6, 2020; Goldhamer 2012). The RDI calculation included soil water concentration thresholds of 300 mg/L for Cl^-_{sw}, and 3,000 µS/cm for EC_{sw}, or twice that of the thresholds expressed on a saturated soil paste basis.

During the RDI period, water was assumed to be applied at 50 percent ET_c. The total amount of irrigation water required for 100 percent irrigation application, in inches, was calculated but then halved to account for 50 percent deficit irrigation. The amount of irrigation water during RDI periods was then multiplied by the irrigation water concentrations of salt and chloride to determine the percentage increase above the salt and chloride concentrations in the rootzone. Calculating the percentage increase of chloride in the rootzone meant first determining irrigation water and soil water amounts.

For example, 50 percent of the total ET for July and August was 9.1 inches, and the total water in the effective rootzone was 15 inches (rootzone depth (5 ft, or 60 inches) * 25 percent water content = 1.25 feet, or 15 inches). The 15 inches of soil water had 300 mg/L chloride at the beginning of the RDI period. After 9.1 inches of water was applied, adding salts to the soil water in the rootzone, the irrigation water concentration was 55 mg/L. The percentage of additional salt was determined by calculating the ratio of the salt added in the deficit irrigation water to that in the soil water, (9.1 inches x 55 mg/L) / (15 inches x 300 mg/L) = 11 percent. If the salt level in the rootzone remained at critical soil threshold levels at the end of the RDI period, the Cl^-_e at the beginning of RDI period would have needed to be proportionally lower than the critical soil salinity threshold of 150 mg/L, such that the 150 mg/L threshold concentration would be achieved at the end of the season. Thus, the Cl^-_{et} is reduced to 122 mg/L and the corresponding Cl^-_w becomes 102 mg/L.

WATER QUALITY THRESHOLDS

This section presents the RDI analysis-based chloride and EC thresholds and proposed flexible thresholds for chloride, boron thresholds, turbidity and TSS thresholds, and SAR and sodium thresholds.

Chloride and Electrical Conductivity Thresholds

Tables 11a and 11b show the RDI analysis for a variety of applied irrigation water qualities for chloride and EC, respectively. In consideration of historical water quality data representative of Kern-Fan or CVC programs that currently introduce water into the FKC, as well as temporal water quality trends, an applied irrigation water threshold for the RDI period was selected to be 55 mg/L Cl^-_w. The Cl^-_w value of 55 mg/L during the RDI period correlated to an adjusted Cl^-_w of 102 mg/L for the remainder of the year, assuming a three-foot (36 inch) effective rootzone – a conservative assumption as the effective rootzone is assumed to be three to five feet (Table 12a).

The same logic described above for Cl^-_w thresholds was applied to determine RDI EC_w and adjusted EC_w thresholds. The chloride threshold for the RDI period (55 mg/L) was approximately 49 percent greater than

the average historical water quality of representative Kern-Fan programs for all year types during months of July and August (37 mg/L). The average EC_w during July and August for all year types representative of Kern-Fan programs was 300 µS/cm, and a 49 percent increase is 447 µS/cm. Rounding up, the RDI threshold for EC_w is 500 µS/cm, and, in order to maintain an EC_{et} of 1,500 µS/cm, the adjusted EC_w for the remainder of the year was 1,000 µS/cm.

Table 11a. Regulated Deficit Irrigation Analysis for Chloride

Cl^-_w (mg/L)	Effective Rootzone (in)	Sum ET_c Average (in)[1]	RDI %	RDI Water (in)	Rootzone Water (in)[2]	% Cl^- Increase	Adjusted Cl^-_e Needed (mg/L)	Adjusted Cl^-_w (mg/L)
10	36	18.3	50%	9.2	9	3.4%	145	121
10	60	18.3	50%	9.2	15	2.0%	147	122
20	36	18.3	50%	9.2	9	6.8%	140	117
20	60	18.3	50%	9.2	15	4.1%	144	120
30	36	18.3	50%	9.2	9	10.2%	135	112
30	60	18.3	50%	9.2	15	6.1%	141	117
40	36	18.3	50%	9.2	9	13.6%	130	108
40	60	18.3	50%	9.2	15	8.1%	138	115
50	36	18.3	50%	9.2	9	16.9%	125	104
50	60	18.3	50%	9.2	15	10.2%	135	112
55	36	18.3	50%	9.2	9	18.6%	122	102
55	60	18.3	50%	9.2	15	11.2%	133	111

Notes:
[1] ETc averages from Sanden and Goldhamer based on water use of mature almond trees in Wasco area for July and August (Goldhamer and Girona 2012).
[2] Rootzone at field capacity is 25 percent by volume.
Key:
Cl^- = chloride
Cl^-_e = chloride concentration in saturated soil paste or rootzone chloride
Cl^-_w = chloride concentration in applied irrigation water
ET_c = evapotranspiration or tree water use
in = inches
mg/L = milligrams per liter
RDI = regulated deficit irrigation

Table 11b. Regulated Deficit Irrigation Analysis for Electrical Conductivity

EC_w (µS/cm)	Effective Rootzone (in)	Sum ET_c Average (in)[1]	RDI %	RDI Water (in)	Rootzone Water (in)[2]	% EC Increase	Adjusted EC_e Needed (µS/cm)	Adjusted EC_w (µS/cm)
200	36	18.3	50%	9.2	9	6.8%	1,400	1,120
200	60	18.3	50%	9.2	15	4.1%	1,440	1,150
300	36	18.3	50%	9.2	9	10.2%	1,350	1,080
300	60	18.3	50%	9.2	15	6.1%	1,410	1,130
400	36	18.3	50%	9.2	9	13.6%	1,300	1,040
400	60	18.3	50%	9.2	15	8.1%	1,380	1,100
500	36	18.3	50%	9.2	9	16.9%	1,250	1,000
500	60	18.3	50%	9.2	15	10.2%	1,350	1,080
600	36	18.3	50%	9.2	9	20.3%	1,200	960
600	60	18.3	50%	9.2	15	12.2%	1,320	1,050

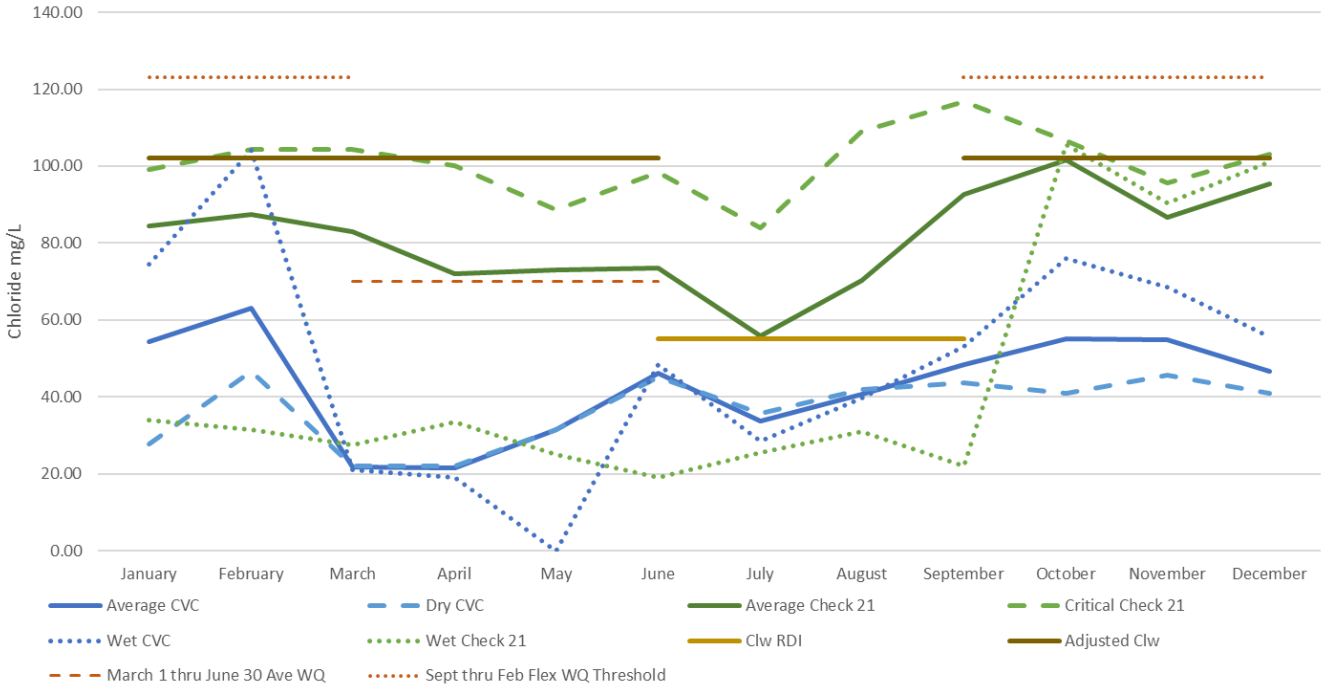
Notes:
[1] ET_c averages from Sanden and Goldhamer based on water use of mature almond trees in Wasco area for July and August (Goldhamer and Girona 2012).
[2] Rootzone at field capacity is 25 percent by volume.
Key:
µS/cm = microsiemens per centimeter
EC = electrical conductivity
EC_e = electrical conductivity of saturated soil paste or rootzone salinity
EC_w = electrical conductivity of applied irrigation water
ET_c = evapotranspiration or tree water use
in = inches
RDI = regulated deficit irrigation

By adjusting the Cl^-_e and EC_e thresholds for non-RDI irrigation periods, LR volumes for the assumed 20 percent leaching were adjusted by default, as LR is a function of the saturated soil paste concentration. Adjusted LR volumes and constituent thresholds affect the mitigation curve slope for each constituent. The adjusted curves for chloride and EC were plotted and were below the governing line, so the mitigation curve remained unchanged and further confirmed the conservative nature of the mitigation curve in ensuring that all constituents would be sufficiently mitigated.

Chloride Threshold Flexibility

In evaluating and comparing the developed, in-prism water quality thresholds with temporal water quality trends during Period 1 (March 1 to June 30), or prior to the RDI period (July 1 to August 31), observed average constituent concentrations were typically below the proposed thresholds. If water with lower constituent concentrations was applied to a crop for the first four months of the growing season, assuming that the rootzone concentration was properly maintained, the rootzone concentration would decrease below the threshold and, even with reductions in irrigation and LFs, could allow the application of higher irrigation water concentrations during the post-RDI period. The period following RDI, or Period 3 (September 1 to February 28), is often used for reclamation leaching; however, it is also the period in which new sources of water may be available for the Friant Division. Thus, having flexibility in the allowable irrigation water quality could be opportune for increasing supply reliability for the region.

Based on the RDI analysis and evaluation of water quality temporal trends, the Guidelines define an alternative water quality threshold for chloride for Period 3 to provide flexibility for irrigation management. Determination of whether the alternative chloride threshold for Period 3 is applied is based on the average chloride concentration of the irrigation water during Period 1. The alternative value was developed considering historical, temporal water quality trends and applying a weighted average calculation to meet the targeted rootzone chloride threshold. If the average measured chloride concentration for Period 1 is less than or equal to 70 mg/L, the allowable chloride concentration threshold increases from 102 mg/L to 123 mg/L for Period 3. If the measured average chloride concentrations for Period 1 exceed 70 mg/L, the chloride threshold remains at 102 mg/L for Period 3. Figure 10 shows the proposed thresholds compared to the chloride water quality trends for CVC and California Aqueduct water sources by year type.



Key:
Average = Average of all San Joaquin Index year types and excludes months where there is mixing.
Cl^-_w = chloride concentration of applied irrigation water
CVC = Cross Valley Canal
Dry= Monthly average for San Joaquin Index year types dry and critical and excludes months where there is mixing.
mg/L = milligrams per liter
RDI = regulated deficit irrigation
Wet = Monthly average for San Joaquin Index year types below normal, above normal, and wet and excludes months where there is mixing.

Figure 10. Chloride water quality trends by source water and year type with proposed water quality thresholds

Because the average water quality for Kern-Fan or CVC programs for Period 1 (March 1 to June 30) was approximately 30 mg/L (see Table 2), 70 mg/L was chosen as a midpoint between the adjusted Cl^-_w threshold determined in the RDI analysis and the average historic water quality. Using a weighted average approach, if 70 mg/L water was applied for the four months in Period 1, assuming an LR of 20 percent, the resulting Cl^-_e would be 84 mg/L. With the target weighted average for Cl^-_e of 122 mg/L, the necessary Cl^-_e for Period 3, the six months post-RDI (September 1 – February 28) was determined using the following equation:

$$84\frac{mg}{L} * .4 + Cl_e * .6 = 122$$

The resulting Cl^-_e was 147 mg/L, correlating to a Cl^-_w of 123 mg/L with an assumed 20 percent LR. This approach was conservative in that observed chloride concentrations for Kern-Fan programs were significantly lower than 70 mg/L, and these calculations did not consider rainfall or any reclamation leaching applied in addition to the assumed 20 percent maintenance leaching.

Note that adjusting the Cl^-_e thresholds for non-RDI irrigation periods (Period 1 and Period 3) would adjust the LR volumes for the assumed 20 percent leaching provided by the mitigation curve. Adjusted curves were plotted and it was confirmed that even with a reduced Cl^-_e, the established mitigation curve would provide adequate mitigation.

Boron Thresholds

Table 12 shows B_w thresholds for tree and vine crops above which injury occurs under differing irrigation management practices, or LF values of 10 and 20 percent. Grapes have a boron tolerance of 0.4 mg/L when the LF is between 10 to 25 percent (Grattan et al., 2015). The actual boron threshold tolerance range is 0.3-

0.5 mg/L if one considers different combinations of the soil water threshold (B_{sw}) tolerance (0.5 - 0.75 mg/L) and LF (10 - 25%).

The maximum in-prism water quality threshold for boron was set at 0.4 mg/L for all three irrigation periods (Periods 1, 2, and 3). Grapes were used as the representative crop for boron sensitivity because of their prevalence in the Friant Division, serving as a surrogate for other sensitive crop types, such as apricot, fig, and most citrus. The applied threshold assumed conventional irrigation with a LF of 10-25 and was used rather than the LR concept that was used in development of the mitigation curves.

Table 12. Boron Tolerance of Various Crops

CROP	BORON CONCENTRATION OF APPLIED WATER (B_w) (mg/L)	
	Leaching Fraction 10%	Leaching Fraction 25%
Alfalfa	2.0	2.8
Apricot	0.4	0.4
Asparagus	4.8	6.7
Barley	1.4	1.9
Bean (kidney, lima, mung)	0.4	0.6
Bean, snap	0.5	0.6
Beet, red	2.0	2.8
Bluegrass, Kentucky	1.2	1.7
Broccoli	0.5	0.6
Cabbage	1.2	1.7
Carrot	0.7	0.9
Cauliflower	1.6	2.2
Celery	3.8	5.3
Cherry	0.4	0.4
Clover, sweet	1.2	1.7
Corn	1.2	1.7
Cotton	3.1	4.3
Cucumber	0.7	0.9
Fig, Kadota	0.4	0.4
Garlic	1.7	2.4
Grape	0.4	0.4
Grapefruit	0.4	0.4
Lemon	<0.3	<0.4
Lettuce	0.6	0.8

Note: Adapted from data in Grattan, S.R., F.J. Diaz, F. Pedrero and G.A. Vivaldi. 2015. Assessing the suitability of saline waste waters for irrigation of citrus: Emphasis on boron and specific ions interactions. Agric Water Manag. 157:48-58.

Key:
mg/L = milligrams per liter

In addition, the applied B_w threshold of 0.4 mg/L was far more conservative than those defined in literature by Ayers and Westcot (1985). This analysis indicated that B_{sw} could be used as protective irrigation water thresholds (B_e) because of the complexities related to boron adsorption and equilibrium concentrations with the soil water. Historical water quality data also indicate that CVC or California Aqueduct water would be below this threshold.

Turbidity and Total Suspended Solids Thresholds

Turbidity and TSS are of concern to water users in the Friant Division. Turbidity and TSS are not agronomic constituents of concern, but elevated levels are problematic for water management infrastructure and facilities, specifically spreading and groundwater recharge basins. TSS and Turbidity are also less of a concern in water supplies introduced via the Intertie and apply more to water being introduced via gravity flow to the FKC during high-flow or flood events.

The precedent for the defined thresholds was established under the environmental compliance documentation Final Initial Study/Negative Declaration for the Warren Act Contract and License and Operation and Maintenance Agreement to Introduce Floodwaters from Reclamation District 770 into the Friant-Kern Canal (DL770 Contract). As part of the agreement, water introduced into the FKC by Delta lands

Reclamation District 770 would not cause in-prism water quality to exceed 40 nephelometric turbidity units (NTU) of turbidity or more than 20 parts per million (ppm) of TSS (Delta Lands Reclamation District 770 2017). These same thresholds are included in the Guidelines.

The TSS and turbidity thresholds defined are based on operational and maintenance practices for spreading and groundwater recharge basins in the region. AEWSD has an allowable upper limit for TSS, 25 ppm, for water applied to spreading basins in their district (Bookman-Edmonston Engineering, Inc. 1972). A value of 20 rather than 25 ppm is included in the document to be protective of this upper, allowable limit. Monitoring of TSS requires lab analysis of water quality samples and thus management cannot be done in real time, however turbidity can be measured with a handheld meter and can be done in real time. Although the numerical relationship between turbidity and TSS can be affected by water source location, seasonal timing, and flow velocities (Meozzi 2011), a generalized relationship between the two constituents was developed to facilitate real-time water quality management. The defined turbidity threshold of 40 NTU correlates with the 20 ppm TSS value based on correlation analysis that AEWSD performed between 2011 and 2016.

SAR and Sodium Thresholds

The established SAR and sodium thresholds defined in the Guidelines are designed to be managed together. As detailed under the Agronomic Effects section, sodium by itself can be potentially problematic and cause direct toxicity to tree crops. However, because of the importance of adequate Ca^{2+} in the soil water as a means of stabilizing root cell membranes and maintaining selective ion uptake by tree crops, the sodium-calcium ratio in the soil solution is often a better indicator of Na^{+} toxicity. Therefore, SAR of the applied irrigation water has been used as a surrogate for the sodium-calcium ratio. The general rule is an SAR less than 3 is not problematic. However an SAR threshold on its own was not acceptable to water managers and water users as there are concerns related to potential acute crop injuries due to observed spikes in sodium concentrations of applied irrigation water. A combination approach to sodium management was developed, where if the measured SAR value exceeds 3 and the measured sodium concentration exceeds 69 mg/L, introduced water would need to be managed. The SAR threshold of 3 is from Ayers and Westcot Table 1 and assumes surface irrigation. The sodium concentration threshold of 69 mg/L is also derived from Ayers and Westcot Table 1 and suggests that irrigation waters < 3 meq/L (69 mg/L) [2] is suitable for crops that are sprinkler irrigated. Crops that are sprinkler irrigated are more susceptible to salt damage than by other irrigation methods as sodium can accumulate in the leaves by direct foliar absorption in addition to root absorption processes. Surface and low-pressure irrigated crops (i.e.. drip and mini-sprinklers), on the other hand, can only accumulate sodium in leaves by root absorption and translocation. The defined thresholds are conservative as the assumed sprinkler irrigation and more salt-damaging method is not widely used for crops within the Friant Division, as growers tend to use more efficient, on-the-ground irrigation methods.

The defined thresholds are designed to address sodium toxicities and although SAR is also used to assess the infiltration hazard (described previously), it assumed that given the wide range of observed SAR values relative to water supply source, growers already appropriately manage SAR through the application of gypsum to increase EC and maintain adequate infiltration.

[2] The value assumes that calcium and magnesium are both at or above 2 meq/L (40 mg/L Ca^{2+} and 24 mg/L Mg^{2+}) where equivalent concentration of Ca^{2+} is greater or equal to Mg^{2+}. It is further assumed that this condition is met as the protection of these divalent constituents is their presence in the rootzone soil water. Nearly all growers in the region apply amendments such as gypsum ($CaSO_4$), and thus soil water concentrations would meet the criteria. (Maas and Grattan, 1999).

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Attachment D. Ledger Standard Operating Procedures

CONTENTS

FIGURES

ACRONYMS AND ABBREVIATIONS

Ad hoc Committee	Ad hoc Water Quality Committee
CVC	Cross Valley Canal
CVP	Central Valley Project
EC	electrical conductivity
FKC	Friant-Kern Canal
Friant Contractor	Friant Division long-term contractor
Friant Division	Friant Division of the Central Valley Project
FWA	Friant Water Authority
Guidelines	Friant-Kern Canal Water Quality Policy Guidelines
Ledger	Friant Kern Canal Water Quality Ledger
Policy	Friant-Kern Canal Water Quality Policy
Pool	Section of the Friant-Kern Canal between Check Structures
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
RWA	Recovered Water Account
SJRRP	San Joaquin River Restoration Program
SOP	Standard Operation Procedures
URF	Unreleased Restoration Flow

PURPOSE

This document describes the proposed standard operating procedures for implementing the Friant-Kern Canal Water Quality Ledger (Ledger) that is associated to the Guidelines for Accepting Water into the Friant-Kern Canal (Guidelines). The concept for the Ledger was developed in late 2019 with the Ad hoc Water Quality Committee's (Ad hoc Committee) Small Workgroup during development of the Guidelines. The Ledger determines the required mitigation for introducing water of lesser quality in the Friant-Kern Canal (FKC). An initial, proof-of-concept version of the Ledger included a calculation of the pump-in mitigation percentage, total volume of mitigation water to be added to the FKC, and distribution of mitigation water to affected water users. As the Guidelines move toward implementation and the Ledger is fully developed, it is important that the defined Ledger process integrates with Friant Water Authority's (FWA) operations and accounting.

This Standard Operating Procedures (SOP) document for implementing the Ledger is intended to serve two purposes:

1) Define the complete process for pump-in project operations and agency (i.e., FWA and U.S. Department of the Interior, Bureau of Reclamation (Reclamation)) responsibilities relating to project approval, notification, mitigation water accounting, and reporting.

2) Document Ledger calculation assumptions.

PROCESS FOR IMPLEMENTING WATER QUALITY GUIDELINES

The Guidelines identify the need to develop standard operating procedures for a mitigation program and its administration. The processes and procedures for FWA implementation and management of the Guidelines will directly impact Ledger development, including the assumptions and calculations within the Ledger tool itself. The process for the implementation of the Ledger as part of the Guidelines includes:

- Approve pump-in projects.
- Measure, report, and track pump-in water quality.
- Collect pump-in project delivery data.
- Calculate preliminary mitigation water distribution.
- Final water accounting.
- Report volumetric deliveries and balance to Reclamation.

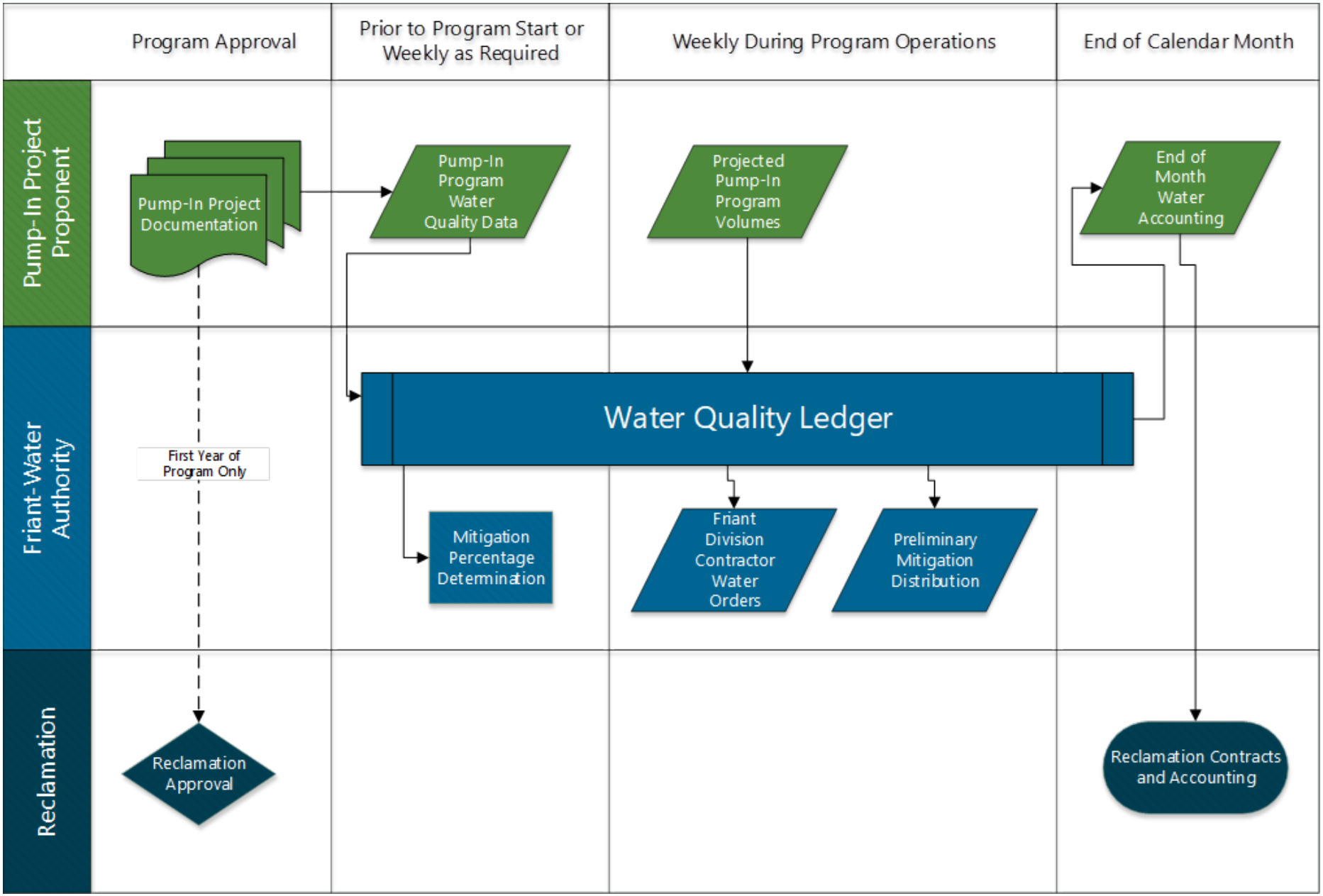


Figure 1. Water Quality Guidelines Implementation Process

PUMP-IN PROJECT APPROVALS

In consideration of the Ledger, a pump-in project (or program) is any project that introduces water into the FKC from a source other than Millerton Lake. Reclamation, with acknowledgement from FWA, provides the final approval for any pump-in project once the Warren Act Contract, other agreements, and environmental documentation is completed. Because the Warren Act Contract and environmental documentation for a pump-in project may have different effective durations, Reclamation will approve the necessary documentation to implement a pump-in project at the appropriate times. Each pump-in project will have a defined duration and maximum volume that can be introduced into the FKC. The pump-in project proponent will identify a point of contact who will work with FWA to coordinate required responsibilities outlined in the Guidelines.

PUMP-IN PROJECT WATER QUALITY

As described in Section B2 of the Guidelines, all waters discharged into the FKC must be tested at least annually. Pump-in projects that introduce a single source water quality and pump-in projects that bring water into the FKC via the Cross Valley Canal (CVC) will have different methods for collecting and reporting water quality data.

Mitigation Percentage Determination

Pump-in project water quality will be an input to the Ledger to determine the required mitigation water percentage and corresponding mitigation volume per pump-in project volume. Groundwater and CVC water quality are input to the Ledger at different frequencies as described below.

Single-Source Pump-In Projects via the FKC – Single-source pump-in projects include projects with Warren Act Contracts that introduce surface water or banked groundwater into the FKC. Before an approved pump-in project begins, FWA will work with the proponent to collect water quality data for the potential introduced surface water or groundwater to determine the required mitigation water percentage to be applied to the volume moved through the FKC. The determination of the required mitigation percentage will be calculated using the Ledger. Collection of the water quality data will follow requirements outlined in the Guidelines for Accepting Water into the FKC.

Pump-In Projects via the CVC - As described in Section B2 of the Guidelines, weekly water quality sampling will be performed by FWA during reverse flow pump-back operations and water quality data will be provided to Reclamation. Mitigation will be based on either the weekly average electrical conductivity (EC) concentrations measured continuously at the terminus of the FKC at the Kern River Check or the weekly grab samples collected from the CVC, whichever is deemed more appropriate by FWA. The CVC water quality conditions may represent multiple pump-in projects and will be updated in the Ledger at a greater frequency than once per year. FWA will coordinate with the pump-in project proponents regarding the required mitigation water percentage as determined by changes in water quality conditions.

The Ledger will document the water quality conditions for all pump-in projects and calculate the required mitigation percentage for each.

Ledger Calculations

As described above, pump-in project water quality data will be input to the Ledger. For each pump-in project, the Ledger will calculate the required mitigation water percentage. FWA will communicate this mitigation percentage to pump-in project proponents prior to operation and introduction.

Assumptions

- Water quality conditions for each pump-in project will be measured at least once per year or at a set frequency agreed to in the Guidelines and/or the Pump-In Project Approval and will determine the required mitigation water percentage.
- The Mitigation Percentage process follows the approach outlined in the Guidelines.

Friant-Kern Canal Water Quality Monitoring and Management

All pump-in projects must adhere to the water quality monitoring requirements stipulated in the Guidelines. FWA will implement continuous, real-time monitoring of in-prism water quality conditions in the FKC and at the FKC/CVC Intertie during reverse flow pump-back operations. Continuous, in situ measurements of EC will provide real-time data on incremental water quality changes and mixing in the FKC and will assist in water quality threshold management. If water quality thresholds are exceeded, FWA shall incrementally direct pump-in project proponents to cease operations of pump-in projects in order of greatest mass loading of the critical water quality constituent until the water quality drops below defined thresholds. Furthermore, if water quality monitoring results show an exceedance of 80% of the threshold for any water quality constituents, weekly monitoring will occur until four consecutive grab samples show consistent water quality results.

PUMP-IN PROJECT DELIVERY VOLUMES

During a contract year in which a pump-in project will be operated, FWA will work with the pump-in project proponent to implement the requirements stipulated in the Guidelines. This includes the addition of mitigation water to the FKC consistent with the pump-in project water quality conditions and quantity delivered. Pump-in project forecasted deliveries, calculated projected mitigation water, and all coordination related to pump-in project operations will be completed on a weekly basis.

Ledger Calculations

FWA will coordinate with pump-in project proponents to obtain an estimated volume of water to be introduced and conveyed in the FKC. The required mitigation water volume for the pump-in project is assumed to be included as part of that estimated volume. FWA will calculate losses, when appropriate, based on the total volume of water to be introduced into the FKC. The mitigation volume will be based on the total volume minus the calculated losses. The Ledger uses the mitigation water percentage for each pump-in project based on measured water quality and the net pump-in project volume to determine the projected mitigation volume requirement.

Assumptions

- Mitigation volumes are calculated based on projected weekly volume of a pump-in project and verified using measured volumes at the end of each month.
- Mitigation volumes are added to the FKC in real time with other pump-in project deliveries.
- FWA will have weekly volume, or weekly average flow, projections from pump-in project proponents.

PRELIMINARY MITIGATION DISTRIBUTION

The Ledger will be used to distribute mitigation water volumes to the impacted Friant Division long-term contractors (Friant Contractors). As described in the Pump-In Project Delivery Volumes section, mitigation water is introduced into the FKC simultaneously with the pump-in project volume introduction. FWA will add weekly water order data to the Ledger to distribute the mitigation volume based on volumetric proportioning. The preliminary, weekly mitigation distribution will be used by the FWA **for communication purposes only** (i.e., as the best available estimate of end-of-month mitigation requirements when communicating internally and with Friant Contractors). The mitigation water distribution will be updated at the end of each calendar month based on quality-controlled delivery data.

Ledger Calculations

The FWA will input water order data into the Ledger to be used in the mitigation water distribution calculations. The Ledger will determine the average weekly mixing interface position based on the weekly volumes for periods during FKC pump-back operations. An option to manually set the mixing interface position will also be available in the Ledger.

Assumptions

- Deliveries will be aggregated by Friant Contractor, and divided into pools, defined as the canal section between check structures.
- The division of deliveries by a Friant Contractor that has turnouts in multiple pools will be based on historical deliveries.
- Only Central Valley Project (CVP) (Class 1, Class 2, 215, and San Joaquin River Restoration Program (SJRRP) Recovered Water Account (RWA) and Unreleased Restoration Flow (URF)) deliveries for the Friant Contractors will be used to calculate the mitigation distribution.
- The interface, or location along the FKC that receives water from both gravity and reverse flow, will be determined using a weekly mass balance. An option will also be included to manually define the interface.
- The FKC Pool with the Interface will be assumed to be fully mixed with gravity and reverse flow.

END OF MONTH WATER ACCOUNTING

At the end of each month that a pump-in project is operating, the preliminary mitigation water distribution will be updated based on quality-controlled delivery data for both the pump-in project and Friant Contractors. The updated mitigation distribution volume will be shared with impacted Friant Contractors and included as part of their normal water accounting. The mitigation volume will be assumed to be the first water taken for their monthly deliveries. For pump-in project proponents that take more water than pump-in project delivery minus the mitigation volume, proponents will be assumed to make up that delivery with their CVP contract supply. For pump-in projects that end with water delivery to a Friant Contractor, adjustments for mitigation volumes are not needed.

For pump-in projects that do not end with delivery to a Friant Contractor, there is potential need for a mitigation volume adjustment. For these pump-in projects, FWA will track pump-in project water introduced into the FKC and deliveries to the non-Friant Contractor. If the volume of mitigation water is not equal to the expected volume, FWA will contact the pump-in project proponent to either increase the mitigation volume or increase their own delivery.

Ledger Calculations

FWA will add quality-controlled data to the Ledger at the end of each calendar month. The Ledger will replace the preliminary data and recalculate the mitigation water distribution to determine the monthly volumes of mitigation delivery, pump-in project delivery, and CVP delivery.

Assumptions

- Mitigation water delivery to impacted Friant Contractors is the first water to be delivered.
- If delivery to a pump-in project proponent exceeds pump-in project input to FKC minus the mitigation volume, the remainder will be accounted for as CVP delivery.

FINAL WATER ACCOUNTING

The end of the month water accounting will be provided to the Friant Contractors for confirmation and their use for accounting with Reclamation. Friant Contractors will clearly show mitigation on their accounting reports as a separate volume of water. As needed, Friant Contractors will work with Reclamation to revise reporting in a timely manner. Mitigation volumes should be rounded and reported as a whole number in acre-feet.

WATER QUALITY ANNUAL REPORTING

The water quality for each year will be maintained in a database by FWA. The mitigation curve developed for the Ledger, as part of the Guidelines, uses relationships between water quality constituents of concern and

in-prism measurements of EC. At the conclusion of each year, the relationships will be updated with new water quality data collected during the year. The updated relationship will be shared with the Friant Contractors. Reclamation may also propose and/or require modifications to the Guidelines in coordination with FWA. Additionally, the Guidelines may be re-evaluated if any of the following conditions occurs:

- A future regulatory cost or equivalent fee is imposed on Friant Contractors and a portion of such fee can reasonably be attributed to the incremental difference of water quality conditions in the FKC.
- When Friant Division Class 1 contract allocation is less than or equal to 25 percent, the Water Quality Advisory Committee will convene as outlined in Attachment A of the Guidelines. In these years, mitigation will be accounted for as presented in these Guidelines, but will be deferred to a mutually agreed to later date unless those responsible for the put and take mutually agree to put and take the mitigation in the critical year. All monitoring requirements will remain as presented in the Guidelines.
- There is a significant, regulatory change or scientifically based justification and three out of the following five Friant Contractors agree and work with the Water Quality Advisory Committee to recommend a change: (1) Arvin-Edison Water Storage District, (2) Shafter Wasco Irrigation District, (3) Delano-Earlimart Irrigation District, (4) South San Joaquin Municipal Utility District, and (5) Kern-Tulare Water District.

Attachment E. FKC Water Quality Guidelines Cost Allocation

Special Project
Summary Sheet
Budget Sheet

Project Title: Friant-Kern Canal Water Quality Guidelines

Job Code: 6370

Project Location: Friant-Kern Canal (entire 152 miles)

Project Description: Friant Water Authority implementation and administration of the Friant-Kern Canal (FKC) Water Quality Guidelines (Guidelines). The Guidelines include requirements of discharge of water into the FKC, monitoring and reporting requirements, management, mitigation, communications, and forecasting.

Estimated Annual Project Costs (x1000): $189.4

Materials and Laboratory
The continuous, real-time sampling of electrical conductivity (EC) at each of the specified check structures requires FWA to install a total of fourteen (14) Seametrics CT2X conductivity meters in the canal, at each structure. Costs for purchase and installation of the real-time water quality monitoring equipment, including integration with IOS, are approximately $60,477 ($1,898 per unit cost and total of $33,905 for installation). It is assumed the useful life of a Seametrics CT2X conductivity meter is about 10 years at an interest rate of 3%. Additionally, FWA staff will maintain two (2) existing handheld Hanna DIST5 conductivity meters. Real-time water quality monitoring equipment and handheld conductivity meters will be calibrated and maintained according to manufacturer recommendations. Costs for maintenance of equipment is estimated to be about 10% of the capital cost ($6,048 annually, shown as Item 5 in Table 1 below).

Table 1 summarizes the annual materials and lab costs of each monitoring requirement. Specifically, the item numbers in Table 1 refer to the sample source/type item numbers presented in Attachment B – Monitoring Program Summary. Details regarding assumptions are outlined in the narrative following Table 1.

Table 1: Materials and laboratory costs associated with monitoring activities.

Item[1]	Description	Estimated Annual Cost
5	Annual maintenance of equipment for continuous, real-time sampling of electrical conductivity at each specified check structure	$6,048
6	Estimated exceedance testing	$936
8	Weekly testing at FKC-CVC Intertie during pump-back operations	$23,788
9	Testing during initiation of FKC-CVC Intertie pump-back operations	$11,490
	Materials and Lab Testing Subtotal:	**$42,262**

[1] Item numbers refer to sample source/type item numbers presented in Attachment B.

Most requirements of the monitoring program (items 6 through 9 in Table 1) require FWA to collect samples and send them to labs for testing. Testing can include a full list of Tittle 22 constituents in Table 1 of the Guidelines, the short list of constituents in Table 4 of the Guidelines, or single constituents. Testing costs can vary significantly by lab. To be conservative, it was assumed that testing for full Title 22 constituents would be $5,745, testing for the short list of constituents in Table 4 of the Guidelines would be $915, and testing for single constituents would be $59/constituent.

For a given year, it was assumed that single constituents would exceed the thresholds for two months per year and would result in 16 tests annually (4 weekly tests for each month with an exceedance, and 4 weekly tests below the threshold after the exceedance). This results in a total cost of $936 for testing because of exceedances (item 6 in Table 1). Costs for EC testing during operations outages were not included as this will be done with the handheld units by FWA staff. It was assumed that pump-back operations would occur during 6 months of the year, which would require 26 samples of the full list of constituents in Table 4 of the Guidelines. This results in a total cost of $23,788 for testing because of pump-back operations (item 8 in Table 1). Finally, it was assumed that full Title 22 testing due to initiation of pump-back operations or anticipated Cross Valley Canal operations that will impact water quality will occur two times per year and will cost $11,490.

Annualized Capital Install and Replacement of Equipment Subtotal: *$7,090*

Annual Materials and Lab Testing Subtotal: *$42,262*

Friant Water Authority Staff

For implementation of the Guidelines, the following activities will be required of FWA staff:

- Maintain and calibrate conductivity meters on a bi-weekly basis
- Perform water quality sampling during pump-in operations
- Coordinate laboratory water quality testing
- Coordinate with Friant Division Long-Term Contractors on water quality data monitoring and analysis
- Manage water quality and operations database
- Perform weekly water quality reporting and forecasting using FKC Water Quality Model
- Perform weekly analysis to determine mitigation and distribution to respective Friant Division Long-Term Contractors using the FKC Water Quality Mitigation Ledger
- Coordinate with U.S. Department of the Interior, Bureau of Reclamation's South-Central California Area Office on water quality reporting, mitigation, and contractual requirements
- Coordinate and facilitate FWA committee on water quality

The annual cost for FWA Executive Team and Operations staff is estimated below:

Executive Team (WRM)……104 hrs @$111.43/hr	$11,589
Water Operations (Senior Engineer)……1664 hrs @$77.16/hr	$128,400

Annual Staff Labor Subtotal: *$139,989*

General Justification: The Board of Directors, at the request of the Water Quality Ad Hoc Committee requested that staff develop new water quality guidelines for non-Millerton water introduced into the FKC. This plan originally stemmed from the environmental compliance requirements of both the Long-Term Recapture and Recirculation Plan and the FKC Reverse Pump-back Project.

Operating Impact: This estimate assumes implementation of the Guidelines will occur. Although the costs for finalizing the Guidelines, agreements, and environmental compliance will be applied separately, the administration and water quality monitoring outlined in the Guidelines will be applied to 6370. A portion of these costs will be reimbursed through a surcharge applied to those Friant contractors that introduce water into the FKC once the Guidelines are implemented.

Cost Allocation: Costs for implementation and administration of the Policy will be paid initially by the subset of Friant Division Long-Term Contractors who pay for FKC O&M to the FWA and subsequently will be reimbursed by contractors that introduce water (Put) into the FKC (Contributor). The Contributor will pay a dollar per acre-foot ($/acre-foot[AF]) surcharge, or 'Guidelines Surcharge,' that will be credited back to the Friant Division Long-Term Contractors who pay for O&M to the FWA. The Guidelines Surcharge will be calculated by dividing the total annual costs incurred for administration of the Guidelines Program by the total annual deliveries of pump-in programs into the FKC. The Guidelines Surcharge will be applied to all introduced water even if it is not required to provide mitigation as defined in the Guidelines. Surcharge estimates can be provided for budgeting purposes on an annual basis. FWA will bill contractors for reimbursement of Guidelines Program costs based on actual volumes and costs incurred.

Guidelines Surcharge Estimate: Current pump-in programs pump approximately 36.6 thousand acre-feet (TAF) per year into the FKC based on recent 5-year average (2013-2018) as shown in Table 2.

Table 2: Current Pump-In Program 5-year Average (2013-2018)

Source	Annual Average (TAF)	Annual Maximum[1] (TAF)
Sierra Water	17.8	344
Groundwater	14.7	117
CVC	4.1	149
Total Annual Average	**36.6**	**610**

[1] Based on existing compliance and approvals and anticipated renewals.

The potential annual maximum is much greater than the annual average; however, for purposes of setting an initial Guidelines Surcharge, an estimated 40 TAF per year of pump-ins is assumed to occur. This estimate includes the recent average of existing programs and anticipated 10% initial increase due to new programs or greater use of existing programs.

Monitoring and lab costs can be allocated based on location or source of introduced water. It is assumed that all monitoring and lab costs associated with operations at the CVC Intertie will be allocated to a surcharge applied only to water being brought in from the CVC. All other

monitoring and lab costs (e.g., lab costs associated with exceedances) will be allocated to other pump-ins. Other costs (e.g., annual maintenance of equipment, staff time) would be allocated to all pump-ins via a surcharge base.

Based on this approach, the estimated **Guidelines Surcharge would average about $10.73 per AF for CVC Water and $3.88 per AF for other pumps ins**. Each surcharge would increase about $0.70 per AF if the surcharge were to consider recovering CEQA compliance costs over 10 years. The surcharge applied at the end of every year will be based on actual costs and deliveries, and methods for allocation can be reassessed every year by the Water Quality Advisory Committee.

Extraordinary Maintenance Projects
Cost Summary

Project Title: Friant Kern Canal Water Quality Program

Project Location and Department: Friant-Kern Canal (entire 152 miles) / Operations Department

Estimated Total Project Cost (x1000): $189.4

Estimated Total Material Cost (Including Fuel Costs, x1000): $49.4

Breakdown of Estimated Costs

All costs outside of Friant staff costs for CEQA compliance are not covered as part of this program cost budget.

Materials and Laboratory

Annualized Capital Install and Replacement of Equipment	$7,090
Annual Materials and Lab Testing	$42,246

Subtotal: $49,336

Regular Labor (Hours and Cost):

Executive Team (WRM)……. 104 hrs @$111.43/hr	$11,589
Water Operations (Senior Engineer)……1664 hrs @$77.16/hr	$128,400

Subtotal: $139,989

Total: $189,325

Guidelines Surcharge (CVC) $10.73 per AF

Guidelines Surcharge (All other) $4.58 per AF

Appendix B

Mitigation Monitoring and Reporting Program

APPENDIX B
Mitigation Monitoring and Reporting Program

Introduction

Public Resources Code (PRC) Section 21081.6 and Section 15097 of the California Environmental Quality Act (CEQA) Guidelines require public agencies to adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects, in order to ensure that the mitigation measures and project revisions are implemented.

This Mitigation Monitoring and Reporting Program (MMRP) identifies the mitigation measures adopted by the Friant Water Authority (Friant) from the *Guidelines for Accepting Water into the Friant-Kern Canal* (proposed Guidelines) Environmental Impact Report (EIR). It also identifies: (1) responsibility for implementation of the mitigation measures; (2) responsibility for monitoring implementation of mitigation measures; (3) actions taken to monitor and report on implementation; and (4) timing of actions. Mitigation measures are numbered consistent with the numbering included in the proposed Guidelines EIR (State Clearinghouse No. 2022120093).

The MMRP table (Table B-1) includes the following:

- **Mitigation Measure:** lists the adopted mitigation measures from the proposed Guidelines EIR.
- **Responsibility for Implementing:** identifies the entity(ies) responsible for implementing the actions described in the mitigation measures.
- **Responsibility for Monitoring:** identifies the entity(ies) responsible for monitoring implementation of the actions described in the mitigation measures.

Monitoring and Reporting Actions: describes the actions taken to monitor and report implementation of the mitigation requirements.

Timing: identifies the timing of implementation of the actions described in the mitigation measures. Implementation of the action must occur before or during some part of project approval, project design, or construction, or on an ongoing basis.

Definition of terms used in MMRP:

Entity implementing action in response to the proposed Guidelines: the term "entity" can refer to Contractors[1] that might need to take certain actions to comply with the proposed Guidelines with respect to existing programs and future projects. In addition, it can refer to Friant or Contractors that may need to construct and/or maintain facilities for monitoring and forecasting water quality (e.g., water quality monitoring stations). Entities are also the CEQA lead agencies.

CEQA: California Environmental Quality Act

CDFW: California Department of Fish and Wildlife

CHRIS: California Historical Resources Information System

DPR: Department of Parks and Recreation

HCS: California Health and Safety Code

NAHC: California Native American Heritage Commission

USFWS: United States Fish and Wildlife Service

PRC: Public Resources Code

SOI PQS: U.S. Secretary of the Interior's Professional Qualifications

USACE: United States Army Corps of Engineers

[1] "Contractors" are defined as water contractors and other parties authorized to introduce or receive Non-Millerton water into or from the Friant-Kern Canal.

Mitigation Measure	Responsibility for Implementing	Responsibility for Monitoring	Monitoring and Reporting Actions	Timing
Biological Resources				
Mitigation Measure 3.5-1a: One botanical survey shall be conducted prior to construction activities to determine the presence or absence of special-status plant species within the construction footprint, including staging and haul routes. The surveys shall be conducted in general accordance with the Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities (CDFW 2018) and shall be timed to appropriately coincide with the blooming period in all suitable habitat located within any anticipated disturbance areas.	Entity implementing action in response to Guidelines Construction Contractor	Entity implementing action in response to Guidelines	Verify and document that surveys were conducted in the construction footprint in general accordance with CDFW Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities.	Prior to construction; during appropriate blooming period
Mitigation Measure 3.5-1b: In the event that special-status plant species are found during the botanical surveys, the locations of the special-status plants shall be marked and a 50-foot buffer shall be established as avoidance areas both in the field, using flagging, staking, fencing, or similar devices, and on construction plans.	Entity implementing action in response to Guidelines Construction Contractor	Entity implementing action in response to Guidelines	Verify and document that 50-foot buffers were installed to protect special-status plant species.	Prior to construction
Mitigation Measure 3.5-1c: If non-listed, special-status plants are identified during botanical surveys and complete avoidance is not practicable, coordination with CDFW and/or USFWS shall be conducted as appropriate to develop the conservation plan. No take of state-listed species shall occur without an Incidental Take Permit (ITP) from CDFW.	Entity implementing action in response to Guidelines	Entity implementing action in response to Guidelines	Verify and document development of conservation plan in coordination with CDFW and/or USFWS.	Prior to construction
Mitigation Measure 3.5-1d: To avoid special-status wildlife habitat, Contractors implementing actions in response to the proposed Guidelines shall implement the following measures: • To the extent practicable, site(s) shall be identified that avoid habitats of special-status species (which may include foraging, sheltering, migration, and rearing habitat in addition to breeding or spawning habitat). • Buffers around special-status species habitats shall be established to exclude effects of construction activities. The size of the buffer shall be in accordance with USFWS and CDFW protocols for the applicable special-status species. • To the extent practicable, construction activities shall be scheduled to avoid special-status species' breeding, spawning, or migration locations during the seasons or active periods that these activities occur. • Where impacts on special-status species are unavoidable, impacts shall be compensated for by restoring or preserving in-kind suitable habitat on-site or off-site, or by purchasing restoration or preservation credits.	Entity implementing action in response to Guidelines Construction Contractor	Entity implementing action in response to Guidelines	Verify and document: • special-status species habitat was avoided to extent practicable. • buffers were installed in accordance with USFWS and CDFW protocols • construction activities were scheduled to avoid breeding, spawning or migration seasons. • compensation, restoration or preservation of in-kind habitat on or off site was implemented, as appropriate.	Prior to and on-going during construction Prior to construction Prior to construction Prior to construction
Mitigation Measure 3.5-1e: To protect wildlife, Contractors implementing actions in response to the proposed Guidelines shall implement the following measures: • Avoidance of Vegetation Disturbance. Sites shall be selected that will minimize, to the greatest extent feasible, the amount of soil and upland vegetation disturbance during construction and use methods creating the least disturbance to vegetation. Disturbance to existing grades and native vegetation, the number of access routes, the size of staging areas, and the total area disturbed shall be limited to the extent of all temporary and permanent impacts as defined by the final project design. • Environmental Awareness Training. Prior to engaging existing or new personnel in construction activities, new construction personnel shall participate in environmental awareness training conducted by an agency-approved biologist or resource specialist. Construction personnel will be informed about the identification, potential presence, legal protections, and avoidance and minimization measures relevant to special-status species that potentially occur on the site. • Environmental Monitoring. A qualified biologist shall ensure that all applicable protective measures are implemented during construction. The qualified biologist shall have authority to stop any work if they determine that any permit requirement is not fully implemented. The qualified biologist will prepare and maintain a monitoring log of construction site conditions and observations, which will be kept on file by the lead agency. • Work Area and Speed Limits. All construction work and materials staging shall be restricted to designated work areas, routes, staging areas, temporary interior roads, or the limits of existing roadways. o Prior to start of work, brightly colored fencing or flagging or other practical means shall be erected to demarcate the limits of the activities within 100 feet of sensitive natural communities and habitat areas (e.g., any aquatic features), including designated staging areas; ingress and egress corridors; stockpile areas, soil, and materials; and equipment exclusion zones. Flagging or fencing shall be maintained in good repair for the duration of construction activities. o Vehicles shall obey posted speed limits and will limit speeds to 20 miles per hour within the study area on unpaved surfaces and unpaved roads to reduce dust and soil erosion and avoid harm to wildlife. • Daily Removal of Food Trash. All food trash shall be properly contained within sealed containers, removed from the work site, and disposed of daily to prevent attracting wildlife to construction sites.	Entity implementing action in response to Guidelines Construction Contractor	Entity implementing action in response to Guidelines	Verify and document: • sites were selected to minimize vegetation disturbance. • -qualified biologist conducted environmental awareness training. • -qualified biologist monitored compliance with applicable protective measures.	Prior to construction On-going during construction On-going during construction

Mitigation Measure	Responsibility for Implementing	Responsibility for Monitoring	Monitoring and Reporting Actions	Timing
Mitigation Measure 3.5-1f: To protect nesting birds, Contractors implementing actions in response to the proposed Guidelines shall implement the following measures: • To the extent practicable, vegetation removal shall be scheduled to avoid the breeding season for nesting raptors and other special-status birds (generally February 1 through August 31, depending on the species). Removal of vegetation outside of the nesting season is intended to minimize the potential for delays in vegetation removal due to active nests. • If work is to occur during the breeding season for nesting birds, a qualified biologist shall conduct a minimum of one pre-construction survey for nesting migratory birds and raptors within the project area for all construction-related activities that will occur during the nesting season. The pre-construction survey shall be conducted no more than 15 days prior to the initiation of construction in a given area and will be phased based on the construction schedule. If an active nest is found, a construction-free buffer zone (250 feet for migratory birds, 500 feet for raptors) shall be established around the active nest site. If establishment of the construction-free buffer zone is not practicable, appropriate conservation measures (as determined by a qualified biologist and approved by CDFW) shall be implemented. These measures may include but are not limited to consulting with CDFW to establish a different construction-free buffer zone around the active nest site, conducting daily biological monitoring of the active nest site, and delaying construction activities in the vicinity of the active nest site until the young have fledged. • If burrowing owls are detected within the project area during the non-breeding season and maintaining a 150-foot, no-disturbance buffer is not practicable, a qualified biologist shall submit an exclusion and passive-relocation plan to CDFW for approval. The exclusion and passive-relocation plan will generally follow the guidelines outlined in Appendix E of the Staff Report on Burrowing Owl Mitigation (CDFG 2012). If occupied burrows are detected during the breeding season and maintaining a 250-foot no-disturbance buffer is not practicable, CDFW will be consulted to determine and approve alternative measures to minimize the potential for disturbance to occupied burrows and nesting activities. Measures may include but are not limited to continuous biological monitoring by a qualified biologist until it has been determined that the young have fledged and are no longer reliant on the nest or parental care for survival or construction is complete. No direct disturbance of burrows with eggs or young can be conducted without written authorization from CDFW and USFWS. • For construction activities that occur between February 1 and August 31, a qualified biologist shall conduct pre-construction surveys for raptors. The pre-construction surveys will include the project footprint and a minimum of a 0.50-mile radius where access is permitted around the construction area in suitable nesting habitat (i.e., large trees). The preconstruction surveys shall be conducted no more than 10 days before ground disturbance in a given area and will be phased based on the construction schedule. If nesting raptors are detected, an appropriate no-disturbance buffer (initially set at 500 feet for raptors; reductions in the standard buffer for raptors may be allowed where circumstances suggest the birds will not abandon the active nest with a reduced buffer size. A qualified biologist will determine whether reducing the buffer is likely to substantially increase disturbance of nesting birds, taking into account the presence or absence of dense vegetation, topography, or structures that would block project activities from view; the life history and behavior of the bird species in question; and the nature of the proposed activity. If a reduced buffer is implemented, the biologist shall monitor bird behavior in relation to work activities. At a minimum, the biologist will monitor the baseline behavior of the birds for at least 30 minutes prior to the commencement of the work activity and for at least one hour immediately following the initiation of the work activity, when response by the nesting birds to the novel activity is expected to be greatest) shall be established and monitored by a qualified biologist. Buffers shall be maintained until a qualified biologist has determined that the young have fledged and are no longer reliant on the nest or parental care for survival. • If construction results in permanent loss of alfalfa fields (high-quality foraging habitat for Swainson's hawk), this loss shall be mitigated; at a minimum of a 1:1 ratio. Mitigation shall occur in coordination with CDFW and may consist of but is not limited to purchasing mitigation credits from a CDFW-approved mitigation bank, obtaining conservation easements with appropriate provisions to maintain the land as suitable foraging habitat in perpetuity, establishing new alfalfa fields, or implementing other habitat conservation measures as approved by CDFW.	Entity implementing action in response to Guidelines Construction Contractor	Entity implementing action in response to Guidelines	Verify and document: • vegetation removal was scheduled to avoid breeding season for nesting raptors; qualified biologist conducted pre-construction surveys for nesting migratory birds and raptors. • buffers for nesting burrowing owls were installed in accordance with USFWS and CDFW protocols. • mitigation for loss of foraging habitat was implemented in coordination with and approval by CDFW.	Prior to construction (February 1 - August 31) Prior to and during construction Prior to construction
Mitigation Measure 3.5-1g: To protect special-status amphibians and reptiles, Contractors implementing actions in response to the proposed Guidelines shall implement the following measures: • If western spadefoot is encountered during construction activities, it will be allowed to move out of harm's way of its own volition, or a qualified biologist will relocate it to the nearest suitable habitat that is at least 100 feet outside of the construction impact area. • Prior to moving equipment at the start of a day, construction personnel shall inspect underneath parked vehicles and heavy machinery for amphibians or reptiles. If any are found, they will be allowed to move out of the construction area under their own volition, or a qualified biologist will relocate the organism(s) to the nearest suitable habitat that is at least 100 feet outside of the construction impact area.	Entity implementing action in response to Guidelines Construction Contractor	Entity implementing action in response to Guidelines	Verify and document that special-status amphibians and reptile encountered during construction activities were allowed to move on their own out of harm's way or be relocated by a qualified biologist to nearest suitable habitat at least 100 feet outside construction area.	On-going during construction
Mitigation Measure 3.5-1h: To protect Crotch's bumble bee, Contractors implementing actions in response to the proposed Guidelines shall implement the following measures: • If construction activities will involve conversion of grassland or shrublands, a survey for Crotch's bumble bee shall be conducted prior to construction activities during the Crotch's bumble bee active period (i.e., March to July). • The survey will be a visual survey conducted by a qualified biologist who will search for Crotch's bumble bee activity and the presence of ground nests. If an active ground nest is observed, it shall be avoided. If avoidance of the active nest is not possible, CDFW will be consulted for approval of alternative measures to protect the Crotch's bumble bee.	Entity implementing action in response to Guidelines	Entity implementing action in response to Guidelines	Verify and document: • qualified biologist conducted survey. • active ground nests were avoided or if avoidance was not possible, CDFW was consulted and approved alternative measures were implemented	Prior to construction (March - July) On-going during construction
Mitigation Measure 3.5-1i: To protect San Joaquin kit fox, Contractors implementing actions in response to the proposed Guidelines shall implement the following measures: • Before the start of ground-disturbing activities within suitable habitat areas for San Joaquin kit fox (i.e., alkali desert scrub, annual grassland, pasture, barren) an approved biologist shall conduct preconstruction surveys in accordance with USFWS' Standardized Recommendations for Protection of the San Joaquin Kit Fox prior to or during Ground Disturbance (USFWS 2011). Preconstruction surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities or any project activity likely to impact the San Joaquin kit fox. • If a natal/pupping den is discovered within the work area or within 200-feet buffer of the work area boundary, the USFWS shall be immediately notified and under no circumstances should the den be disturbed or destroyed without prior authorization from USFWS. If the preconstruction survey reveals an active natal/pupping den, the Contractor shall contact the Service immediately to obtain the necessary take authorization. No construction work shall be allowed within 200 feet of the newly discovered natal/pupping den without written approval from the Service.	Entity implementing action in response to Guidelines Construction Contractor	Entity implementing action in response to Guidelines	Verify and document: • qualified biologist conducted survey in accordance with USFWS' Standardized Recommendations for Protection of the San Joaquin Kit Fox. • construction work was stopped, USFWS was notified, and necessary take authorization was obtained for active dens identified within work area and 200-feet of work area boundary	Between 14 and 30 days prior to construction On-going during construction

Mitigation Measure	Responsibility for Implementing	Responsibility for Monitoring	Monitoring and Reporting Actions	Timing
Mitigation Measure 3.5-1j: To protect Tipton kangaroo rat, Contractors implementing actions in response to the proposed Guidelines shall implement the following measures: • Before the start of construction, the approved biologist shall conduct a habitat assessment to determine presence of special-status small mammal species burrows or their signs. If no observations, burrows, or signs of special-status small-mammal species are detected, no further measures will be required. • If burrows and signs of special-status small mammal species are observed, the approved biologist will conduct protocol-level surveys in accordance with Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats (USFWS 2013) • If signs of Tipton kangaroo rat are detected during the survey, the Contractor, under the supervision of the approved biologist, shall establish non-disturbance exclusion zones (using wildlife exclusion fencing [e.g., a silt fence or similar material]). The non-disturbance exclusion fence with one-way exit/escape points shall be placed to exclude the Tipton kangaroo rat from the construction area.	Entity implementing action in response to Guidelines Construction Contractor	Entity implementing action in response to Guidelines	Verify and document: • approved biologist conducted habitat assessment. • approved biologist conducted protocol-level survey in accordance with USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats. • approved biologist established non-disturbance exclusion zones.	Prior to construction Prior to and on-going during construction Prior to and on-going during construction
Mitigation Measure 3.5-1k: To protect American badger, Contractors implementing actions in response to the proposed Guidelines shall implement the following measures: • No more than 30 days before the start of construction activities, a qualified biologist shall conduct pre-construction surveys for American badgers within suitable habitat on the project site. If a potentially active den is found in a construction area, a burrow probe shall be used to determine the presence of badgers, or the den openings may be monitored with tracking medium or an infrared-beam camera for three consecutive nights to determine current use. Potential (inactive) dens within the limits of disturbance shall be blocked or excavated to prevent use during construction. If American badgers or active dens are detected during these surveys, the following measures shall be implemented. • Disturbance of any American badger dens shall be avoided to the extent practicable. American badger dens are used for shelter, escape, cover, and reproduction, and are thus vital to the survival of American badgers. If present, occupied badger dens shall be flagged, and ground-disturbing activities avoided, within 50 feet of the occupied den during the nonbreeding season (July 1 through February 14). Dens determined to be occupied during the breeding season (February 15 through June 30) shall be flagged, and ground-disturbing activities avoided, within 200 feet to protect adults and nursing young. Buffers may be modified by a qualified biologist with the written concurrence of CDFW. • If avoidance of an active non-maternity den is not feasible, badgers shall be relocated by slowly excavating the burrow (either by hand or with mechanized equipment under the direct supervision of a qualified biologist) before or after the rearing season (February 15 through June 30). Any passive relocation of American badgers shall occur only under the direction of a qualified biologist.	Entity implementing action in response to Guidelines Contract Contractor	Entity implementing action in response to Guidelines	Verify and document: • qualified biologist conducted survey. • Occupied American badger dens were flagged by qualified biologist and ground disturbing activities avoided within 50-feet of den. • Occupied American badger dens were flagged by qualified biologist and ground disturbance avoided within 200-feet of den during breeding season. • any modification to buffers were implemented by qualified biologist with written concurrence of CDFW. • any passive relocation of American badgers conducted under direction of qualified biologist.	No more than 30 days prior to construction Prior to construction (July 1 – February 14) Prior to construction (February 15-June 30) Prior to construction Prior to construction (February 15-June 30)
Mitigation Measure 3.5-2: To avoid or minimize disturbance of sensitive natural communities, Contractors implementing actions in response to the proposed Guidelines shall implement the following measures: • ***Avoidance of Sensitive Natural Communities.*** The proponent of the action will select sites that will avoid sensitive natural communities, including riparian habitats, by doing the following: o To the maximum extent practicable, project elements shall be designed to avoid effects on sensitive natural communities. o Flagging or fencing shall be installed by a qualified biologist around any sensitive natural community to be avoided by construction. o Flagging or fencing shall remain in place throughout the duration of the construction activities and will be inspected and maintained regularly by a qualified biologist until completion of construction activities. Fencing shall be removed when all construction equipment is removed from the site, the area is cleared of debris and trash, and the area is returned to natural conditions. o Where impacts on sensitive natural communities other than waters of the United States or state are unavoidable, impacts shall be compensated for by restoring and/or preserving in-kind sensitive natural communities on-site, or off-site at a nearby site, or by purchasing in-kind restoration or preservation credits from a mitigation bank. • ***Restoration of Temporarily Affected Areas.*** For any areas temporarily affected by construction activities, the following measures shall be implemented: o Prepare a restoration plan for sites with temporary impacts, for review by CDFW. o Minimize soil disturbance and stockpile topsoil for later use in any areas to be graded. o Amend soil as necessary before installing replacement plants. o Use only native plant species for revegetation. • ***Preservation of Large Trees***. Existing native vegetation shall be retained as practicable, with special focus on the retention of shade-producing and bank-stabilizing trees and brush with greater than 6-inch-diameter branches or trunks. If large trees must be removed, compensation shall be implemented within 12 months of removal of such large trees. Compensation shall be implemented through one of three mechanisms or some combination thereof: (1) replacement via replanting at a minimum ratio of 1:1 based on a diameter-at-breast-height (DBH) basis, (e.g., planting six 1-inch DBH trees for a single, removed 6-inch DBH tree); (2) permanent preservation of large, native trees, which could include, but not be limited to, establishment of a conservation easement on lands that support native trees; or (3) contribution to the respective, established, approved tree conservation fund where the tree impact occurred. • ***Avoidance of Excessive Soil Compaction***. Wherever possible, vegetation disturbance and soil compaction shall be minimized by using low-ground-pressure equipment with a greater reach than other equipment, or that exerts less pressure per square inch on the ground. • ***Materials and Methods of Native and Invasive Vegetation Removal***. If riparian vegetation is removed with chain saws or other power equipment, machines that operate with vegetable-based bar oil will be used, if practicable. All invasive plant species (e.g., those rated as invasive by the California Invasive Plant Council or local problem species) shall, if feasible, be removed using locally and routinely accepted agricultural practices. Stockpiling of invasive plant materials is prohibited during the flood season.	Entity implementing action in response to Guidelines Construction Contractor	Entity implementing action in response to Guidelines	Verify and document for Sensitive Natural Communities: • sites were selected to minimize disturbance of sensitive natural communities. • qualified biologist installed flags or fencing around sensitive natural community • compensation, restoration or preservation of in-kind habitat on or off site was implemented, as appropriate. Verify and document for restoration of construction areas: • Measures to protect and restore construction areas have been implemented including those for preservation of large trees, soil compaction, native vegetation. • invasive vegetation was removed using locally and routinely accepted agricultural practices and stockpiling of invasive plant material has not occurred during flood season. • Construction areas have been restored to preconstruction conditions or redesigned to provided increased biological and hydrological function, using a CDFW-approved plant palette.	Prior to construction Prior to construction until end of construction Prior to construction On-going during construction and at end of construction

Mitigation Measure	Responsibility for Implementing	Responsibility for Monitoring	Monitoring and Reporting Actions	Timing
• ***Revegetation of Disturbed Areas***. All temporarily disturbed areas shall be de-compacted and seeded/planted with a mix of native riparian, wetland, and/or upland plant species suitable for the area. The proponent of the action shall develop a revegetation plan, including (as applicable) a schedule; plans for grading of disturbed areas to pre-construction contours; a planting palette with plant species native to the study area; invasive species management; performance standards; and maintenance requirements (e.g., watering, weeding, and replanting). Plants for revegetation shall come primarily from active seeding and planting; natural recruitment may also be proposed if site conditions allow for natural recruitment to reestablish vegetation and avoid potential negative risks associated with erosion and impacts on water quality. Plants imported to the restoration areas will come from local stock, and to the extent possible, from local nurseries. Only native plants (genera) will be used for restoration efforts. Certified weed-free native mixes and mulch will be used for restoration planting or seeding. • ***Revegetation Materials and Methods***. Following the completion of work, site contours shall be returned to preconstruction conditions or redesigned to provide increased biological and hydrological functions. o Any area barren of vegetation as a result of implementation of an action shall be restored to a natural state by mulching, seeding, planting, or other means with native trees, shrubs, willow stakes, erosion control native seed mixes, or herbaceous plant species. o Where disturbed, topsoil shall be conserved for reuse during restoration to the extent practicable. o Native plant species comprising a diverse community structure (plantings of both woody and herbaceous species, if both are present) that follow a CDFW-approved plant palette shall be used for revegetation of disturbed and compacted areas, as appropriate. o Irrigation may also be required to ensure the survival of shrubs, trees, or other vegetation. o Soils that have been compacted by heavy equipment shall be de-compacted, as necessary, to allow for revegetation. • ***Materials and Methods of Revegetation Erosion Control***. If erosion control fabrics are used in revegetated areas, they shall be slit in appropriate locations to allow for plant root growth. Only non-monofilament, wildlife-safe fabrics shall be used. • ***Revegetation Monitoring and Reporting***. All revegetated areas shall be maintained and monitored for a minimum of two years after replanting is complete and until success criteria are met, to ensure that the revegetation effort is successful. The standard for success is 60 percent absolute cover compared to an intact, local reference site. If an appropriate reference site cannot be identified, success criteria will be developed for review and approval by CDFW on a project-by-project basis based on the specific habitat affected and known recovery times for that habitat and geography. A summary report of the monitoring results and recommendations at the conclusion of each monitoring year shall be prepared.			• revegetated sites have been maintained and monitored for a minimum of two years after replanting was complete and until success criteria developed in consultation with and approved by CDFW was met. • A summary report of the monitoring results and recommendations was prepared at the conclusion of each monitoring year.	Two years following revegetation End of each year following revegetation
Mitigation Measure 3.5-3: To avoid or minimize disturbance to wetlands and waters, Contractors implementing actions in response to the proposed Guidelines shall implement the following measures: • ***Avoidance of Jurisdictional Wetlands and Other Waters.*** Sites shall be selected that shall avoid, minimize, and if necessary, compensate for reduction in area and/or habitat quality of wetlands and jurisdictional waters, through the following measures: o To the maximum extent practicable, elements of Contractor actions shall be designed to avoid effects on wetlands and other waters, including rivers, streams, vernal pools, and seasonal wetlands. o Flagging or fencing shall be installed by a qualified biologist around any jurisdictional wetland or other aquatic feature to be avoided by construction. o Flagging or fencing shall remain in place throughout the duration of construction and will be inspected and maintained regularly by a qualified biologist until completion of the project. Fencing shall be removed when all construction equipment is removed from the site, the area is cleared of debris and trash, and the area is returned to natural conditions. o Staging areas, access roads, and other facilities shall be placed to avoid and limit disturbance to waters of the state and other aquatic habitats (e.g., streambank or stream channel, riparian habitat) as much as possible. When possible, existing ingress or egress points shall be used and/or work shall be performed from the top of the creek banks or from barges on the waterside of the stream or levee bank, or dry gravel beds. o Wetlands and other waters of the United States, and waters of the state that would be removed, lost, and/or degraded shall be replaced, restored, or enhanced on a "no net loss" basis (in accordance with all permits secured from and related requirements imposed by USACE and State Water Board).	Entity implementing action in response to Guidelines Construction Contractor	Entity implementing action in response to Guidelines	Verify and document: • sites were selected to minimize disturbance of jurisdictional wetlands and other waters. • qualified biologist installed flags or fencing around jurisdiction wetlands and other aquatic features; area is returned to natural conditions. • Removal, loss, or degradation of wetlands and other waters of the US and waters of the state are replaced, restored, or enhanced on a "no net loss' basis in accordance with USACE and State Water Board permits and requirements.	Prior to construction Prior to construction until end of construction activities Prior to construction
See Mitigation Measures 3.5-1, 3.5-2, and 3.5-3	See Mitigation Measures 3.5-1, 3.5-2, and 3.5-3	See Mitigation Measures 3.5-1, 3.5-2, and 3.5-3	See Mitigation Measures 3.5-1, 3.5-2, and 3.5-3	See Mitigation Measures 3.5-1, 3.5-2, and 3.5-3
See Mitigation Measures 3.5-2 and 3.5-3	See Mitigation Measures 3.5-2 and 3.5-3	See Mitigation Measures 3.5-2 and 3.5-3	See Mitigation Measures 3.5-2 and 3.5-3	See Mitigation Measures 3.5-2 and 3.5-3

Mitigation Measure	Responsibility for Implementing	Responsibility for Monitoring	Monitoring and Reporting Actions	Timing
Cultural Resources				
Mitigation Measure 3.6-1a: Before implementation of any construction-related activities associated with the proposed Guidelines, the need for an inventory and significance evaluation of architectural resources shall be assessed, based upon the type of activity and the potential for architectural resources to be present or disturbed. The assessment shall consist of a review of maps and aerial photos to determine whether existing buildings, dams, levees, roads, or other built features are present. If so, and if these features either are of unknown age or are known to be older than 45 years old, then an inventory and evaluation shall be completed by, or under the direct supervision of, a qualified architectural historian, defined as one who meets the SOI PQS for Architectural History or History. This inventory and evaluation shall include the following: a) Map(s) and verbal description of the project area that delineates both the horizontal and vertical extents of potential direct and indirect effects —on architectural resources. b) A records search at the appropriate repository of the CHRIS for the project area and vicinity (typically areas within 0.25 or 0.5 mile, based on setting), to acquire records of previously recorded cultural resources and previously conducted cultural resources studies. This task can be performed by either the qualified archaeologist or the appropriate local CHRIS center staff. c) Background research on the history of the project area and vicinity for all actions determined to need additional historical architecture assessment. d) If, after review, features of the built environment are determined to be less than 45 years old, inclusion in the description a summary statement of their age and references for this determination. e) If architectural resources (45 years of age or older) are determined to likely be present in or near the project area, an architectural field survey of the project area, unless previous architectural field surveys no more than two years old have been conducted for the project area, in which case a new field survey is not necessary. Any architectural resources identified in the project area during the survey shall be recorded on the appropriate California DPR 523 forms (i.e., site record forms). f) An evaluation of any architectural resources identified in the project area for California Register eligibility (i.e., whether they qualify as historical resources, as defined in CEQA Guidelines Section 15064.5). g) An assessment of potential impacts on any historical resources identified in the project area. This shall include an analysis of whether potential impacts on the historical resource would be consistent with the U.S. Secretary of the Interior's Standards for the Treatment of Historic Properties and applicable guidelines. h) A technical report meeting the U.S. Secretary of the Interior's Standards for architectural history technical reporting. This report shall document the mitigation measures taken and any study results. The report shall be submitted to the appropriate CHRIS repository for the project area upon approval by the CEQA lead agency.	Entity implementing action in response to Guidelines	Entity implementing action in response to Guidelines	Verify and document: • qualified architectural historian conducted assessment of architectural features and an inventory and evaluated was conducted for those features known to be older than 45 years. • inventory and evaluation includes the items listed in (a) through (h).	Prior to construction
Mitigation Measure 3.6-1b: If potentially significant impacts on historical resources are identified through implementation of Mitigation Measure 3.6-1a, an approach for reducing such impacts shall be developed before implementation of the action and in coordination with interested parties (e.g., historical societies, local communities). Typical measures for reducing impacts include: a) Modification of the action to avoid impacts on historical resources. b) Documentation of historical resources, to the standards of and to be included in the Historic American Building Survey, Historic American Engineering Record, or Historic American Landscapes Survey, as appropriate. As described in the above standards, the documentation shall be conducted by a qualified architectural historian, defined above, and shall include large-format photography, measured drawings, written architectural descriptions, and historical narratives. The completed documentation shall be submitted to the U.S. Library of Congress. c) Relocation of historical resources in conformance with the U.S. Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. d) Monitoring of construction-related and operational vibrations at historical resources. e) For historical resources that are landscapes, preservation of the landscape's historic form, features, and details that have evolved over time, in conformance with the U.S. Secretary of the Interior's Guidance for the Treatment of Cultural Landscapes. f) Development and implementation of interpretive programs or displays, and community outreach. Any technical report developed as part of this mitigation measure shall meet the U.S. Secretary of the Interior's Standards for architectural history technical reporting and shall be submitted to the appropriate CHRIS repository for the project area upon approval by the CEQA lead agency.	Entity implementing action in response to Guidelines	Entity implementing action in response to Guidelines	Verify and document: • measures to avoid or minimize impacts to historical resources have been implemented. • a technical report meeting the U.S. Secretary of the Interior's Standards for architectural history technical reporting was submitted to the appropriate CHRIS repository for the project area.	Prior to construction
Mitigation Measure 3.6-2a: Before implementation of any construction-related activity that includes ground disturbance associated actions taken by Contractors in response to the proposed Guidelines, an archaeological records search and sensitivity assessment, and an inventory and significance evaluation of archaeological resources identified in the project area shall be conducted. The inventory and evaluation shall be done by or under the direct supervision of a qualified archaeologist, defined as one who meets the SOI PQS for Archeology, and shall include the following: a) Map(s) and verbal description of the project area that delineates both the horizontal and vertical extents of potential direct and indirect effects on archaeological resources. b) A records search at the appropriate CHRIS repository for the project area and vicinity (typically areas within 0.25 or 0.5 mile, based on setting) to acquire records of previously recorded cultural resources and previously conducted cultural resources studies. This task can be performed by either the qualified archaeologist or the appropriate local CHRIS center staff. c) Outreach to the NAHC, including a request of a search of the Sacred Lands File for the project area and a list of California Native American Tribes culturally and geographically affiliated with the project area, to determine whether any documented Native American sacred sites could be affected by the action.	Entity implementing action in response to Guidelines	Entity implementing action in response to Guidelines	Verify and document: • qualified archeologist conducted an archeological records search and sensitivity assessment, and archeological resources were inventoried and evaluated. • inventory and evaluation includes the items listed in (a) through (k).	Prior to construction

Mitigation Measure	Responsibility for Implementing	Responsibility for Monitoring	Monitoring and Reporting Actions	Timing
d) Consultation with California Native American Tribes pursuant to PRC Section 21080.3 to determine whether any indigenous archaeological resource or tribal cultural resources could be affected by the action. The CEQA lead agency shall consult with California Native American Tribes culturally and affiliated with the project area and who have requested to be notified by the CEQA lead agency regarding projects, pursuant to AB 52; this consultation shall consist of the CEQA lead agency providing written notification of the action to any such Tribes and follow-up consultation if any Tribes request, in writing, from the CEQA lead agency consultation on the action within 30 days of receiving the CEQA lead agency's initial notification. Consultation shall include discussion regarding the design of the action, cultural resources survey, protocols for construction monitoring, and any other Tribal concerns. e) Background research on the history, including ethnography and indigenous presence, of the project area and vicinity. f) An archaeological sensitivity analysis of the project area based on mapped geologic formations and soils, previously recorded archaeological resources, previous archaeological studies, and Tribal consultation. g) An archaeological field survey of project area shall be conducted. The field survey shall include, at a minimum, a pedestrian survey. If the archaeological sensitivity analysis suggests a high potential for buried archaeological resources in the project area, a subsurface survey shall also be conducted. If previous archaeological field surveys no more than two years old have been conducted for the project area, a new field survey is not necessary, unless their field methods do not conform to those required above (e.g., no subsurface survey was conducted but project area has high potential for buried archaeological resources). Any archaeological resources identified in the project area during the survey shall be recorded on the appropriate DPR 523 forms (i.e., site record forms). h) An evaluation of any archaeological resources identified in the project area for California Register eligibility (i.e., as qualifying as historical resources, as defined in CEQA Guidelines Section 15064.5) as well as whether they qualify as unique archaeological resources pursuant to PRC Section 21083.2. Such evaluation may require archaeological testing (excavation), potentially including laboratory analysis, and consultation with relevant California Native American Tribes (for indigenous resources). i) An assessment of potential impacts on any archaeological resources identified in the project area that qualify as historical resources (per CEQA Guidelines Section 15064.5) and/or unique archaeological resources (per PRC Section 21083.2). This shall include an analysis of whether the potential impacts would materially alter a resource's physical characteristics that convey its historical significance and that justify its inclusion (or eligibility for inclusion) in the California Register or a qualified local register. j) A technical report meeting the U.S. Secretary of the Interior's Standards for archaeological technical reporting. This report shall be submitted to the appropriate k) CHRIS repository for the project area upon approval by the CEQA lead agency unless the document contains information that any California Native American Tribes involved in its development determine should not be filed with the CHRIS, in which case the report shall be submitted to the NAHC.				
Mitigation Measure 3.6-2b: If potentially significant impacts on archaeological resources that qualify as historical resources (per CEQA Guidelines Section 15064.5) and/or unique archaeological resources (per PRC Section 21083.2) are identified during an action implemented in response to the Guidelines, the Contractor implementing the action shall develop an approach for reducing such impacts, before implementing the action and in coordination with interested or consulting parties (e.g., California Native American Tribes [for indigenous resources], historical societies [for historic-era resources], local communities). Typical measures for reducing impacts include: a) Modify the action to avoid impacts on resources. b) Plan parks, green space, or other open space to incorporate the resources. c) Develop and implement a detailed archaeological resources management plan to recover the scientifically consequential information from archaeological resources before any excavation at the resource's location. Treatment for most archaeological resources consists of (but is not necessarily limited to): sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the resource to be affected by the action. The archaeological resources management plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and state repositories, libraries, and interested professionals. d) Develop and implement interpretive programs or displays and conduct community outreach. e) Any technical report developed as part of this mitigation measure shall meet the U.S. Secretary of the Interior's Standards for archaeological technical reporting and shall be submitted to the appropriate CHRIS repository for the project area upon approval by the CEQA lead agency unless the document contains information that any California Native American Tribes involved in its development determine should not be filed with the CHRIS, in which case the report shall be submitted to the NAHC.	Entity implementing action in response to Guidelines	Entity implementing action in response to Guidelines	Verify and document: • measures to avoid or minimize impacts to areological resources were implemented. • a report meeting the U.S. Secretary of the Interior's Standards for archaeological technical reporting was submitted to the appropriate CHRIS repository for the project area. • if the document contained information that any California Native American Tribe determined should not be filed with the CHRIS, the report was filed with the NAHC.	Prior to construction
Mitigation Measure 3.6-2c: Before any ground-disturbing construction activities related to actions implemented by Contractors in response to the Guidelines, an archaeologist meeting, or under the supervision of an archaeologist meeting, the SOI PQS for Archeology shall conduct a training program for all construction field personnel involved in the ground-disturbing activities. If a California Native American Tribe expresses interest, the CEQA lead agency shall invite the Tribe to participate in the training program. On-site personnel shall attend the training before the start of any ground-disturbing activities. The training shall outline the general archaeological sensitivity of the project area and the procedures to follow in the event that archaeological resources and/or human remains are inadvertently discovered during construction (see Mitigation Measures 3.6-2d and 3.6-2e). Documentation of the training attendance shall be maintained by the CEQA lead agency.	Entity implementing action in response to Guidelines Construction Contractor	Entity implementing action in response to Guidelines	Verify and document: • qualified archeologist conducted archaeological resource awareness training • Tribal representative participated in training if interest to participate was expressed to CEQA lead agency. • training attendance.	Prior to and on-going during construction

Mitigation Measure	Responsibility for Implementing	Responsibility for Monitoring	Monitoring and Reporting Actions	Timing
Mitigation Measure 3.6-2d: If archaeological resources are encountered during construction activities, all activity within 100 feet of the find shall cease and the find shall be flagged for avoidance. The CEQA lead agency and a qualified archaeologist, defined as one meeting the SOI PQS for Archeology, shall be immediately informed of the discovery. The qualified archaeologist shall inspect the discovery and notify the CEQA lead agency of their initial assessment. If the qualified archaeologist determines that the resource is or is potentially indigenous in origin, the CEQA lead agency shall consult with California Native American Tribes culturally and geographically affiliated with the project area to assess the find and determine whether it is potentially a tribal cultural resource. If the CEQA lead agency determines based on recommendations from the qualified archaeologist—and, if the resource is indigenous, from California Native American Tribes culturally and geographically affiliated with the project area—that the resource may qualify as a historical resource (per CEQA Guidelines Section 15064.5), unique archaeological resource (per PRC Section 21083.2), or tribal cultural resource (per PRC Section 21074), then the resource shall be avoided if feasible. If avoidance of an identified indigenous resource is not feasible, the lead agency shall consult with a qualified archaeologist, culturally affiliated California Native American Tribes, and other appropriate interested parties to determine treatment measures to minimize or mitigate any potential impacts on the resource pursuant to PRC Section 21083.2 and CEQA Guidelines Section 15126.4. Once treatment measures have been determined, the CEQA lead agency shall prepare and implement an archaeological (and/or tribal cultural) resources management plan that outlines the treatment measures for the resource. Treatment measures typically consist of the following steps: a) Determine whether the resource qualifies as a historical resource (per CEQA Guidelines Section 15064.5), unique archaeological resource (per PRC Section 21083.2), or tribal cultural resource (per PRC Section 21074) through analysis that could include additional historical or ethnographic research, evaluative testing (excavation), or laboratory analysis. b) If the resource qualifies as a historical resource (per CEQA Guidelines Section 15064.5) and/or unique archaeological resource (per PRC Section 21083.2), implement measures for avoiding or reducing impacts such as the following: i. Modify the action to avoid impacts on resources. ii. Plan parks, green space, or other open space to incorporate resources. iii. Recover the scientifically consequential information from the archaeological resource before any excavation at the resource's location. This typically consists of (but is not necessarily limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the resource to be affected by the action. iv. Develop and implement interpretive programs or displays. c) If the resource qualifies as a tribal cultural resource (per PRC Section 21074), implement measures for avoiding or reducing impacts such as the following: i. Avoid and preserve the resource in place through measures that include but are not limited to the following: a) Plan and construct the action to avoid the resource and protect the cultural and natural context. b) Plan green space, parks, or other open space to incorporate the resources with culturally appropriate protection and management criteria. ii. Treat the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, through measures that include but are not limited to the following: a) Protect the cultural character and integrity of the resource. b) Protect the traditional use of the resource. c) Protect the confidentiality of the resource. iii. Implement permanent conservation easements or other interests in real property, with cultural appropriate management criteria for the purposes of preserving or using the resource or place. Any technical report developed as part of this mitigation measure shall meet the U.S. Secretary of the Interior's Standards for archaeological technical reporting and shall be submitted to the appropriate CHRIS repository for the project area upon approval by the CEQA lead agency unless the document contains information that any California Native American Tribes involved in its development determine should not be filed with the CHRIS, in which case the report shall be submitted to the NAHC.	Entity implementing action in response to Guidelines Construction Contractor	Entity implementing action in response to Guidelines	Verify and document: • work was stopped within 100 feet of a discovered archaeological resource • qualified archeologist and CEQA Lead Agency were immediately informed • qualified archeologist assessed the resource and notified Tribe if determined to be potentially indigenous in origin • the cultural resource was avoided, or if it could not be avoided an archaeological (and/or tribal cultural) resources management plan was developed and implemented that outlined the treatment measures for the resource as defined in (a) through (c). • a report meeting the U.S. Secretary of the Interior's Standards for archaeological technical reporting was submitted to the appropriate CHRIS repository for the project area. • if the document contained information that any California Native American Tribe determined should not be filed with the CHRIS, the report was filed with the NAHC.	Prior to construction

Mitigation Measure	Responsibility for Implementing	Responsibility for Monitoring	Monitoring and Reporting Actions	Timing
Mitigation Measure 3.6-3: If human remains are encountered during construction activities, all work shall immediately halt within 100 feet of the find and the CEQA lead agency shall contact the appropriate county coroner to evaluate the remains and follow the procedures and protocols set forth in CEQA Guidelines Section 15064.5(e)(1). If the coroner determines that the remains are Native American in origin, the appropriate county shall contact the NAHC, in accordance with HSC Section 7050.5(c) and PRC Section 5097.98. Per PRC Section 5097.98, the CEQA lead agency shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, of the location of the Native American human remains is not damaged or disturbed by further development activity until the CEQA lead agency has discussed and conferred, as prescribed in PRC Section 5097.98, with the most likely descendants and the property owner regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. Any technical report developed as part of this mitigation measure shall meet the U.S. Secretary of the Interior's Standards for archaeological technical reporting and shall be submitted to the NAHC and the appropriate CHRIS repository for the project area upon approval by the CEQA lead agency unless the document contains information that any California Native American Tribes involved in its development determine should not be filed with the CHRIS, in which case the report shall be submitted only to the NAHC.	Entity implementing action in response to Guidelines Construction Contractor	Entity implementing action in response to Guidelines	Verify and document: • work was stopped within 100 feet of discovered human remains. • County corner was notified, and the remains evaluated following the procedures and protocols set forth in CEQA Guidelines Section 15064.5(e)(1). • If remains were determined to be Native American in origin the NAHC was contacted and the requirements contained in HSC Section 7050.5(c) and PRC Section 5097.98 were implemented. • a report meeting the U.S. Secretary of the Interior's Standards for archaeological technical reporting was submitted to the appropriate CHRIS repository for the project area. • if the document contained information that any California Native American Tribe determined should not be filed with the CHRIS, the report was filed with the NAHC.	Prior to construction
Noise				
Mitigation Measure 3.13-1: The following measures shall be implemented during construction of any actions implemented by Contractors in response to the proposed Guidelines: • Noise- and vibration-generating activities shall comply with the applicable general plan and/or noise ordinances for the jurisdiction located within the vicinity of the project. • Construction equipment shall be located as far away as possible from noise-sensitive receptors to the extent feasible, to reduce noise levels below applicable local standards. • Construction equipment shall be maintained to manufacturers' recommended specifications, and all construction vehicles and equipment shall be equipped with appropriate mufflers and other approved noise control devices. • Idling of construction equipment shall be limited to the extent feasible to reduce the time that noise is emitted. • An individual traffic noise analysis of identified haul routes shall be conducted and mitigation, including but not limited to measures such as reduced speed limits, shall be provided at locations where noise standards cannot be maintained for noise-sensitive receptors. • The action shall incorporate the use of temporary noise barriers, such as acoustical panel systems, between construction activities and noise-sensitive receptors if it is concluded that they would be needed to ensure compliance with applicable noise standards and effective in reducing noise exposure to sensitive receptors.	Entity implementing action in response to Guidelines Construction Contractor	Entity implementing action in response to Guidelines	Verify and document implementation of noise/ vibration avoidance measures	During construction
See Mitigation Measure 3.13-1	See Mitigation Measure 3.13-1	See Mitigation Measure 3.13-1	See Mitigation Measure 3.13-1	See Mitigation Measure 3.13-1
Tribal Cultural Resources				
See Mitigation Measures 3.6-2a, 3.6-2b, 3.6-2c, 3.6-2d, and 3.6-3.	See Mitigation Measures 3.6-2a, 3.6-2b, 3.6-2c, 3.6-2d, and 3.6-3	See Mitigation Measures 3.6-2a, 3.6-2b, 3.6-2c, 3.6-2d, and 3.6-3	See Mitigation Measures 3.6-2a, 3.6-2b, 3.6-2c, 3.6-2d, and 3.6-3	See Mitigation Measures 3.6-2a, 3.6-2b, 3.6-2c, 3.6-2d, and 3.6-3

COOPERATIVE AGREEMENT
FOR THE
FRIANT-KERN CANAL WATER QUALITY GUIDELINES

This COOPERATIVE AGREEMENT FOR THE FRIANT-KERN CANAL WATER QUALITY GUIDELINES ("**Agreement**") is effective as of _____, 2023 ("**Effective Date**"), and is by and between the FRIANT WATER AUTHORITY, a California joint powers authority ("**FWA**"), and the undersigned public agencies that are authorized to receive water directly from or introduce water directly into the Friant-Kern Canal (collectively, "**Contractors**"). FWA and the Contractors are individually referred to as a "**Party**" and collectively as the "**Parties**."

RECITALS

A. The United States, acting through the Department of Interior, Bureau of Reclamation ("**Reclamation**") has constructed and manages the Friant Division of the Central Valley Project ("**CVP**" or "**Project**"), for storage, diversion, carriage and distribution of water for agricultural, flood control, municipal, industrial, domestic and other beneficial uses and purposes.

B. The key facilities of the Friant Division include Friant Dam, Millerton Lake and the Friant-Kern Canal ("**FKC**").

C. Reclamation has transferred the responsibility to operate and maintain certain Friant Division facilities, including the FKC, pursuant to that certain Agreement to Transfer the Operation, Maintenance, and Replacement and Certain Financial and Administrative Activities Related to the Friant-Kern Canal and Associated Works, Agreement No. 8-07-20-X0356-X (as amended, "**Transfer Agreement**").

D. Under Article 30(a) of the Transfer Agreement, FWA is required to operate and maintain the FKC "in a manner that preserves the quality of the water at the highest feasible level" as determined by Reclamation.

E. The majority of the Contractors executing this Agreement have a long-term "water delivery contract" (as such term is defined in the Transfer Agreement) with Reclamation pursuant to which Project water is to be supplied from or through the CVP facilities, including the FKC.

F. In the recitals and substantive provisions of such water delivery contracts (i.e., the article entitled "Cooperation and Coordination"), Reclamation and the applicable Contractor acknowledge the shared goal to "pursue measures to improve … water quality … for all Project purposes," including through the "implementation of partnerships."

G. Nevertheless, each water delivery contract also includes a provision that states that "the United States does not warrant the quality of the water delivered to the Contractor and is under no obligation to furnish or construct water treatment facilities to maintain or improve the quality of water delivered to the Contractor."

H. Certain other Contractors executing this Agreement have a legal or contractual right to convey, deliver, or receive water, including water other than Project water, through the FKC such as contracts under the Warren Act (43 USC 523 and following), and Section 215 of the Reclamation Reform Act of 1982 (96 Stat. 1263), and under other pump-in, wheeling or conveyance agreements using the FKC that are binding on Reclamation. Similar to the water delivery contracts noted above, under these agreements, Reclamation also does not warrant the quality of the water delivered through the FKC.

I. As the operations of the Friant Division have evolved, from time-to-time water is introduced into the FKC other than directly from Millerton Lake to the headworks of the FKC (collectively, "**Non-Millerton water**"). In general, such Non-Millerton water is of a lower quality than that conveyed directly from Millerton Lake.

J. In order to ensure that the quality of water conveyed through the FKC is protected for sustained domestic and agricultural use, the Parties have cooperatively developed certain *Guidelines for Accepting Water into the Friant-Kern Canal* ("**Guidelines**") that define certain water quality thresholds and the required mitigation associated with the introduction of Non-Millerton water into the FKC, as well as establish methodologies, procedures and tools for forecasting, monitoring and managing water quality in the FKC.

K. The Parties desire to voluntarily adopt and implement the Guidelines pursuant to the terms and conditions of this Agreement.

L. FWA, as the lead agency under the California Environmental Quality Act ("**CEQA**"), caused to be prepared a draft Environmental Impact Report ("**EIR**") to analyze potentially significant impacts that may result from implementation of the proposed Guidelines.

M. FWA released the draft EIR for public review on May 12, 2023, and provided a 45-day public comment period on the draft EIR extending through June 26, 2023. The draft EIR was available for review on FWA's website: https://friantwater.org/public-notices, and at the Friant Water Authority office at 854 N. Harvard Avenue, Lindsay, CA 93247.

N. FWA held a virtual public meeting on May 30, 2023, using the Zoom web conference application to provide information about the draft EIR, as well as provide an opportunity to submit comments regarding the draft EIR or learn how to subsequently submit comments.

O. At a public meeting held on July 27, 2023, the FWA Board of Directors ("Board") considered the draft EIR together with all comments received, if any, during the public review process and responses to such comments (collectively, "Final EIR" or "FEIR") and reviewed the FEIR for compliance with CEQA and the State CEQA Guidelines. After such review, the Board determined the FEIR reflects FWA's independent judgment and analysis and found that the FEIR had been completed in compliance with CEQA, and that changes or alterations in the form of the proposed mitigation measures have been incorporated into the Guidelines project that avoid or substantially lessen all the potentially significant environmental effects identified in the FEIR and accordingly certified the FEIR and adopted a Mitigation Monitoring and Reporting

Program ("MMRP"), as required by CEQA, which each Contractor must comply with when carrying out any new project subject to CEQA pursuant to the Guidelines.

P. Based on Recitals L through O above, no further environmental review is required to enter into this Agreement.

Q. Under the Guidelines, a public agency interested in participating in the Guidelines Activities (defined below), including the introduction of Non-Millerton water into the FKC and participation in mitigation programs, is required to enter into a cooperative agreement with FWA implementing the Guidelines. This Agreement is intended to satisfy that requirement.

NOW, THEREFORE, in consideration of the mutual covenants, conditions and promises hereinafter set forth, the Parties agree as follows:

1. EFFECTIVE DATE; TERM

1.1 Effective Date. This Agreement will become effective when it has been approved and signature pages delivered to FWA from the Contractors that meet the eligibility requirements of Section 3.1 below and are listed on Attachment No. 1.

1.2 **Term**. This Agreement will remain in effect from the Effective Date until the termination of the Agreement in accordance with Section 9.1 below.

2. PURPOSE

2.1 **Purpose**. The purpose of this Agreement is to provide a framework for the adoption, implementation, and modification of the Guidelines. The actions and activities provided for or required in furtherance of the implementation of the Guidelines are collectively referred to as the "**Guidelines Activities**."

2.2 **No Implied Effect on Rights**: Except as expressly provided in the Guidelines, nothing in this Agreement may be construed as affecting the existing rights or obligations of the Parties, including but not limited to any rights or obligations pursuant to any water delivery contract, including but not limited deliveries under the CVP or contracts for water supplies from a State of California water facility described in California Water Code section 12934(d) ("**State Water Project**" or "**SWP**"), or any riparian or appropriative water rights.

3. PARTIES

3.1 **Eligible Agencies**. Any public agency (as defined in Government Code section 6500) that has a long-term "water delivery contract" (as such term is defined in the Transfer Agreement) with Reclamation pursuant to which Project water is to be supplied from or through the CVP facilities, including the FKC, or that has a legal or contractual right to convey, deliver, or receive water, including water other than Project water, through the FKC including pump-in, wheeling or conveyance agreements binding on Reclamation, is eligible to be a Party to this

Agreement and upon execution of the Agreement will become a Party. Becoming a Party to this Agreement is a condition precedent to participation in the Guidelines Activities.

3.2 **Additional Parties**: Following the Effective Date, other public agencies may subsequently become a Party to this Agreement upon (a) approval of the FWA Board of Directors and such new Party's execution of this Agreement, as it may be amended, and (b) the new Party's payment of such Guidelines Surcharges, mitigation water, and other capital costs of the Guidelines Activities as may have accrued to such agency under the Guidelines as of the effective date of becoming a Party.

4. ADOPTION OF AND MODIFICATION TO THE GUIDELINES

4.1 **Adoption**. The initial Guidelines attached as Exhibit A are hereby adopted by the Parties.

4.2 **Modification**. The Parties acknowledge and agree that the Guidelines are subject to periodic review and modification by FWA based on recommendations made by the "**Water Quality Advisory Committee**" (as such term is defined in the Guidelines), Reclamation, or as may be initiated by FWA. Any such modification to the Guidelines must occur at a public meeting of the FWA Board. FWA will provide all of the participating Contractors under this Agreement with at least 30 days' written notice of its intent to modify the Guidelines, including the proposed revisions, at a public meeting as specified in the notice.

4.3 **Right to Withdraw**. If following the adoption of any modification to the Guidelines, a Contractor no longer desires to be Party to this Agreement and be subject to the Guidelines, as amended, it may exercise its right to withdrawal under Section 9.2 below.

5. ADMINISTRATION AND COORDINATION

5.1 **Administrative Agency Duties**. Friant Water Authority will serve as the "**Administrative Agency**" for this Agreement. As the Administrative Agency, Friant Water Authority agrees to perform the following services:

5.1.1 Contracting. Negotiate and enter into contracts with the various individuals or entities providing services in furtherance of the Guidelines Activities.

5.1.2 Administration. Monitor and manage the Guidelines Activities, including providing necessary administrative and technical support to the Water Quality Advisory Committee.

5.1.3 Expenditures. Utilize the funds, including the Guidelines Surcharge (defined in Section 6.1.1 below) provided by the Parties for the administration of any contracts entered into, or other approved costs incurred, in furtherance of the Guidelines Activities.

5.1.4 Invoicing. Invoice the Parties for any contributions, including the Guidelines Surcharge, required in accordance with Section 6 (Financial Provisions) of this Agreement.

5.1.5 Accounting. Provide a quarterly report of all contract and other costs and expenditures under this Agreement to the Parties.

5.1.6 Reporting. Provide periodic reports concerning the status of the Guidelines Activities and the Project at such frequency as the Parties may mutually agree, including at meetings of the Water Quality Advisory Committee.

5.2 **Party Duties**. Each Party agrees to:

5.2.1 Compliance with Guidelines. Comply with all applicable provisions of the Guidelines and all decisions or direction of the Administrative Agency with respect to the implementation of the Guidelines subject to the dispute resolution provisions of Section 8 (Dispute Resolution). Such compliance includes all existing Reclamation approvals a Contractor may have for the introduction of Non-Millerton water into the FKC ("**Existing Approvals**"), which Existing Approvals are identified on each Parties' signature page.

5.2.2 Compliance with Mitigation Monitoring and Reporting Program. Each Party must comply with the applicable provisions of the Mitigation Monitoring and Reporting Program adopted as part of the certification of the Environmental Impact Report for the Guidelines when carrying out any new project subject to CEQA pursuant to the Guidelines.

5.2.3 Payments. Pay all Guidelines Surcharges imposed under the Guidelines upon invoice by the Administrative Agency in accordance with Section 6 (Financial Provisions).

5.2.4 Cooperate. Make good faith, commercially reasonable efforts to cooperate with the other Parties and the Administrative Agency to achieve the purposes of this Agreement.

5.2.5 Representatives. For those Parties that are members of the Water Quality Advisory Committee, such Party must designate a primary and alternate representative ("**Representative**") to represent the Party's interests on the Committee and provide the Administrative Agency with notice of such designated Representatives.

6. FINANCIAL PROVISIONS

6.1 **Funding**. The Parties agree to work together to provide adequate funding to carry out the Guidelines Activities.

6.1.1 Surcharge. The Parties acknowledge and agree that the costs for the Guidelines Activities will initially be paid out of the applicable annual FWA OM&R budget, and subsequently will be reimbursed by Contractors through the payment of a specified dollar per acre-foot ($/acre-foot) surcharge ("**Guidelines Surcharge**") for all Non-Millerton water

introduced into the FKC. All Guidelines Surcharge funds received will be credited back to the FWA OM&R budget. The Guidelines Surcharge will be adopted by the FWA Board of Directors at a regular meeting and will be based on an estimate of the total annual costs of the Guidelines Activities divided by the average annual deliveries of pump-in programs into the FKC. The Guidelines Surcharge will be applied to all introduced Non-Millerton water even if mitigation is not required, and will be paid by the Contractor introducing such Non-Millerton water into the FKC. The Guidelines Surcharge will be provided for budgeting purposes on an annual basis. FWA will bill Contractors for the reimbursement of the costs of the Guidelines Activities based on actual volumes of Non-Millerton water introduced.

6.1.2 Federal and State Funding Assistance. The Parties agree to cooperate with the Administrative Agency in identifying and securing, where appropriate, federal and state funds to support the development and implementation of the Guidelines Activities.

6.2 **Special Account**. All funds collected under this Agreement will be held in a separate Administrative Agency account for Guidelines Activities, and will be subject to standard accounting and auditing requirements applicable to a California public agency. Periodic reports will be provided as set forth in Section 5.1.6. The records of all expenditures under this Agreement will be open to inspection by the Parties' employees or agents upon reasonable notice.

6.3 **Administrative Agency General and Administrative Costs.** The costs of Administrative Agency staff (including its independent contractors) for time expended on Guidelines Activities will be charged at their applicable hourly rate, including reimbursable costs.

7. LIMITED WAIVER OF CLAIMS.

7.1 **Waiver of Claims Related to the Delivery of Project Water**. In recognition of the voluntary nature of this Agreement and the associated benefits of participation in the water quality program under the Guidelines, each Party hereby agrees to waive all claims, including for monetary damages, against the United States, and all claims for monetary damages against FWA, arising from or related to any alleged reduction in the delivery of Project water or other water under its water delivery contract or other agreement for the conveyance or delivery of water with the United States due to imposition of any mitigation measure for water quality imposed under the Guidelines.

7.2 **Waiver of Claims Against FWA Related to Guidelines Activities.** In further recognition of the voluntary nature of this Agreement and the associated benefits of participation in the water quality program under the Guidelines as well as FWA's voluntary role in assuming responsibility as the Administrative Agency for the Guidelines, each Party waives all claims for monetary damages against FWA arising from or related to any alleged action, non-action, or decision arising from or related to FWA's management and implementation of the Guidelines as the Administrative Agency, excepting, however, any claims arising from or related to any misappropriation or misuse of any Guidelines Surcharges. Each Party further acknowledges and agrees that except as provided in the prior sentence, any legal action or proceeding brought

against FWA will be limited to a writ of mandamus, or, as applicable, a claim for declaratory relief or specific performance under this Agreement or the Guidelines.

7.3 **Waiver of Claims Against Parties Related to Guidelines Activities**. In further recognition of the voluntary nature of this Agreement and the associated benefits of participation in the water quality program under the Guidelines, including the receipt of mitigation benefits, each Party waives all claims for monetary damages against all other Parties arising from or related to the implementation of the Guidelines, excepting, however, any claims for monetary damages arising from or related to any noncompliance with the Guidelines or this Agreement brought in accordance with the procedures set forth in Section 8 (Disputes) below.

8. DISPUTES

8.1 General Non-Compliance.

8.1.1 Notice. Each Party, including FWA, has the right to assert in writing matters which it believes have not been undertaken in accordance with this Agreement or the Guidelines, to explain the basis for such assertion, and to receive from the other Party or Parties a written justification of its position on such matters. If, following its review of the written justification, FWA concludes that a Party is not in compliance with the terms of the Agreement or Guidelines, then FWA will issue a written "**Notice of Non-Compliance**" specifying the grounds and all facts demonstrating such non-compliance, which Notice must be provided to the alleged noncompliant Party along with all other Parties.

8.1.2 Period to Cure or Respond to Notice. The alleged noncompliant Party will have 15 days to cure or remedy the non-compliance identified in the Notice of Non-Compliance, or if such cure or remedy is not reasonably capable of being cured or remedied within such 15-day period, to commence to cure or remedy the non-compliance and to diligently and in good faith prosecute such cure or remedy to completion. If the Party receiving a Notice of Non-Compliance does not believe it is out of compliance and desires to contest the Notice, it must do so by filing a Notice of Dispute under Section 8.2.1 below with FWA within 15 days after receipt of the Notice of Non-Compliance; provided, however, that during the period of the dispute (i.e., until resolved pursuant to Sections 8.2.2, 8.2.3 or 8.3 below) the alleged noncompliant Party must comply with the directives provided by FWA in the Notice of Non-Compliance or with such other directives as may be mutually agreed in writing by FWA and the alleged noncompliant Party.

8.2 Administrative Dispute Resolution Process.

In the event a Contractor is dissatisfied with the application or interpretation of the Guidelines by FWA staff or consultants or contests a Notice of Non-Compliance pursuant to Section 8.1.2 above, the following administrative dispute resolution procedures will apply:

8.2.1. Notice. The Contractor must submit to FWA a written "**Notice of Dispute**" specifying the grounds and all facts relevant to the disputed action by FWA or its interpretation or application of the Guidelines or this Agreement.

8.2.2 Meet and Confer; Reclamation Review. Upon FWA's receipt of the Notice of Dispute, representatives of FWA (including technical staff and consultants) and representatives of the Contractor will then, at each party's expense, promptly schedule and attend such meetings as may be reasonably necessary to expeditiously resolve the dispute. At any time during this process, a Contractor may request FWA refer the dispute to Reclamation's Contracting Officer (i.e., Reclamation's Area Manager of the South-Central California Area Office or designee) for review. Upon notice of a request for dispute review by the Contracting Officer, FWA and the disputing Contractor will each prepare a written summary of the dispute for joint submission to the Contracting Officer within 15 days of the request. The Contracting Officer will then confer with the representatives of FWA and the Contractor, and within a reasonable period thereafter issue a written, non-binding advisory opinion regarding the dispute.

8.2.3. FWA Board Review. If FWA and Contractor representatives are unable to resolve the dispute under the meet and confer process in Section 8.2.2 above, a Contractor may submit a written appeal to be heard by the FWA Board of Directors. The written appeal must be submitted to the office of the Chief Operating Officer, who will then place the dispute on the agenda of the Board of Directors for a hearing at a board meeting no later than 60 days from the date of receipt. The decision of the Board of Directors will be final and FWA and the other Party(ies) must promptly comply with such decision until the same is stayed, reversed, or modified by a decision of a court of competent jurisdiction.

8.3 **Judicial Review Process**.

8.3.1 Trial by Court. In the event that a dispute involving matters other than technical water quality issues under the Guidelines is not resolved under the procedures in Sections 8.1 or 8.2 above, and a Contractor desires to challenge the administrative decision of the FWA Board, a Contractor may file an action for writ of mandate under Code of Civil Procedure section 1085 or 1094.5, as applicable, in the Superior Court of any of the following counties other than the one in which Contractor maintains its principal office: Fresno, Kern, Kings, Madera or Tulare County.

8.3.2 Trial by Reference. In the event that a dispute involving technical water quality issues, including required mitigation, under the Guidelines is not resolved under the procedures in Sections 8.1 or 8.2 above, and a Contractor desires to challenge the administrative decision of the FWA Board, a Contractor may file suit in the Superior Court of any of the following counties other than the one in which Contractor maintains its principal office: Fresno, Kern, Kings, Madera or Tulare County. Such suit will be a proceeding by referee in accordance with Section 638 and following of the Code of Civil Procedure; provided, however, that the procedure for such reference will be modified as follows:

8.3.2.1 FWA and the Contractor will each name one person to serve as referee within 10 days of the date of the Court's order granting the petition for reference, and within 10 days of their selection, the two persons named will each name a third person to serve as referee. If they are unable to agree on a third person, the Court will appoint the third person. All referees must have general familiarity with water quality issues related to municipal and agricultural uses.

8.3.2.2 The hearing on the matter before the referees must be conducted as expeditiously as possible.

8.3.2.3 The referees will issue a draft report of their findings within 20 days after the testimony is closed.

8.3.2.4 Within 10 days after the release (i.e., mailing) of the draft report, any party may file objections to it with the referees.

8.3.2.5 If no objection is filed to the draft report, it will be promptly filed with the Court. If an objection to the draft report is filed, the referees will file their final report with the Court within 20 days of the date the objection is filed.

8.3.2.6 The report of the referees will be subject to review by the Court upon the objection being filed with the Court within 10 days after the filing of the final report by the referees; provided, however, no objection to the report may be considered unless it appears that any matter objected to was presented to the referees. The Court will hear the objection at the first available law and motion calendar at least 28 days after the objection is filed.

8.3.2.7 The report filed by the referees will be prima facie evidence of the facts stated in the report, but the Court may hear such evidence as may be offered by any party to rebut the report, and assist the Court in rendering its own decision.

8.3.2.8 If no objection to the referees' report is filed with the Court, the report of the referees upon the dispute will stand as the decision of the Court.

9. TERMINATION; WITHDRAWAL

9.1 **Mutual Termination**. This Agreement may be terminated upon the express written agreement of all Parties. If this Agreement is terminated, all outstanding expenses under this Agreement for the Guidelines Activities must be paid by the Parties using the remaining Guidelines Surcharge funds. Thereafter, the Administrative Agency will make an equitable redistribution of remaining funds, if any, in proportion to each Party's most recent annual Guidelines Surcharges.

9.2 **Withdrawal of a Party.**

9.2.1 Notice. A Party may withdraw from this Agreement by giving at least 30 days' written notice of its election to do so to the Administrative Agency ("**Notice of Withdrawal"**).

9.2.2 Continuing Compliance with Guidelines until New Approval Granted. Any withdrawal from this Agreement will be prospective only and will not alter any Contractor's existing obligations to comply with the Guidelines under any existing approval by Reclamation to introduce Non-Millerton water into the FKC (or such Contractor may cease the introduction of Non-Millerton water into the FKC if it desires to cease all compliance with the Guidelines) unless and until such Contractor receives a new approval from Reclamation allowing the introduction of Non-Millerton water into the FKC following compliance with all applicable federal and state laws including NEPA and CEQA.

9.2.3 Cessation of Mitigation Benefits upon Withdrawal. A Party that is receiving mitigation benefits under the Guidelines will lose all rights to such benefits upon the effective date of its withdrawal from this Agreement.

10. **NOTICES**

10.1 **Designated Address**. All written notices required or permitted to be given under this Agreement will be deemed made when received by the Party at its respective address provided on its signature page.

10.2 **Effective Date**. Notice will be deemed effective on the date personally delivered or electronically transmitted by email. If the notice is mailed, notice will be deemed given three days after deposit of the same in the custody of the United States Postal Service, postage prepaid, for first class delivery, or upon delivery if using a major courier service with tracking capabilities. Any Party may change its notice information by giving notice to the Administrative Agency in compliance with this section.

11. **GENERAL PROVISIONS.**

11.1 **Authority to Execute; Counterparts.** Each Party represents and warrants that all necessary action has been taken by such Party to authorize the undersigned to execute this Agreement and to bind it to the performance of its obligations hereunder. This Agreement may be executed in counterparts, each of which will constitute one and the same instrument and will become binding upon the Parties.

11.2 **Entire Agreement.** This Agreement, including the attached Exhibits A through ____, is the entire, complete, final and exclusive expression of the Parties with respect to the matters addressed in this Agreement and supersedes all other agreements or understandings, whether oral or written, prior to the execution of this Agreement.

11.3 **Binding Effect.** This Agreement is binding upon the heirs, executors, administrators, successors and assigns of the Parties.

11.4 **Modification of Agreement.** No amendment to or modification of this Agreement will be valid unless made in writing and approved by the Parties. The Parties agree that this requirement for written modifications cannot be waived and that any attempted waiver will be void.

11.5 **Electronic Signatures.** This Agreement and any amendment will be considered executed when the signature page of a Party is delivered by electronic transmission. Such electronic signatures will have the same effect as an original signature.

11.6 **Waiver.** Waiver by any Party of any term, condition, or covenant of this Agreement will not constitute a waiver of any other term, condition, or covenant. Waiver by any Party of any breach of the provisions of this Agreement will not constitute a waiver of any other provision, or a waiver of any subsequent breach or violation of any provision of this Agreement.

11.7 **Interpretation.** This Agreement will be interpreted, construed and governed according to the laws of the State of California. Each party has had the opportunity to review this Agreement with legal counsel. The Agreement will be construed simply, as a whole, and in accordance with its fair meaning. It will not be interpreted strictly for or against any Party.

11.8 **Severability.** If any term, condition or covenant of this Agreement is declared or determined by any court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions of this Agreement will not be affected, and the Agreement will be read and construed without the invalid, void or unenforceable provision.

11.9 **Venue.** In the event of litigation between the Parties, other than pursuant to Section 8.3 above or Section 11.10 below, venue in will be exclusively in a state court in the County of Tulare, California.

11.10 **Reclamation as a Third-Party Beneficiary**. The Parties acknowledge and agree that Reclamation is a third-party beneficiary of the duties and obligations of the Parties with respect to this Agreement and the implementation of the Guidelines. Reclamation may enforce its rights or pursue remedies under the Agreement pursuant to federal law and within a court of competent jurisdiction.

[Signatures on the following page.]

SIGNATURE PAGE

COOPERATIVE AGREEMENT
FOR THE
FRIANT-KERN CANAL WATER QUALITY GUIDELINES

IN WITNESS WHEREOF, the undersigned authorized representatives of the Parties have executed this Agreement as of the date provided below.

AGENCY: _____ Date: _____

By: _____

Name: _____

Title: _____

Notice Information:

Street Address:

_____

_____

_____

Email Address:

_____

List of Existing Approvals:

ATTACHMENT 1

Parties to the Agreement
As of _____, 2023

1. **Arvin-Edison WSD**
2. **Cawelo WD**
3. **Chowchilla WD**
4. **Delano-Earlimart ID**
5. **Exeter ID**
6. **Fresno (City)**
7. **Fresno ID**
8. **Ivanhoe ID**
9. **Kaweah Delta WCD**
10. **Kern Tulare ID**
11. **Lindmore ID**
12. **Lindsay-Strathmore ID**
13. **Lower Tule River ID**
14. **Madera ID**
15. **North Kern WSD**
16. **Orange Cove ID**
17. **Pixley ID**
18. **Porterville ID**
19. **Saucelito ID**
20. **Shafter-Wasco ID**
21. **Southern San Joaquin MUD**
22. **Stone Corral ID**
23. **Tea Pot Dome WD**
24. **Terra Bella ID**
25. **Tule ID**

EXHIBIT A

Guidelines

Agenda Report No. 3.B.

DATE:	July 27, 2023
TO:	Board of Directors
FROM	Donald M. Davis, General Counsel Ian Buck-Mcleod, Water Resources Manager
SUBJECT:	**Third Extension of Temporary Agreements for Conveyance of Water (Restoration Flows)**

SUMMARY:

An action to extend through the end of October 2023 the agreements with the Banta-Carbona and Patterson Irrigation Districts for the recapture of Restoration Flows in the Lower San Joaquin River during Water Year 2022 (Conveyance Agreements).

SUGGESTED MOTION:

"I move that the Board authorize the COO to execute a Third Amendment to the Conveyance Agreements with Banta-Carbona and Patterson Irrigation Districts, as applicable."

DISCUSSION:

The Conveyance Agreements for the recapture of Restoration Flows that FWA has with the Banta-Carbona and Patterson Irrigation Districts typically only extend through February of the current water year. Due to the wet year and the continuing availability of Restoration Flows, the Agreements have already been extended twice: the first time through the end of March and the second time through the end of May. The Manager of Patterson ID has indicated that his district will likely have some capacity for the recaptured water for the remainder of the water year and suggested that we obtain Board approval to extend the Conveyance Agreement through October 31, 2023. A Third Amendment to Conveyance Agreement has been drafted for the Board's consideration. It is unclear at this time whether Banta-Carbona will have any capacity, but we are seeking approval of an extension to that Agreement just in case they do.

The mechanism for determining which Friant Contractors will have access to, and bear the responsibility of paying the costs for the recaptured Restoration Flows is the Repayment Agreement between FWA and the agencies electing to participate and commit to pay the associated costs for such water. The Repayment Agreement is tied directly to the existing Conveyance Agreements and has no fixed termination date, so no extension is required.

The costs for the recaptured water during this extension period will not change. The participating districts have the option of declining a share of any recaptured water each month when the available recapture is distributed, so no existing participant will be required to pay for recaptured water that it does not need. Any recapture would be distributed based on relative Class 2 contract quantities of the participants.

The environmental review of the Conveyance Agreements remains current, so not further review is necessary.

BUDGET IMPACT:

Payments to BCID and PID under the Conveyance Agreements are made from the O&M Fund and reimbursed by the participating contractors within thirty days of being invoiced.

ATTACHMENTS:

1. Proposed Third Amendment to the Conveyance Agreement to extend the term thru October 31, 2023

THIRD AMENDMENT TO TEMPORARY AGREEMENT FOR CONVEYANCE OF WATER

This THIRD AMENDMENT TO TEMPORARY AGREEMENT FOR CONVEYANCE OF WATER ("Third Amendment") is between the FRIANT WATER AUTHORITY, a California joint powers authority ("Friant") and the PATTERSON IRRIGATION DISTRICT, a California irrigation district ("PID"), and is effective as of July 1, 2023.

RECITALS

A. Friant and PID are parties to that certain Temporary Agreement for Conveyance of Water effective as of March 1, 2022, as extended by that certain First Amendment effective as of March 1, 2023 and that Second Amendment effective as of April 1, 2023 ("Agreement").

B. Unless otherwise provided in this Third Amendment all initially capitalized terms will have the meaning set forth in the Agreement.

C. The parties desire to further extend the term of the Agreement to allow for the recapture and conveyance of SJRRF through the end of October 2023.

AGREEMENT

1. Amendment to Term. Section 2 of the Agreement is hereby amended to extend the Term through October 31, 2023.

2. Ratification of Agreement. Except as amended by this Third Amendment, PID and Friant hereby ratify all the terms and conditions of the Agreement.

THE UNDERSIGNED SIGNATORIES warrant that each has the authority to and does hereby execute this Third Amendment effective as of the date first set forth above. This Third Amendment may be executed using electronic signatures.

FRIANT WATER AUTHORITY:

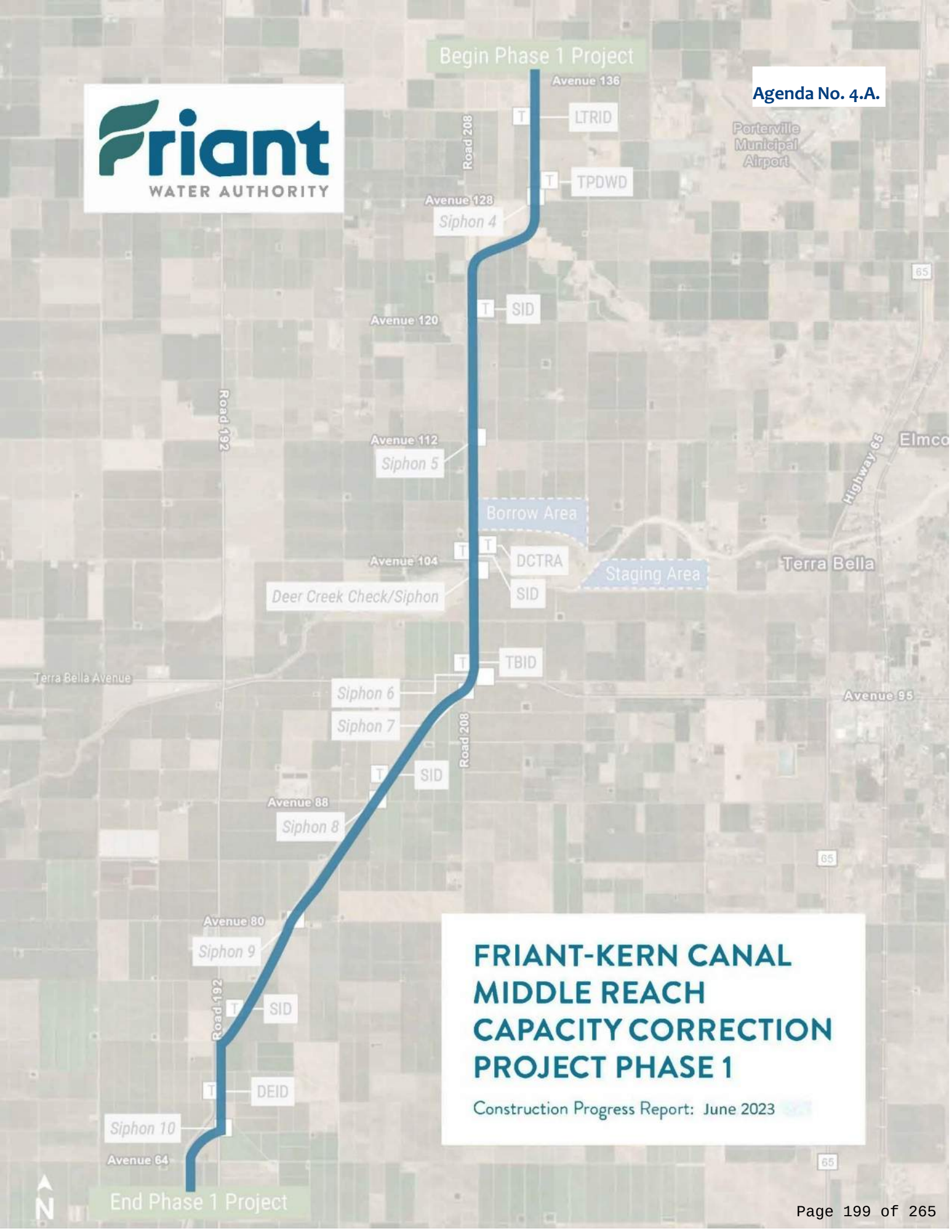
_____

Johnny Amaral, Chief Operating Officer

PATTERSON IRRIGATION DISTRICT:

_____

Vincent Lucchesi, General Manager



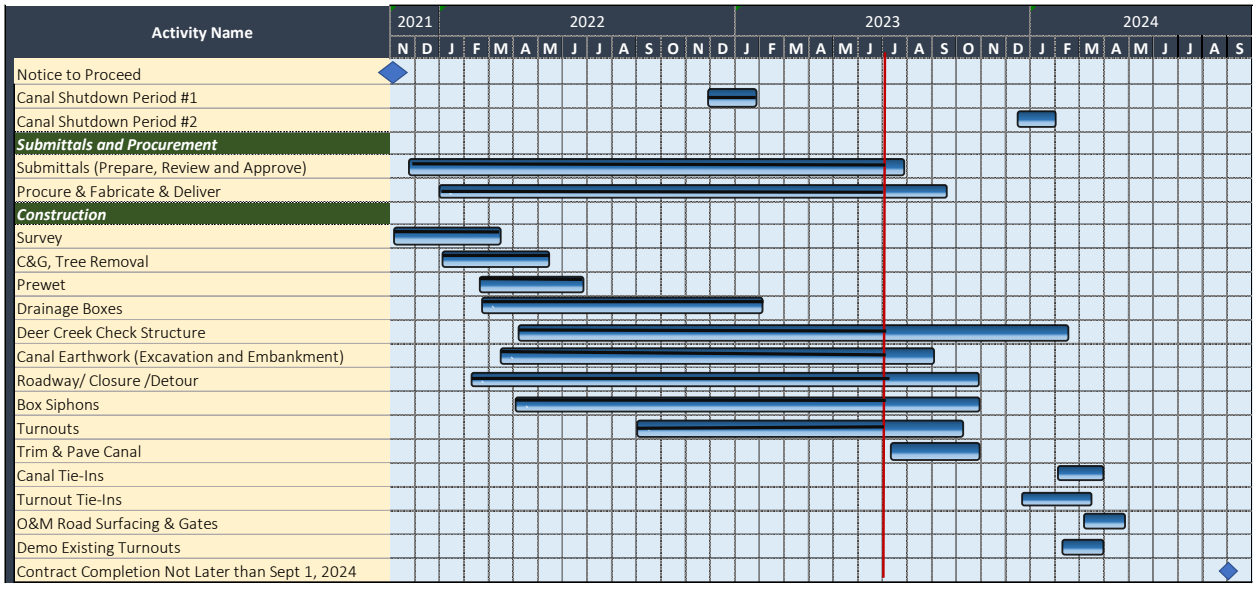
FRIANT-KERN CANAL MIDDLE REACH CAPACITY CORRECTION PROJECT PHASE 1

Construction Progress Report: June 2023

Summary of Work Accomplished

- Turnout work continued, with work being conducted at DCTRA, SID-S2, SID-S3, Deer Creek Wasteway, and DEID-68 turnouts.
- Cleanup efforts continued this month from the severe storms that swept through the area in March with cleanup work continuing at the Deer Creek site.
- Canal embankment was placed between Avenue 128 working towards Avenue 104 and between Avenue 88 and Road 192.
- At the Avenue 128 and Terra Bella siphons, formwork, water stops, bulkheads and reinforcing bars were installed for wall and slab sections, and concrete was poured.
- At the Avenue 112 siphon, reinforcing bars were placed for deck and headwall sections and concrete was poured. Avenue 112 was re-opened to the public.
- At the Road 192 siphon, structural backfill, aggregate roadway base and asphalt paving was placed. Road 192 was reopened to the public.
- At the Road 208 siphon, reinforcing bars were placed and concrete was poured in slab and wall sections.
- At the Avenue 80 siphon, reinforcing bars were placed and concrete poured for slabs.
- Road closures for Terra Bella Avenue, Avenue 80 and 128, and Road 208 siphons are in effect, and a temporary shoofly is being removed at Road 192.

Schedule Progress



Work completed through end of June (based on cost) is approximately 71 percent of the original contract amount, and the elapsed time represents approximately 58.8 percent of the total contract time.

Construction Narrative

The weather was clear and sunny most of this past month, with only one thunderstorm in early June that impacted structural and earth fill activities. Cleanup efforts continued this month from the severe storms that swept through the area in March. At the Deer Creek site, flood sediment was removed from the siphon and check structure, reinforcing bars were checked to remove surficial rust, and the contractor started reinstalling formwork at the check structure.

Canal embankment was placed between Avenue 128 working towards Avenue 104 and between Avenue 88 and Road 192 using borrow material from the TBID borrow pit . The embankment completion varies along the alignment from about 57% to 99% complete, with the highest completion from Avenue 95 northwards.

At the Avenue 112 siphon, reinforcing bars were installed for deck and headwall sections, and concrete was placed in several deck sections. Structural backfill was placed at decks and transition walls. At the Road 192 siphon, structural backfill continued to be placed using material sourced from the former Fletcher property. Thereafter, aggregate base was placed atop the structure and asphalt paving completed the roadway restoration. Removal of the temporary "shoofly" pavement was started. At the Terra Bella Avenue siphon, formwork, water stops, bulkheads and reinforcing bars were installed for slab and wall sections, and concrete was poured in slab and wall sections. At the Avenue 128 siphon, formwork, water stops, bulkheads and reinforcing bars were installed for wall and slab sections, and concrete was poured in wall, slab and deck sections. At the Road 208 siphon, work included reinforcing bar placement, installing formwork, and placing structural concrete in several wall and slab sections. At the Avenue 80 siphon, work included installing reinforcement for foundation slabs and pouring concrete for six slab sections.

Turnout work continued, with work being conducted at DCTRA, SID-S2, SID-S3, TBID, Deer Creek Wasteway, and DEID-68 turnouts. Work included placing formwork, installing reinforcing bars, concrete placement, removing formwork, placing structural backfill, and installing turnout piping. Work continued to assemble and conduct maintenance and repair on the canal trimming and paving equipment to prepare for upcoming July activities.

Environmental

Biological construction monitoring continued and there continues to be several nesting bird buffers in place. To-date, no evidence has been found to indicate the presence of kit fox or burrowing owls within the work area.

Change Orders

There were three change orders this month for a total amount of $400,000.

Construction Progress Photographs [1]

Canal Embankment Construction Between Avenue 80 and Road 192

Avenue 80 Siphon Excavation and Foundation Slab

[1] Photographs courtesy of Reclamation

Road 192 Siphon Crossing Completed with New Pavement

Avenue 128 Siphon

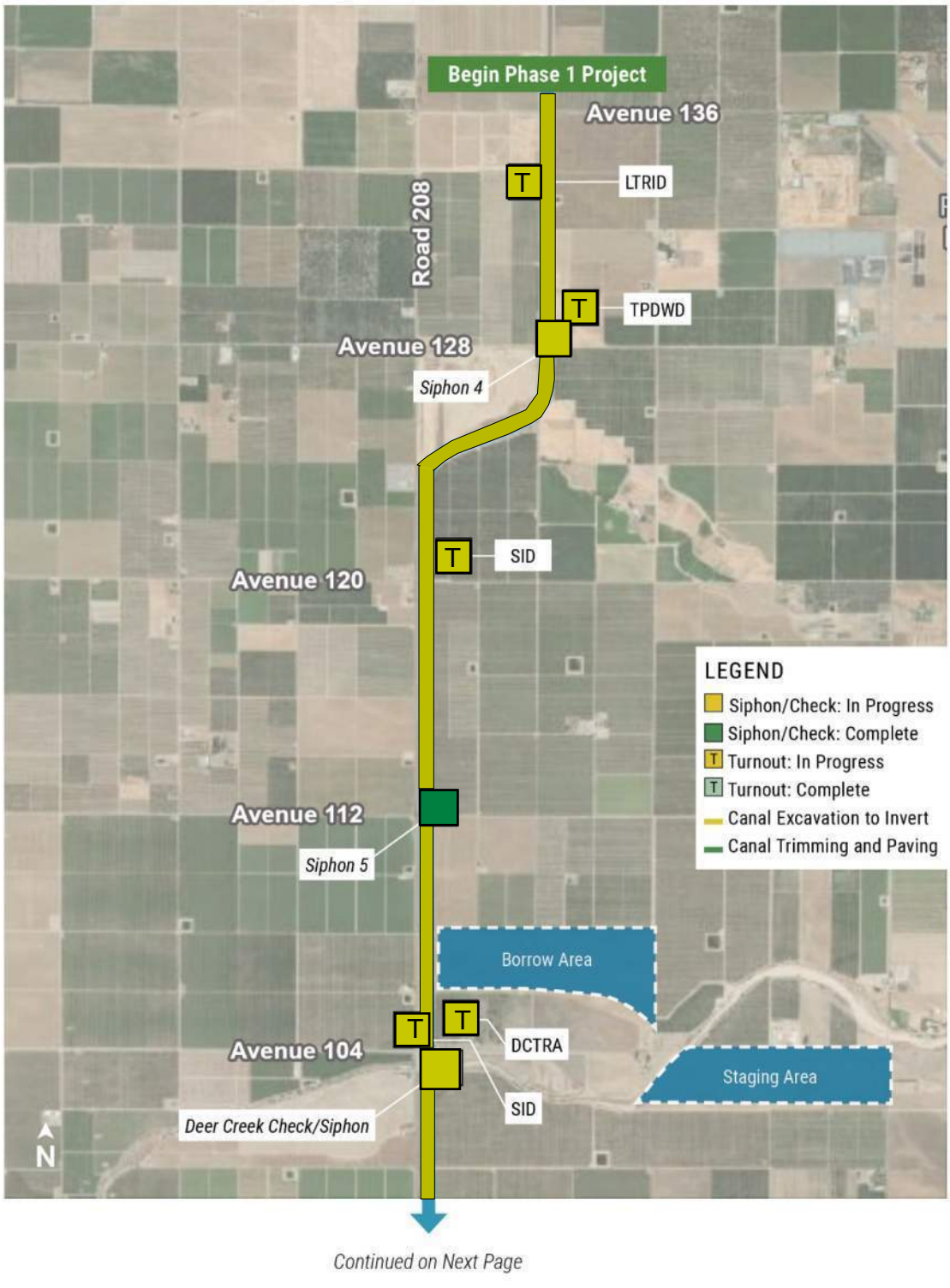
Trimming and Concrete Lining Equipment Being Setup at Adjacent to TBID Borrow Site

Avenue 112 Siphon

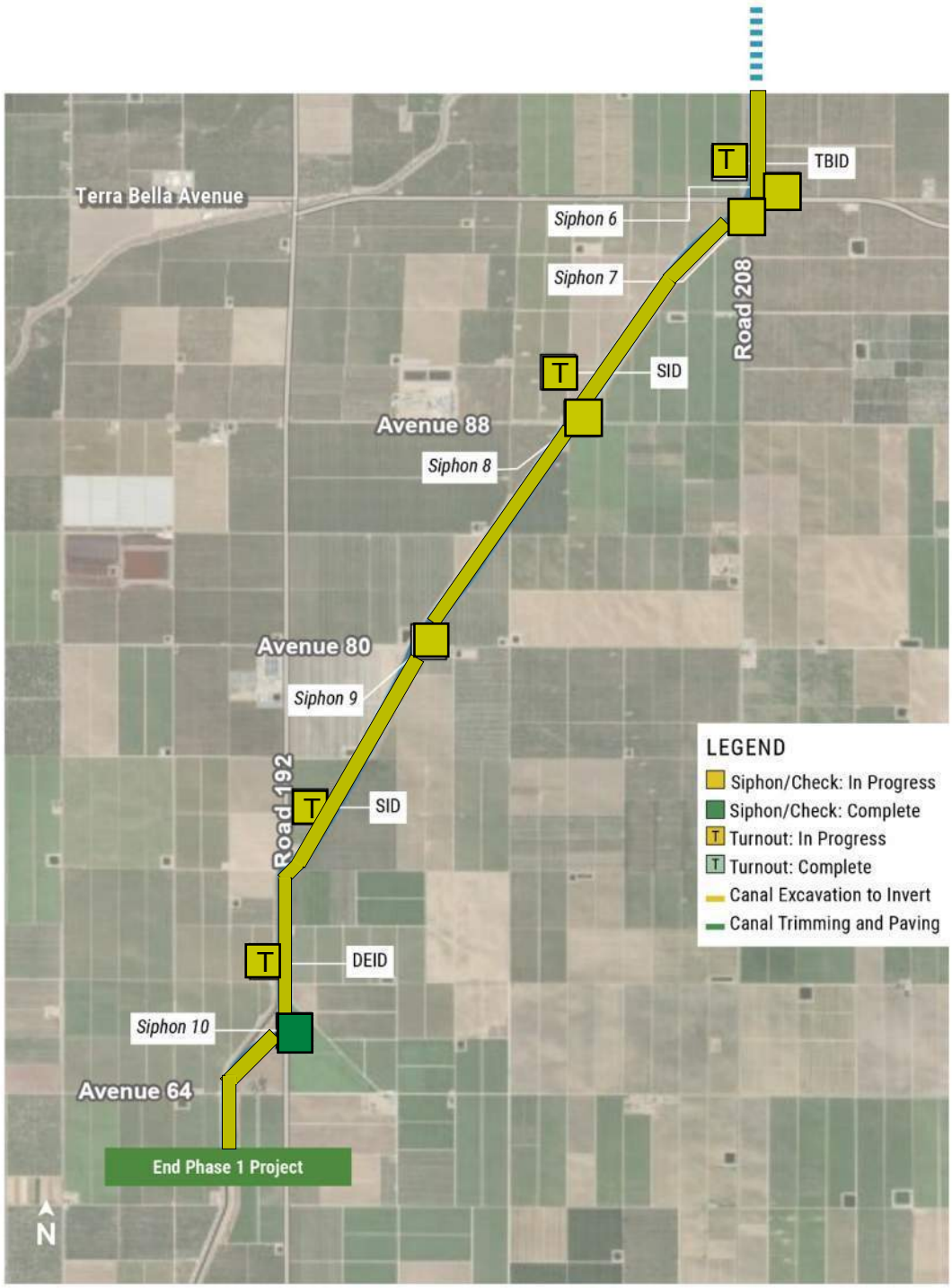
Deer Creek Check Formwork in Progress

Road 208 Siphon Wall Placement in Progress

Progress Map



Progress Map continued



Middle Reach Capacity Correction Project, Phase 1

Bureau of Reclamation and Friant Water Authority

Monthly Financial Status Report - Budget to Actual Spending

Expenditures through June 30, 2023

Sources of Funds	Federal Funding		FWA Spending Plan Funds	Friant Water Authority Funding						
	SJRRP funds	WIIN funds	Advance Payments for Construction Costs	FWA Contractors	Eastern Tule GSA	Pixley GSA	State Funding-DWR	Misc. Revenue	Delano GSA	Total FWA funds
Anticipated Funding	$41M-$46.9M	$ 210,550,000	$ 118,645,000	$ 50,000,000	$125M-$200M	$ 11,000,000	$ 74,484,000	$ -	$ 1,200,000	
Funds Secured/Received to date	$ 41,900,000	$ 208,100,000	$ 75,518,000	$ 49,894,401	$ 11,381,102	$ 11,000,000	$ 53,625,600	$ 636,029	In progress	$ 126,537,131
Expenditures to date	(89,992)	(8,810,528)	$ (52,073,746)	(36,420,768)	(11,381,102)	(11,000,000)	(33,706,197)	(480,815)	-	(92,988,882)
Remaining Funding Available	$ 41,810,008	$ 199,289,472	$ 23,444,254	$ 13,473,633	$ -	$ -	$ 19,919,403	$ 155,214	In progress	$ 33,548,249

Project Cost Category	Budget Estimate (2023)			Prior Period Expenditures (Cumulative)		June 30, 2023 Expenditures		Total Expenditures through June 30, 2023		Remaining Budget	
	Reclamation	FWA (Non-Federal)	Total	Reclamation Expenditures	FWA Expenditures	Reclamation Expenditures	FWA Expenditures	Reclamation Expenditures	FWA Expenditures	Reclamation	FWA (Non-Federal)
Prior-Period Preconstruction Costs (thru September 30, 2021)	$ 19,025,114	$ 3,525,733	**$ 22,550,847**	$ 19,025,114	$ 3,525,733	$ -	$ -	$ 19,025,114	$ 3,525,733	$ -	$ (0)
ROW & Land Acquisition	$ 6,704,604	$ 15,276,761	**$ 21,981,365**	$ 6,453,593	$ 13,305,877	$ 88,886	$ 41,961	$ 6,542,479	$ 13,347,839	**$ 162,125**	**$ 1,928,922**
Legal & Administration (Facilitating Services) & IT Services	$ 51,251	$ 863,646	**$ 914,897**	$ (1,257)	$ 500,941	$ 818	$ 3,581	$ (439)	$ 504,522	**$ 51,690**	**$ 359,123**
Permitting, NEPA/CEQA, Cultural Resources, & Environmental Monitoring	$ 822,997	$ 501,908	**$ 1,324,905**	$ 694,113	$ 101,908	$ 1,354		$ 695,467	$ 101,908	**$ 127,530**	**$ 400,000**
Project Management	$ 2,970,519	$ 1,668,595	**$ 4,639,114**	$ 817,359	$ 364,625	$ 28,098	$ 10,479	$ 845,457	$ 375,103	**$ 2,125,062**	**$ 1,293,492**
Construction Management	$ 14,938,075	$ -	**$ 14,938,075**	$ 5,496,091	$ -	$ 578,834		$ 6,074,925	$ -	**$ 8,863,150**	**$ -**
Design & Specifications	$ 729,148	$ -	**$ 729,148**	$ 819,409	$ -	$ (80,424)		$ 738,985	$ -	**$ (9,837)**	**$ -**
Construction Support	$ 22,890,288	$ 12,102	**$ 22,902,390**	$ 8,705,491	$ 15,776	$ 333,697	$ -	$ 9,039,188	$ 15,776	**$ 13,851,100**	**$ (3,675)**
Construction Contract & Contingency	$ 95,182,187	$ 141,465,439	**$ 236,647,626**	**$ 107,303,064**	**$ 67,118,000**	**$ 7,949,256**	**$ 8,000,000**	**$ 115,252,320**	**$ 75,118,000**	**$ (20,070,133)**	**$ 66,347,439**
Total	**$ 163,314,183**	**$ 163,314,183**	**$ 326,628,366**	**$ 149,312,977**	**$ 84,932,861**	**$ 8,900,519**	**$ 8,056,021**	**$ 158,213,496**	**$ 92,988,882**	**$ 5,100,687**	**$ 70,325,301**
% Cost-Share	***50%***	***50%***						***63%***	***37%***		

Please Note:

Actual cost-share percentages: **59%** **41%**

The difference is due to timing of when the FWA Spending Plan Funds are being expended by BOR.

DATE:	July 27, 2023
TO:	Board of Directors
FROM:	Ian Buck-Macleod, Water Resources Manager Katie Duncan, Water Resources EIT
SUBJECT:	Water Operations Update

SUMMARY:

July has been relatively dry, with temperatures generally above average. Flood releases from Millerton have ramped down and are expected to cease on July 26th. Millerton storage filled on July 12th and uncontrolled season is anticipated to end around July 31st. Reclamation's 2023 allocations have remained unchanged, but it is anticipated the residual allocation for Class 2 will be approximately 5-10% after the end of uncontrolled season.

DISCUSSION:

Inflow Forecasts

June precipitation was generally below average, with temperatures also generally below average as well. This resulted in relatively constant, but manageable snowmelt runoff, which reduced potential flood concerns throughout the State. This also shifted a greater volume of snowmelt runoff into July and even August. July precipitation in the San Joaquin watershed has essentially been zero (average is ~ 0.25") except for some scattered thunderstorms in the upper watershed. Temperatures in July throughout the State have generally been above average. Precipitation in the Upper San Joaquin watershed is approximately 200% of average. Most SWE stations in the Upper San Joaquin have melted out. Elsewhere, statewide precipitation currently ranges from 122% to 184% of average to date, while statewide SWE currently is currently approximately 250% of average to date (note: SWE averages are greatly exaggerated at this point in the year given that the historical average for most locations is essentially 0). Current forecasts suggest little to no precipitation over the next few weeks. Temperatures are mostly expected to be near to slightly above normal throughout most of the State over the next 10 days.

Table 1 shows the unimpaired inflow forecasts for Shasta Lake and Millerton Lake from the California Nevada River Forecast Center (CNRFC) and California Department of Water Resources (DWR). The current CNRFC Millerton 50% forecast would result in a water year inflow that is 250% of average and just over 100 TAF below the historical record. The CNRFC Shasta 50% forecast would result in an average water year.

Table 1. Unimpaired Inflow Forecasts for WY 2023

Item	Exceedance		
	90%	50%	10%
CNRFC Shasta Unimpaired Inflow (TAF)[1]	5,600	5,610	5,620
DWR Shasta Unimpaired Inflow (TAF)[2]	5,560	5,685	5,825
CNRFC Millerton Unimpaired Inflow (TAF)[1]	4,510	4,520	4,540
DWR Millerton Unimpaired Inflow (TAF)[2]	4,420	4,540	4,715
SCCAO Blended Unimpaired Inflow (TAF)[3]	4,488	4,532	4,591

Notes:
[1] As of July 25.
[2] As of June 27.
[3] As of July 20.

North-of-Delta Operations

Overall Central Valley Project (CVP) North-of-Delta (NOD) reservoirs are now in summer operations with storage levels based on the 15-year average at Trinity, Shasta, and Folsom at 93%, 132%, and 136% of average, respectively. Releases from all upstream reservoirs are being made to meet downstream demands and Delta water quality requirements. Shasta storage likely peaked at around 4.47 MAF on May 25th (98% full). Folsom storage likely peaked at around 929 TAF on June 27th (96% full). CVP Ag service and State Water Project (SWP) Table A allocations were both increased to 100% in late-April.

Reclamation prepared forecasted operations at the 90% and 50% exceedance levels in June based on updated hydrologic forecasts. Figures 1 and 2 show the projected Shasta Lake and Folsom Lake storage through September based off these projections, as compared to actuals to date. Shasta storage is currently trending between the June Reclamation 50% and 90% forecasts. Folsom storage is trending near the June 90% forecast, with the 50% forecast showing lower storage levels due to increased releases from Folsom. At the 50% level, expected Shasta end of September storage is 3.51 MAF and expected Folsom end of September storage is 606 TAF.

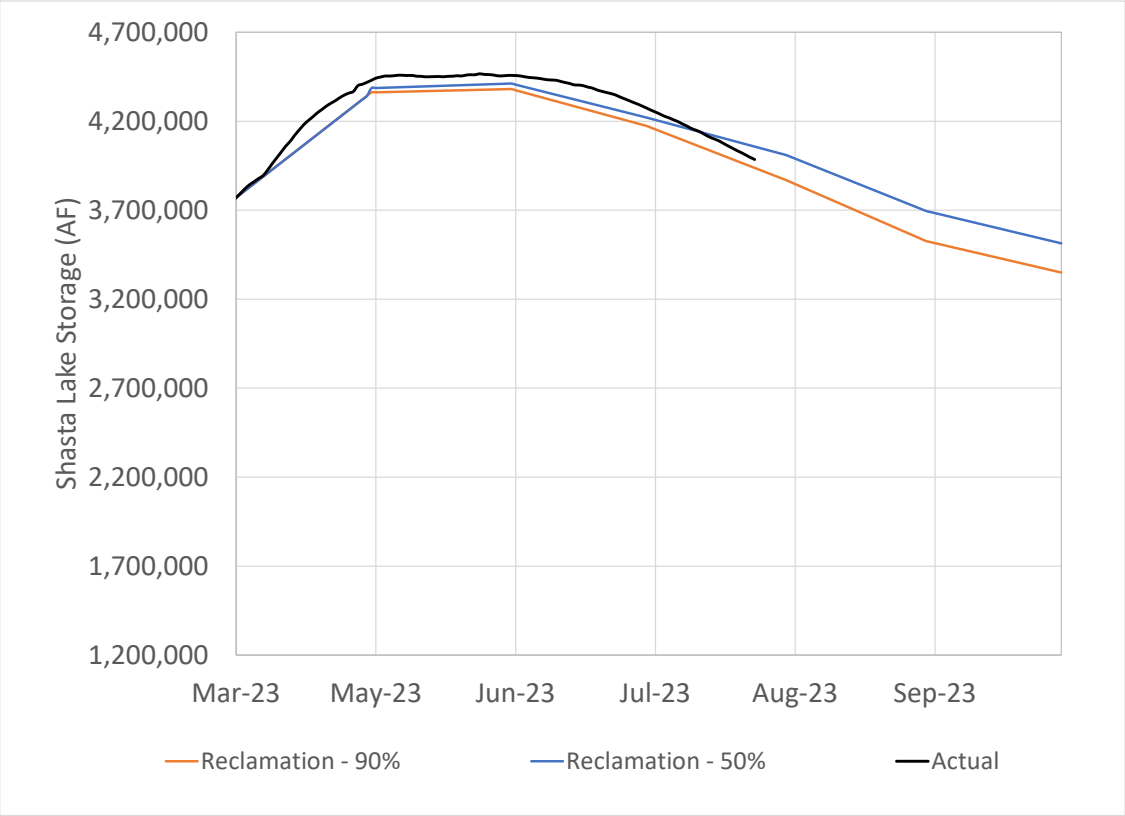


Figure 1. Shasta Lake Storage – June Reclamation Projections

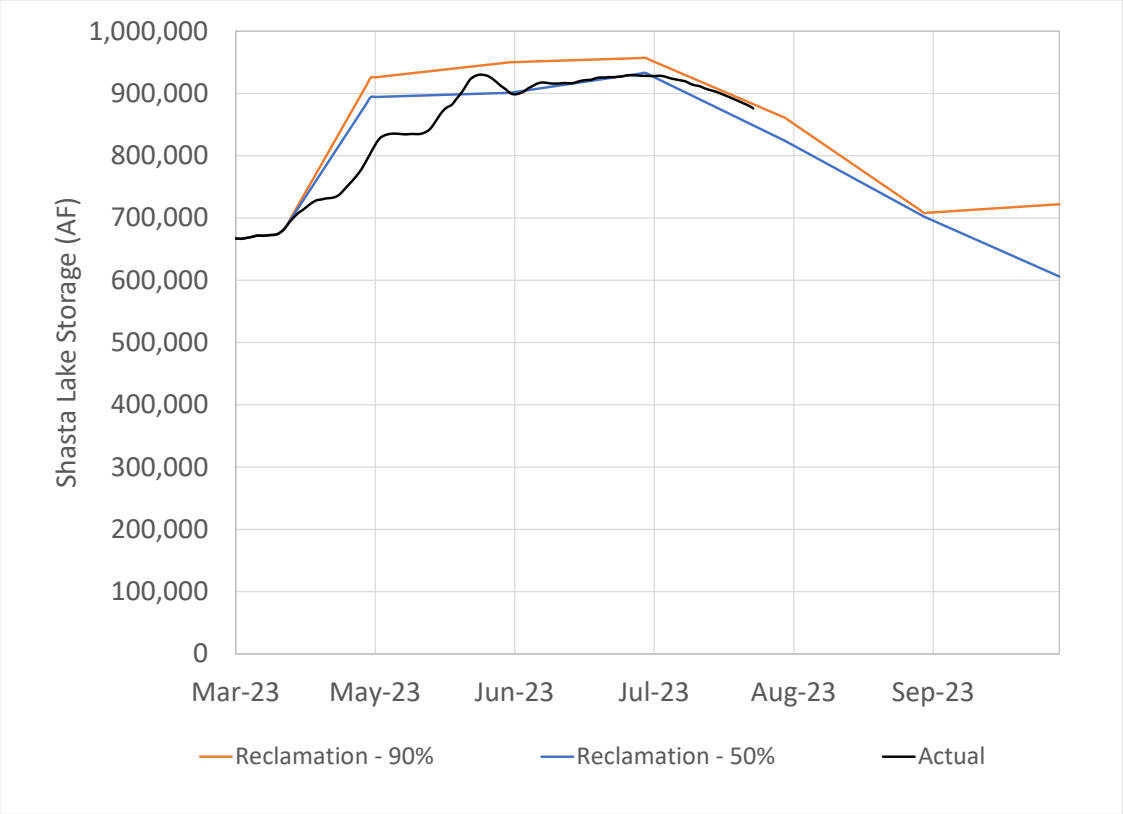


Figure 2. Folsom Lake Storage – June Reclamation Projections

South-of-Delta Operations

Delta Operations

Exports have fluctuated since early-April when CVP San Luis filled and exports were only occurring to meet real-time demands. Jones exports have been at a 5-unit operation since the beginning of July, as SOD demands currently exceed the export rate. Approximately 3.5 TAF of CVC supply was exported at Jones from July 4th – 10th (approximately 250 cfs/day) and was moved through Dos Amigos over the past few weeks. CVO expects additional CVC pumping to occur at Banks beginning in October. The Delta went into a Balanced condition on July 11th (somewhat earlier than expected), which required additional releases from Oroville. Figure 3 shows the projected daily Jones pumping through September as compared to actuals to date. Reclamation currently anticipates exports being at or near full capacity through September and potentially longer.

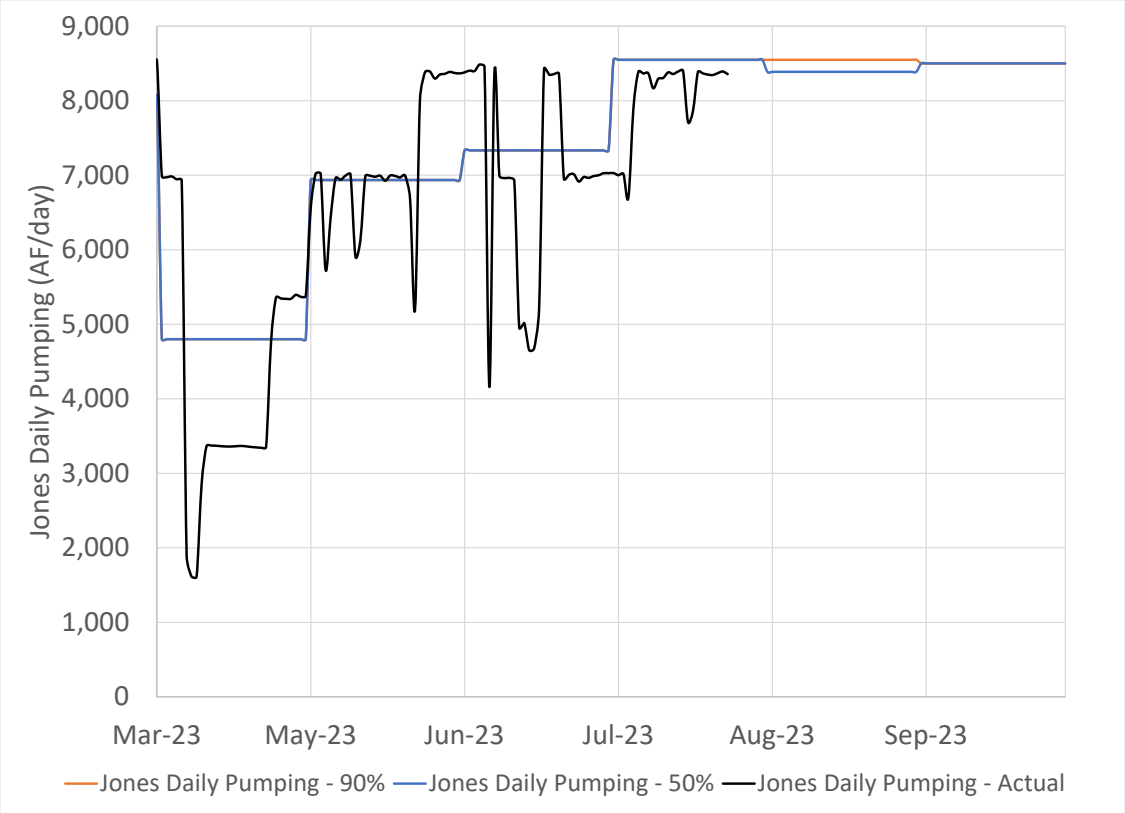


Figure 3. Daily Jones Pumping – June Reclamation Projections

San Luis Operations

CVP San Luis storage is at 916 TAF—265% of its 15-year average. Sustained drawdown of CVP San Luis occurred the week of July 10th, with any remaining rescheduled or non-Project water spilling on July 14th (although it was estimated that all rescheduled and non-Project water had been used prior to then). Figure 4 shows the Reclamation projection for San Luis Federal storage through September, showing all rescheduled and non-Project water used by late-June. Due to relatively low demands and high inflows to Mendota Pool, San Luis storage is currently over 230 TAF higher than the 90% projection. Reclamation's

June forecast showed low point occurring sometime in September, although this is likely to change due to the shift in demands and ultimate use of project water.

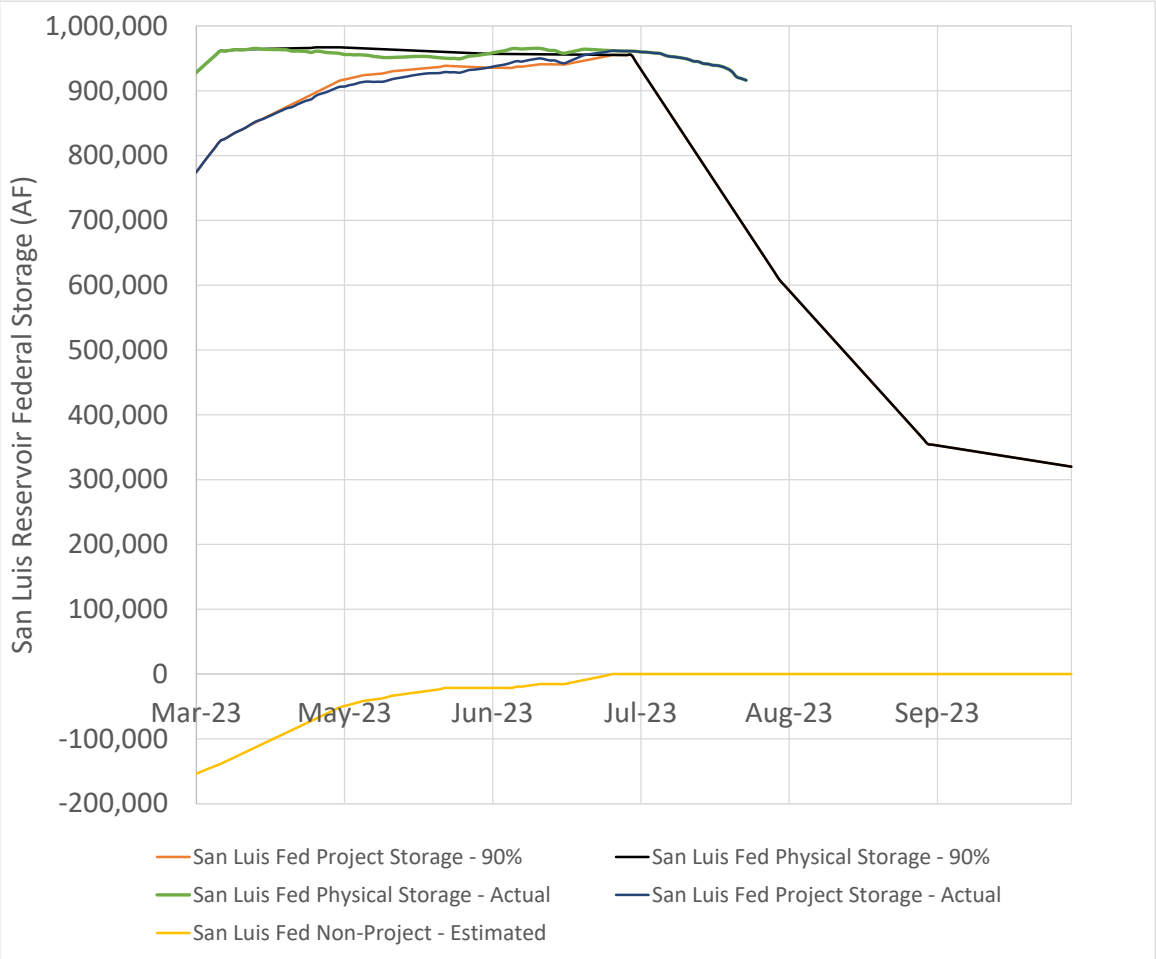


Figure 4. San Luis Federal Storage – June Reclamation Projections

Friant Division

Millerton and Friant Allocation

On March 7th, Reclamation increased the Friant Class 2 allocation from 20% to 70%, and subsequently, on March 9th announced Uncontrolled Season with availability of Section 215 supplies, and March 11th announced the availability of RWA water. River releases from Friant Dam have remained close to 9,000-10,000 cfs for most of Uncontrolled Season, but are ramping down as we approach the end of Uncontrolled Season and are currently at approximately 1,200 cfs. As of July 12th, Millerton Lake was 100% full and will remain in full or surcharged condition until the end of this week. Friant Dam spillway releases began on July 11th and are anticipated to continue until July 26th.

On May 5th, a third block of 91 TAF of URFs were made available and then again on June 30th a fourth block of 28 TAF was made available, totaling over 350 TAF URFs for the year. Blocks 3 and 4 will both need to be delivered by July 29th. Reclamation's recent forecast shows Millerton storage maximized through July 27th and then slowly starting drawdown with an end-of-month storage anticipated to be 510 TAF. Reclamation

anticipates Uncontrolled Season will continue until the end of the month and that upon ending Uncontrolled Season the Class 2 allocation will need to be reduced. Our internal forecasts, similar to Reclamation, indicate, based on current schedules provided by contractors, that the residual Class 2 allocation, or the allocation available after Uncontrolled Season, would be between 5-10 percent in order to avoid deadpool concerns in the fall and needing half of the use in February.

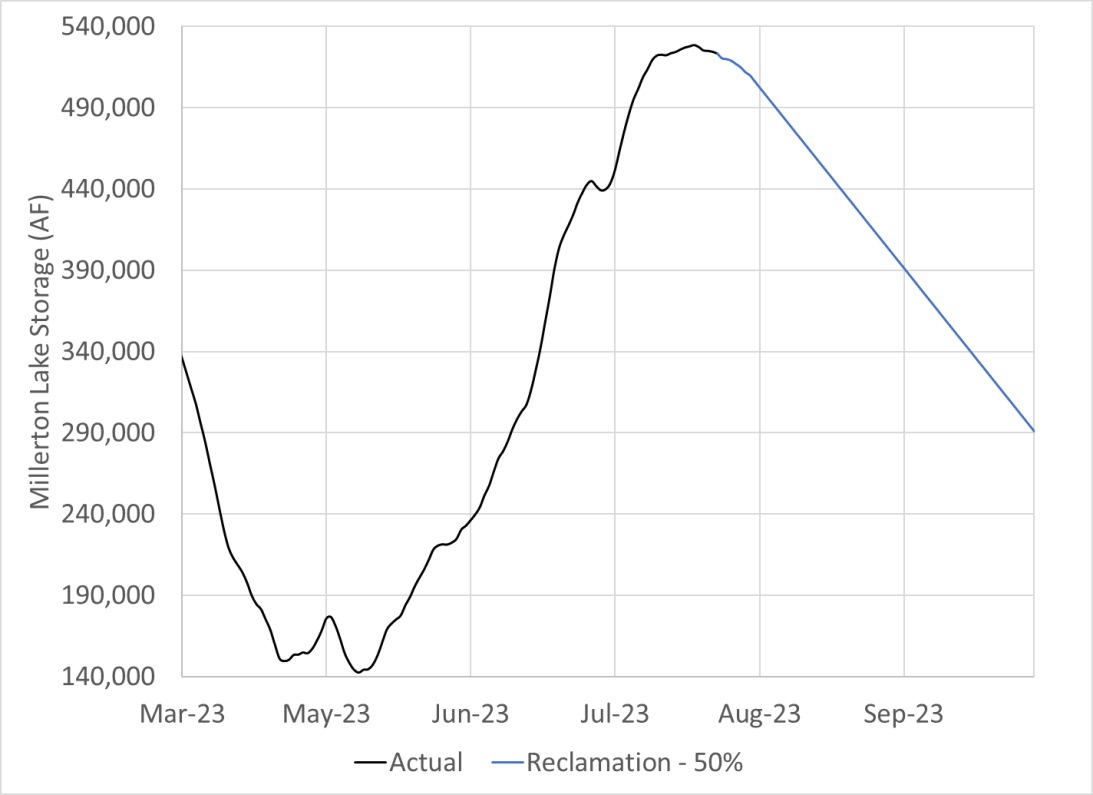


Figure 5. Millerton Storage – July Internal Projections

Since the end of June, FWA Operations staff and Contractors south of the Deer Creek Check have been coordinating daily to work through canal capacity issues and manage prorate on the canal. As of July 13th, FWA staff is coordinating with Friant Contractors south of the Belmont Check to effectively manage any potential prorate. FWA expects that daily coordination will be needed at least through the end of August as temperatures stay high and larger Friant Contractors switch from local supplies to contract supplies.

Airborne Snow Observatory

The fifth and final ASO flight of the year for the upper San Joaquin River Basin occurred on June 23-25. Full basin SWE was estimated to be 910 TAF +/- 50 TAF, a decrease of approximately 1.1 MAF from the May 23-24 flight. Figure 6 compares the results of all five flights, showing essentially little snowpack remaining below 9,000 feet, large reductions in SWE between 9,000 and 11,000 feet elevation, and more modest relative reductions above 11,000 feet. Results of the flight were consistent with Reclamation expectations and support the forecasted total of water year runoff around 4.5 MAF. Based on recent snow modeling, and snow pillows showing no snow below 10,000 feet, there is about 150 TAF remaining in SWE.

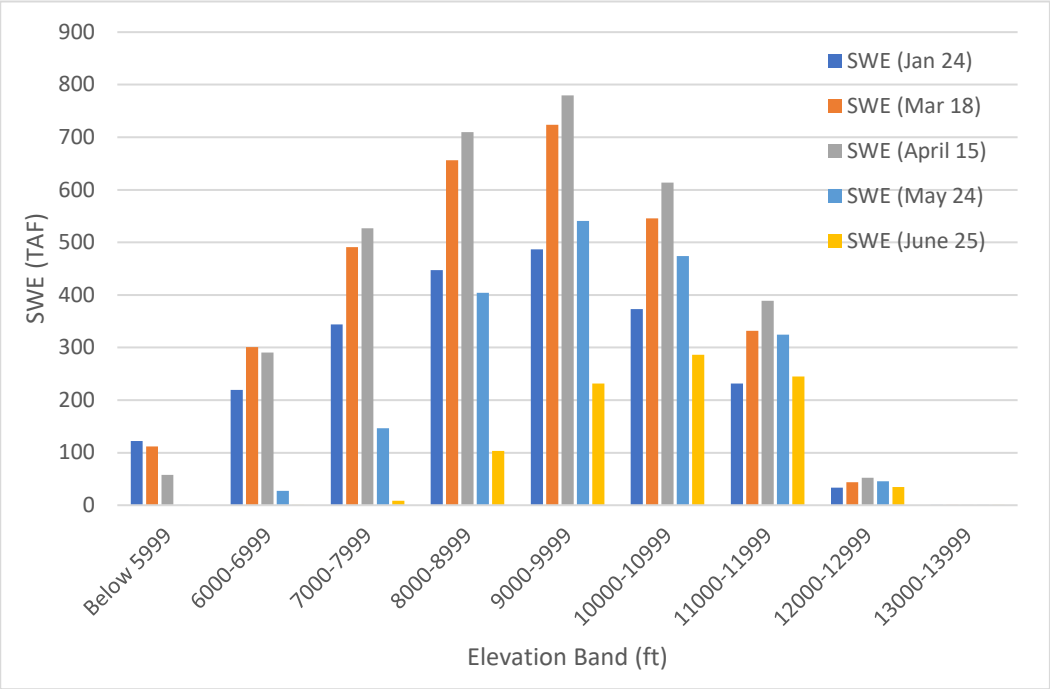


Figure 6. ASO Estimated Snow Water Equivalent by Elevation Band

On July 14th, FWA was notified by the Department of the Interior that our grant application for the Snow Water Supply Forecasting Program was selected for Phase II of the application process and staff is currently coordinating with regional partners to prepare for the Phase II pitch interviews in mid-August.

San Joaquin River Restoration Allocation

On May 18th, Reclamation issued the final 2023 Restoration Allocation, which showed no change from the previous 556,542 AF Wet Year allocation (as measured at Gravelly Ford). On June 30th the RA submitted a final flow recommendation which utilizes Riparian Recruitment flows to maintain a connected river (targeting at least 100 cfs at Sack Dam through July 29th); base flow and URF exchange water to maintain a connected river through October; and then, generally returns to Exhibit B flows for the remainder of the 2023 Restoration Year, with a shifted fall pulse flow into late December. The Recommendation anticipates the release of 187 TAF of Restoration Flows and 10 TAF of URF Exchanges to the river. Restoration flows are currently being concurrently released with flood flows, with approximately 175 cfs of Restoration flows at Gravelly Ford.

San Joaquin River Restoration Recapture

There is currently no recapture at Mendota Pool or in the Lower San Joaquin River and little to no recapture is expected through the year other than de minimis recapture during flow changes. There is currently no water being recaptured at PID and BCID, and will likely be minimal after San Luis Reservoir begins drawdown due to limited capacity and demand. FWA has begun the negotiation process to renew recapture agreements with PID and BCID to cover the remainder of WY 2023/24 and most or all of the WY 2024/25.

AGENDA REPORT NO. 4.C

DATE: July 27, 2023

TO: Board of Directors

FROM: Johnny Amaral, Chief of External Affairs and Mike Villines, Villines Group, LLC

SUBJECT: External Affairs Update

SUMMARY:

Update on State and Federal affairs and communications activities.

RECOMMENDED ACTION:

None; informational only.

SUGGESTED MOTION:

None; informational only.

DISCUSSION:

State Affairs

The legislature is currently on summer break. This is when some legislators travel abroad and focus on their priorities for the last month of session. The schedule for the July break and the last month of session is as follows:

July 14:	Last day for policy committees to hear bills; summer recess begins
August 14:	Legislature reconvenes
September 1:	Last day for fiscal committees to meet
September 5-14:	Floor session only
September 8:	Last day for bills to be amended
September 14:	Last day for legislature to meet; interim study recess

September 8 is a critical date because that is the last day to amend bills. Once the 8th has passed, all remaining bills will be in final form and ready for floor votes. This is important for SB389 (Allen) because it will probably be negotiated until the last minute. SB 389 status covered below.

Also, it is important to note that a new Assembly Speaker was elected on June 30th. The new Speaker, Robert Rivas, is the first Speaker in decades that is not from San Francisco or Los Angeles. He is from Salinas and generally thought to be more moderate in his personal politics but he was supported by the progressives and the Women's Caucus legislators so it remains to be seen how he will lead. He was raised in a farmworker family and was County Supervisor prior to being elected to the Assembly. His bio is enclosed at the end of this memo.

It is worth noting that Speaker Rivas has generally been very good on agriculture and water issues during his time as Chair of the Assembly Ag committee.

Water Policy Legislation:

1. Great News and big victories. AB 460 (Bauer-Kahan) and AB 1337 (Wicks) BOTH were pulled from Senate Natural Resources and Water Committee because they could not get the votes to pass. A lot of credit goes to Senator Padilla of San Diego County who was a swing vote on multiple water bills this session and each time he supported the water/agriculture position.

2. The water bond discussions will continue in the interim and a consensus bond will be finalized most likely in January/February. We will stay engaged on those discussions and continue to keep the Board updated.

There are still bad bills that we are working on but both SB 389 and AB 1205 have had significant amendments that make the bills much more palatable. The last two bills that are of concern in the last month of session are the following:

SB 389 (Allen) will allow the State Water Resources Control Board to better/easier investigate water claims. This bill has been amended substantially and most water agencies and agriculture organizations are moving to neutral position. Since the Bauer-Kahan and Wicks bills have been killed, Senator Allen has been very receptive to amendments. The Assembly Water, Parks and Wildlife Committee analysis does a good job in explaining the current amendments:

- *The most recent amendments* [to SB 389] *removed what would have been a new authority for the State Water Board to "determine" the validity of water rights. Instead, the bill expands the State Water Board's existing authority to investigate and "ascertain" whether water has a valid claim or appropriative water right for its use. This change has the effect of slightly expanding the State Water Board's existing authority to ascertain water availability, by allowing investigation of claims of riparian as well as appropriative rights. It deletes this bill's previous language on allowing legal determinations of water rights, shifting to a lesser authority to ascertain, factually, whether the water itself has a legal claim on it.*

- ***Established Burden of Proof.*** *The recent amendments also delete a provision that would have statutorily imposed the burden of proof on the water right claimant. Due to these amendments, courts will instead rely on common law if any disputes arise from State Water Board investigations into a given party's basis of right pursuant to this bill. Presumably, courts will apply the long-standing legal principle that the water right claimant "has the burden of proving every element of the right that he claims. The burden is upon him 'to establish by sufficient evidence the fact of appropriation by him to beneficial use upon* his land.'" W.A. Hutchins, The California Law of Water Rights, p. 282 (1956), quoting Crane v. Stevenson, 5 Cal 2d 387, 398 (1936).

AB 1205 Bauer-Kahan – AB 1205 would declare that the sale, transfer, or lease of an interest in any water right for profit, on or below agricultural lands within the state by an investment fund shall not be considered a reasonable or beneficial use of water.
AB 1205 is currently on the Senate floor for third reading and has passed on party line votes in every committee and the Assembly floor. However, recent amendments were taken to make this a "study bill" with a report due on January 1, 2027. We will continue to watch this bill but the current amendments make the bill much more palatable.

Biography

Speaker Robert Rivas was first elected to the State Assembly in 2018. During his first term, he was appointed as the Chair of the Assembly Agriculture Committee and elected as Vice-Chair of the influential Latino Legislative Caucus. A lifelong resident of the 29th Assembly District, Rivas previously served two terms on the San Benito County Board of Supervisors prior to becoming an Assemblymember.
Rivas was raised in Paicines, California, where his grandfather was a farmworker at Almaden Vineyards. Rivas and his brother grew up in farmworker housing, cared for by their single mother and beloved grandparents, who emigrated from Mexico in the 1960s in search of the California Dream.
As a child, Rivas watched his grandfather stand side-by-side with Cesar Chavez, Dolores Huerta, and the UFW as a leader in the fight to win fair contracts for farmworkers. Rivas' grandfather was known for his passionate advocacy on behalf of his fellow workers, but also for his ability to work with owners to negotiate contracts acceptable to both sides.
Through his grandfather, Rivas learned that you could fight fiercely for your beliefs, while respecting those with whom you disagreed. Still, it seemed unlikely that Rivas would become a community leader, at least not if doing so required public speaking. For much of his childhood he struggled to overcome a severe stutter, a condition he continues to contend with today.
Rivas' childhood experiences – growing up in a farmworker community, struggling to overcome a disability – gave him a direct understanding of the challenges faced by many residents as they struggle to build better lives for themselves and their families. His efforts on behalf of those who have faced similar and other challenges is apparent in his legislative work.
During his tenure in the Assembly, Speaker Rivas has championed legislation to improve California's supply of affordable housing, increase workplace health and safety protections, create the Golden State Teacher Grant Program, and secure the first-in-the-nation COVID-19 Farmworker Relief Package, which included critical efforts related to access to PPE and testing, temporary housing, and healthcare.
A long-time champion of the environment, Rivas won bipartisan support for the Oil Transportation Safety Act, which improved the state's preparedness to protect coastal regions after a potential spill of non-

floating oil. Further, Rivas has led efforts to accelerate the construction of renewable energy and ensure the state explores all options to use public lands and oceans to effectively sequester carbon.
Rivas attended local public schools in San Juan Bautista and Hollister. He graduated with a Bachelor's Degree in Government from CSU Sacramento and later earned a Master's in Public Administration from San Jose State University. Speaker Rivas lives in Hollister with his wife Christen and their daughter Melina.

Federal Affairs

Last week, the Senate Appropriations Committee approved their version of the FY 2024 Energy and Water Development bill and report (ATTACHED) funding the Department of Energy, the Army Corps of Engineers, and the Bureau of Reclamation.

Once passed by each respective chamber, any differences will need to be worked out in a conference before final passage. We do not expect Congress to move these bills to the President's desk for his signature before the end of FY 2023 on September 30, so a temporary continuing resolution (CR) will be needed to keep the federal government open on October 1. The following excerpts of these bills are of particular interest:

Total Recommended Funding for FY 2024 – Bureau of Reclamation:

Senate $1,921,799,000 House $1,839,953,000 Budget Request $1,449,314,000

Water and Related Resources – Recommended Line-Item Changes from FY 2024 Presidents Budget Request:

SAN JOAQUIN RIVER RESTORATION SETTLEMENT		*House (-$20,500,000)*
SACRAMENTO VALLEY PACIFIC FLYWAY HABITAT PROGRAM	Senate +$2,200,000	
LOS BANOS CREEK RECHARGE AND RECOVERY PROJECT		*House +$5,000,000*
SAN GABRIEL BASIN RESTORATION FUND	Senate +$5,000,000	*House +$5,500,000*
LAKE MEAD/LAS VEGAS WASH PROGRAM		*House +$3,500,000*
LEWIS AND CLARK RURAL WATER SYSTEM, IA, MN, SD	Senate +$12,000,000	
YBRWEP EASTON BULL TROUT RESEARCH AND RECOVERY FACILITY	Senate +$2,692,000	
ADDITIONAL FUNDS FOR ONGOING WORK:		
RURAL WATER	Senate +$55,000,000	*House +$75,000,000*
FISH PASSAGE/SCREENS	Senate +$8,000,000	*House +$6,000,000*
WATER CONSERVATION AND DELIVERY	Senate +$237,444,000	*House +$265,705,000*
ENVIRONMENTAL RESTORATION AND COMPLIANCE	Senate +$31,000,000	*House +$10,000,000*
FACILITY O,M&R	Senate +$4,000,000	*House +$4,000,000*
AQUATIC ECOSYSTEM RESTORATION PROGRAM	Senate +$10,000,000	*House (-$500,000)*
LAND RESOURCES MANAGEMENT PROGRAM		*House (-$1,845,000)*
R&D DESALINATION AND WATER PURIFICATION PROGRAM	Senate +$12,000,000	*House +$12,000,000*
R&D SCIENCE AND TECHNOLOGY PROGRAM	Senate +$6,500,000	*House +$2,500,000*
WATERSMART:		
WATERSMART GRANTS	Senate +$40,418,000	
COOPERATIVE WATERSHED MANAGEMENT	Senate +$5,746,000	
DROUGHT RESPONSES & COMPREHENSIVE DROUGHT PLANS	Senate +$5,991,000	
TITLE XVI WATER RECLAMATION & REUSE PROGRAM	Senate +$25,994,000	*House +$25,994,000*

Report Language:

ADDITIONAL FUNDING FOR ONGOING WORK –

WATER CONSERVATION AND DELIVERY	Senate $237,444,000	*House $265,705,000*

WIIN Act Sec. 4007 Storage Account	Senate $134,000,000	*House $134,000,000*
Colorado River Drought Contingency Plan	Senate $50,000,000	*House $50,000,000*
Repair Canals Impacted by Subsidence	Senate $20,000,000	*House $20,000,000*
Aquifer Recharge Projects		*House $10,000,000*

ENVIRONMENTAL RESTORATION AND COMPLIANCE

Not less than $20,000,000 shall be for activities authorized under sections 4001 and 4010 of the WIIN Act or as set forth in Federal-State plans for restoring threatened and endangered fish species affected by the operation of Reclamation's water projects.

Reclamation to provide a spending plan no later than 45-days from enactment for the balance of the Additional Funding for Ongoing Work.

PROJECT/POLICY SPECIFIC POTENTIAL PROVISIONS OF INTEREST – SENATE REPORT:

Anadromous Fish Screen Program - The Committee appreciates Reclamation's efforts to devote additional resources to completing work on the last two remaining priority unscreened diversions on the Sacramento River, which have been specifically identified as
priorities in the California Natural Resources Agency Sacramento Valley Salmon Resiliency Strategy. Of the funding recommended for Fish Passage and Fish Screens at least $6,000,000 shall be for the Anadromous Fish Screen Program.

Aging Infrastructure Program - The Committee does not support allowing increases or decreases in transfer amounts at this time. The Committee is aware that the application requirements for receiving IIJA funding from this account can be cumbersome and
delay funding for projects with multiple beneficiaries. The Committee is concerned that these requirements are creating unnecessary barriers for important infrastructure projects in a time of unprecedented drought in the west. The Committee directs Reclamation to remove unnecessary barriers streamlining the process while ensuring the repayment obligations of all funding recipients of this account.

Aquatic Ecosystem Restoration Program - The Committee recommends an additional $5,500,000 for studies or projects that will develop alternative pumping sites in a location to produce multiple benefits including dewatering of river segments, improved water
quality, and reliable water delivery.

B.F. Sisk Dam - The Committee is aware of seismic issues at B.F. Sisk Dam and supports Reclamation's safety of dams modification project to remediate this reservoir. Reclamation is directed to work collaboratively with the State of California to finalize a cost share agreement for the project that accounts for the State of California's in-kind contributions (including contributions elsewhere in the State) and credits; and to work to ensure the B.F. Sisk Dam Safety of Dams Modification project can move forward as expeditiously as possible.

Colorado River Basin Report - A train derailment along the Colorado River could have significant impacts on the beneficial uses of the river, the water itself, and the ecosystem. Understanding and preparing for such an event is critical. Of the additional funding recommended under the heading "Water Conservation and Delivery", $300,000 shall be for a report on the potential impacts on water resources from a derailment of a train transporting hazardous material along the Colorado River.

Colorado River Basin Collaboration - The Committee understands growing water-thrifty crops in the Colorado River Basin could, if voluntarily planted by Basin farmers, help keep agricultural lands in production and support rural economies while adjusting to diminishing water supplies from the Colorado River. The Committee directs Reclamation to provide a briefing within 30 days of enactment of this act on the ability to partner with the U.S. Department of Agriculture to fund research and provide technical support for this effort. The briefing should identify existing authorities that could be used and recommend additional authorities that would be required.

Friant-Kern Canal, San Luis Canal, Delta Mendota Canal - Of the additional funding recommended for planning, preconstruction, or construction activities of critical Reclamation canals, at least $5,000,000 shall be for the Friant-Kern Canal, San Luis Canal, and Delta Mendota Canal.

Ground Based Cloud Ionization - The Committee understands Reclamation is currently investing in winter-season orographic cloud-seeding research and pilot activities in Colorado and the lower Colorado Basin Region. The Committee strongly encourages Reclamation to continue these pilots and look for opportunities to expand these efforts.

Groundwater Recharge, Aquifer Storage, and Water Substitution - Section 40910 of the IIJA allows Reclamation to provide financial and technical assistance for groundwater recharge, aquifer storage and recovery, and water substitution for aquifer protection projects. This assistance could help communities throughout the West better tackle water storage and conservation challenges by helping communities get innovative projects off the ground. The Committee reminds Reclamation that these activities are eligible for the additional funding recommended.

Klamath A Canal - The Committee is aware of the emergent situation regarding seepage from the A Canal that appears to be contributing to flooding in the local community. While the Klamath Irrigation District has worked to identify temporary fixes, Reclamation's expertise is needed to quickly rectify and repair the immediate damage. Reclamation is directed to evaluate if the current situation constitutes an emergency and report the result to the Committee. Further, the Committee understands the difficulty that repeated low water years has placed on the Klamath Irrigation District, particularly how it affects the ability to modernize infrastructure.
Reclamation is strongly encouraged to identify ways to provide non-reimbursable financial support for modernization efforts for irrigation districts without stable funding streams due to persistent, prolonged drought.

Klamath Basin Project - The Committee encourages Reclamation to continue to collaborate on agreements with State agencies to support groundwater monitoring efforts in the Klamath Basin. The Committee is pleased that Reclamation included additional funds under the Klamath project for the Drought Response Agency. The Committee encourages Reclamation to continue funding the Drought Response Agency at sufficient levels.

Research and Development: Desalination and Water Purification Program - Of the funding recommended for this program, $12,000,000 shall be for desalination projects as authorized in section 4009(a) of Public Law 114-322. Congress also invested significant funds for desalination projects in the IIJA yet administrative project cost caps can disadvantage larger state of the art projects. The Committee understands that as part of the implementation of the IIJA, funding modifications to the current standards have been considered. In line with those efforts Reclamation shall not impose administrative project cost caps and shall use the statutory limit of 25 percent Federal cost share for section 4009(a) projects.

Research and Development: Science & Technology Program - Better snow modeling and estimates of snow water may improve water resource decision-making, specifically for water allocations and flood control. Within the Science and Technology Program, $5,000,000 shall be for Reclamation's Airborne Snow Observatory [ASO] Program to support implementation of ASO flights. An additional $1,500,000 shall be to support the U.S. Department of Agriculture and NOAA efforts to improve real-time and derived snow water information such that it can be immediately used for water resources decision-making.

Salton Sea - The Committee supports the Memorandum of Understanding signed between the Department of the Interior and the California Natural Resources Agency to support management activities at the Salton Sea. The Committee is pleased Reclamation recently committed funding from the Inflation Reduction Act to assist with Salton Sea mitigation. It is critical that Reclamation continues to fund research and development projects to support current and future efforts to reduce the likelihood of severe health and environmental impacts. The Committee encourages Reclamation to include adequate funding for the Salton Sea in future budget requests and reminds Reclamation additional work is eligible for additional funding recommended in this account.

San Joaquin River Restoration - Permanent appropriations, available for the program in fiscal year 2024, shall not supplant continued annual appropriations, and the Committee encourages Reclamation to include adequate funding in future budget submissions.

WaterSMART Program - The Committee encourages Reclamation to prioritize environmental water resource projects and eligible water conservation projects that will provide water supplies to meet the needs of threatened and endangered species.

WaterSMART Program - Open Evapotranspiration System - The Committee is intrigued by the evapotranspiration in the Central Valley and California Delta to help measure how much water is consumed by crops and other plants. Reclamation is encouraged to utilize the Open Evapotranspiration system designed to provide real-time and historical evapotranspiration information, primarily on irrigated crop lands. Reclamation is directed to provide to the Committee not later than 90 days after enactment of this act a briefing on the potential application of this system to Reclamation missions.

WaterSMART Program: Outreach - Reclamation is strongly encouraged to conduct additional outreach on opportunities within the WaterSMART program. Specifically, Reclamation is encouraged to conduct outreach in all non-contiguous States and territories because of the unique water challenges in Hawaii, Alaska, and Puerto Rico, as well as American Samoa, Guam, the Northern Mariana Islands, and the U.S. Virgin Islands. Additionally, Reclamation is encouraged to conduct specific outreach for the Cooperative Watershed Management program and prioritize program investments in rural, historically underserved,

and Tribal communities, as these regions can have less capacity to develop multi-benefit watershed projects. Reclamation is directed to take additional steps to make the program more accessible, including offering funding opportunities more than once per year and streamlining the application process.

WaterSMART Program: Title XVI Water Reclamation & Reuse Program - Of the funding recommended for this program, not less than $20,000,000 shall be for water recycling and reuse projects as authorized in section 4009(c) of the WIIN Act.

Yakima River Basin Water Enhancement Project - The Committee strongly supports the Yakima River Basin Integrated Water Resource Management Plan. This innovative water management plan addresses water storage, water supply, fishery and ecosystem restoration needs for agriculture, fish, and municipalities within the Yakima River basin in central Washington. The Committee encourages Reclamation to budget appropriately for this work in order to move forward on implementing authorized components of the plan and directs Reclamation to accelerate implementation of the Yakima Basin Integrated Plan projects within the funding recommended.

BUDGET IMPACT:

None.

ATTACHMENTS:

Family Farm Alliance Executive Director's Report; Farm Water Update (March 2023); SB 389 Coalition; AB 460 Coalition; AB 1337 Coalition

Family Farm ALLIANCE®

PROTECTING WATER FOR WESTERN IRRIGATED AGRICULTURE

MEMORANDUM

TO: **FRIANT WATER AUTHORITY BOARD OF DIRECTORS**

FROM: DAN KEPPEN, EXECUTIVE DIRECTOR

SUBJECT: UPDATE REPORT

DATE: JULY 24, 2023

This memo is intended to keep you apprised as to what is happening regarding policy issues the Family Farm Alliance (Alliance) is engaged in. In the past month, much of our efforts have focused on advancing farm bill ideas with Western Senators and committee staff, preparing for a Senate water legislative hearing, Colorado River and federal affairs outreach, and engaging in litigation and administrative matters. These issues and other matters important to our members are further discussed in this memo.

BIDEN ADMINISTRATION

1. Appointments and Departures

The Senate earlier this month confirmed Xochitl Torres Small as Deputy Secretary of the U.S. Department of Agriculture (USDA). Since October 2021, Torres Small has served as Under Secretary for Rural Development at USDA. Effective July 14, Rural Development Chief Operating Officer Roger Glendenning will serve as Acting Under Secretary. Prior to joining USDA, Torres Small was a United States Representative for the fifth largest district in the country. As a Member of Congress, she served as a member of the House Agriculture Committee, the House Armed Services Committee and as chairwoman of the Oversight, Management, and Accountability Subcommittee of the House Homeland Security Committee.

The Department of the Interior (DOI) Assistant Secretary for Water and Science Tanya Trujillo stepped down from her position about six weeks ago and officially exited on July 17. Trujillo, an expert on the Colorado River, was confirmed by the Senate in the summer of 2021 to the Interior post. She has been working with the seven Colorado River Basin States, along with Interior Deputy

Secretary Tommy Beaudreau and Bureau of Reclamation (Reclamation) Commissioner Camille Calimlim Touton, in negotiations over Colorado River operations. Here's a related story: https://www.cpr.org/2023/07/14/colorado-river-negotiations-tanya-trujillo-steps-down/.
Before joining the Biden Administration, Secretary Trujillo served on New Mexico's Interstate Stream Commission, which governs the state's waters. A native of New Mexico, Trujillo's extensive career in water law also included work on Capitol Hill, where she was employed by former Sen. Jeff Bingaman (D-NEW MEXICO) and in the Obama Administration as counselor to the Assistant Secretary for Water and Science.

DOI on July 19 announced that Deputy Commissioner of Reclamation Michael Brain has been named Principal Deputy Assistant Secretary for Water and Science. Before joining Reclamation, Brain held a variety of positions in the U.S. House of Representatives, including as Counsel for the Subcommittee on Water Resources and the Environment and as a professional staffer for the Subcommittee on Energy and Water Development Appropriations.

2. Environmental Protection Agency (EPA): Clean Water Act "Waters of the U.S."

The Biden Administration's EPA and the Army Corps of Engineers (Corps) have announced they will quickly and surgically amend their final "Waters of the U.S." (WOTUS) Rule to incorporate the Supreme Court decision in *Sackett v. EPA* by September. The White House Office of Management and Budget's recent listing for the rule confirms that the new definition is designated a final action, meaning it bypassed the Administrative Procedure Act's notice and comment process for most rulemakings. That was expected given the short timeline for enacting it; most recently, EPA water chief Radhika Fox told committee members at a July 13 House hearing that the agency intends to invoke its authority to skip the proposal step for "good cause." Under the Administrative Procedure Act, agencies can enact final rules without taking comment on a proposed version in limited cases, including where the agency has "good cause" to believe that the notice-and-comment process would be "impracticable, unnecessary, or contrary to the public interest." Litigation over this decision is certain.

The May 25 decision in *Sackett* rendered parts of the Biden final WOTUS rule moot when a five-justice majority endorsed a narrower test, based on a "relatively permanent" surface-water connection from late-Justice Scalia rather than the "significant nexus" test from then-Justice Kennedy in the Supreme Court's previous *Rapanos* decision, for determining whether wetlands and other waterbodies are considered WOTUS, with allowances for "temporary interruptions" in that connection. The Administration's final WOTUS rule relied on both the Scalia test, as well as the broader Kennedy "significant nexus" test. As such, any revised rule is, at a minimum, expected to excise the "significant nexus" test, but also would define key terms left unaddressed by the high court's ruling in *Sackett*. The current rule has already been stayed by the courts in approximately half of the country, and the agencies say they are interpreting WOTUS consistent with the *Sackett* decision even in those states where it is not stayed. Several Corps Districts have also placed a hold on issuing approved jurisdictional determinations (AJDs) under the Clean Water Act (CWA) pending updated guidance from an amended final WOTUS rule.

a. WOTUS Litigation

Meanwhile, industry and GOP-led state plaintiffs have filed motions on June 28 in the U.S. District Court for the Southern District of Texas to vacate the Biden final WOTUS rule entirely, forcing the agencies to write a new rule from scratch to account for the Supreme Court's ruling in *Sackett* even as they work to revise the rule by September. The U.S. District Court for the Southern District of Texas earlier this month ordered a stay in the case, stopping the litigation. The court asked the parties to notify the court when EPA and the Army Corps publish their revised rule and ordered the agencies to provide updates every 45 days for the duration of the stay.

In other litigation over the final WOTUS rule, EPA filed a motion on June 26 before Judge Daniel Hovland of the U.S. District Court for the District of North Dakota asking for a stay of the ongoing litigation brought by 24 Republican state attorneys general, announcing plans to revise and amend its 2023 WOTUS rule by September to account for the *Sackett* decision. EPA also asked the court to direct the parties to submit proposals for further proceedings within 21 days of the September rule's release, and to direct EPA and the Corps to file status reports every 45 days during the duration of the stay.

On July 3, the U.S. Court of Appeals for the 6th Circuit, without comment, granted EPA's recent motion seeking abeyance in the suit *Commonwealth of Kentucky v. EPA, et al.*, appearing to agree with the agency's argument that the upcoming WOTUS rule would help narrow any future litigation. Whether or not the other courts will side with the motions to vacate the rule or EPA's motion to stay the litigation, these actions portend almost certain future court challenges ahead as the Biden Administration continues to grapple with redefining WOTUS under the CWA.

3. Proposed ESA Rule Revisions…and Other Federal Rulemaking Efforts

The U.S. Fish and Wildlife Service ("FWS") and National Marine Fisheries Service ("NMFS") (collectively, "the Services") last month published three proposed rules related to implementation of the Endangered Species Act ("ESA"). The Biden Administration will proceed on other rulemaking efforts important to Western water users in the year ahead. The proposed revisions are made in response to President Biden's Executive Order 13990, which directed the Services to review and revise certain agency actions taken by January 2021. The three proposed rules would:

- Revise regulations regarding interagency consultation, including broadening the scope of the Services' conditioning authority;
- Reinstate a blanket protection for threatened species managed by FWS; and
- Clarify any misconceptions created by the Trump administration when it removed language in 2019 referencing economic impacts within the context of the classification process. This rule would also change the Services' critical habitat designation rule regarding not-prudent determinations and unoccupied areas.

The Biden Administration agreed to rewrite the three ESA rules in response to a lawsuit filed by Earthjustice on behalf of the Center for Biological Diversity, Defenders of Wildlife, the Sierra Club, the Natural Resources Defense Council, and other litigious environmental organizations.

a. Implications for Western Water Users

Implementation of the ESA certainly impacts the management of land and water throughout the West. For example, federal water supplies that were originally developed by the Bureau of Reclamation primarily to support new irrigation projects have, in recent years, been redirected to ESA uses. The result is that these once-certain water supplies – one of the few certainties in Western irrigated agriculture – have now been added to the long list of existing uncertainties. Given the nature of water storage and delivery, Alliance members are often directly impacted by the implementation of the ESA and other federal laws. A constant frustration our members experience is the lack of accountability for success or failure for the implementation of these federal laws. The ESA has at times been interpreted to empower federal agencies to take action intended to protect listed species without consideration of the societal costs of such action, even when it is not clear that the action taken will actually yield benefits for the particular species.

b. Alliance Actions

The Alliance has consistently and strongly supported efforts to reform the ESA and its implementing regulations – like the effort initiated by the Trump Administration - to provide clearer direction to the agencies in applying and enforcing the law. The Alliance in November 2021 developed a detailed comment letter to the Services that reaffirmed the support the organization placed behind the substance and process used to finalize the 2020 ESA rules that were rescinded by the current administration. It looks like we'll go back to the drawing board again and reiterate those concerns to the agencies once more: comments are due August 21, 2023.

c. FWS Announces Final ESA Section 10(j) Rule

FWS announced that it has finalized revisions to section 10(j) regulations under the ESA to improve the conservation and recovery of imperiled ESA-listed species. The final rule was published on July 3 in the *Federal Register* with a 30-day waiting period before it kicks in. According to the FWS, growing impacts from climate change and invasive species have caused habitats within species' historical ranges to shift or become unsuitable. Prior regulations restricted the reintroduction of experimental populations to only the species' historical range except under extreme conditions. FWS has designated more than five dozen experimental populations that have been used to help advance the recovery of numerous listed species, such as California condors, whooping cranes and Sonoran pronghorns.

The new section 10(j) rule would only apply to future designations and is expected to provide regulatory flexibility and predictability for partners in their recovery efforts. FWS has used section 10(j) to designate populations as "experimental" in support of collaborative reintroduction efforts

with partners that foster listed species' recovery. FWS announced that it will continue to coordinate closely with the public before establishing an experimental population in or outside of a species' historical range. The rulemaking processes for designating a 10(j) experimental population are said to not change with this revised regulation or require reevaluation of existing experimental populations, according to FWS.

d. More Federal Rulemaking on the Horizon

The Biden Administration on June 13 -about two months late - released their spring Unified Agenda, which describes upcoming rule making across the federal government, including at the Environmental Protection Agency (EPA), the Interior and Energy Departments. The agenda signals a busy regulatory period, particularly in the areas of environmental and energy policies, with numerous major rules set to be finalized in the first half of 2024. The Administration knows that any rules finalized late in the year will be within the timeframe for Congressional Review Act resolutions. That could undo many rules if Republicans win the White House and gain control of Congress in the election. Mark Limbaugh and his team at The Ferguson Group have put together a Special Report on the proposed rules that highlights the administration's priorities in key policy areas for the upcoming year.

DEVELOPMENTS IN CONGRESS

4. Senate ENR Water and Power Subcommittee Hearing on Water Legislation

The Senate Energy and Natural Resources (ENR) Water and Power Subcommittee heard testimony on sixteen bills dealing with the impacts of drought across the West, including restoration of fish habitat and permitting new hydropower projects. Prior to the hearing, we submitted written testimony that addresses most of the bills that were heard. We have actively advocated for and contributed to the development of several of the West-wide bills on the hearing docket. Some of the bills contain provisions that work well for both producers and the NGO community. Others, in our view, appear to put the needs of fish, wildlife and ecosystems above the interests of our farmer-rancher membership. Legislation addressed in the Alliance testimony includes:

- S. 482, the "Klamath Power and Facilities Agreement Support Act" from Subcommittee Chair Ron Wyden (D-OR) that would address issues related to impacts of the removal of non-federal hydro dams on the Klamath River, among other things left over from the failed Klamath Basin Restoration Agreement (KBRA).
- S. 1521, the "Community and Hydropower Improvement Act" from Senators Steve Daines (R-MT) and Maria Cantwell (D-WA) which would improve the Federal Energy Regulatory Commission (FERC) licensing and relicensing processes across existing generation, nonpowered dams and pumped storage projects.
- S. 2247, from Senators John Hickenlooper (D-CO) and Mitt Romney (R-UT) which would extend endangered fish recovery programs in the Upper Colorado and San Juan River Basins.

- S. 1118, the "Open Access Evapotranspiration Data Act (OpenET),” from Sen. Catherine Cortez Masto (D-NV), which would provide for federal funds from the USGS to calculate water used by crops and vegetation across the landscape.
- S. 2102, the "Water for Conservation and Farming Act," from Sen. Wyden, would establish a $300 million fund at the Bureau of Reclamation for water recycling, efficiency, and dam safety projects, among other programs.
- S. 2160, from Sen. Jim Risch (R-ID), which would help accelerate repairs to high-risk canals running through urbanized areas of the West through additional financial assistance from the Aging Infrastructure Account funded by the bipartisan infrastructure law.
- S. 2161, the "Canal Conveyance Capacity Restoration Act," from Sen. Dianne Feinstein (D-CA), that would authorize $653 million to restore three San Joaquin Valley canals impacted by subsidence and old age, and $180 million for the restoration program on the San Joaquin River.
- S. 2162, the "Support to Rehydrate the Environment, Agriculture and Municipalities (STREAM) Act," from Sen. Feinstein, which would increase water supply and modernize water infrastructure across the West.
- S. 2166, the "Voluntary Agricultural Land Repurposing Act," from Sen. Alex Padilla (D-CA), which would provide grants to state and Native American tribes for programs to repurpose agricultural lands for at least 10 years in a bid to reduce groundwater use.
- S. 2169, the "Watershed Results Act," from Sen. Wyden, would authorize the Interior Department to spend up to $15 million annually for as many as five watershed pilot projects designed to provide measurable results from prioritized conservation activities across a watershed using advance watershed analytics and streamlined federal grants.
- S. 2202, the "Restore Aging Infrastructure Now Act," from Sen. Feinstein, would draw from $3.2 billion appropriated to the Bureau of Reclamation in the bipartisan infrastructure law to help pay for upgrades to aging Reclamation-owned canals that provide for additional public benefits, including drinking water for disadvantaged communities.

The sole witness at the hearing was Camille C. Touton, Commissioner of the Bureau of Reclamation. Chairman Wyden oversaw the hearing, where the subcommittee powered through the docket in just over an hour. The panel also spent a portion of its hearing heaping praise on Commissioner Touton, highlighting the recent agreement by Colorado River Basin states over how to address shortfalls in that watershed. The hearing was webcast live on the committee’s website, and an archived video was made available shortly after the hearing concluded.

5. Water, Wildlife and Fisheries Subcommittee Hearing: ESA’s 'Destructive Cost'

The House Natural Resources Subcommittee on Water, Wildlife and Fisheries (WWF) held an oversight hearing last week with the focus on the enormous costs and regulatory burdens created by the implementation of the Endangered Species Act (ESA). With the ESA turning 50 years old in December, there is a renewed debate among lawmakers over the law and how it's implemented. The House Appropriations Committee recently released their FY 2024 spending bill that includes several policy riders to prevent the Interior Department (Fish and Wildlife Service) from using

appropriated funding in FY 2024 to implement some specific ESA listing decisions such as the greater sage grouse and the northern long-eared bat, among others. FWS Director Martha Williams and NOAA Fisheries Deputy Administrator Janet Coit testified at last week's oversight hearing. Sean Vibbert, owner of the Obsidian Seed Co. in Madras (OREGON), told the panel members that "you guys don't understand what it's costing you," as he summed up a series of ESA-related challenges he and other Oregon residents face because of obligations to the federally protected Oregon spotted frog (*E&E Daily*).

Additionally, on July 18, 2023, Rep. Westerman announced the creation of a joint ESA Working Group with the Congressional Western Caucus to examine how the ESA is being implemented by federal agencies, ESA's practical impacts on the American people, how litigation is driving ESA decision making and how success is defined under the ESA. The work of the subcommittee and the working group will inform legislation in the Natural Resources Committee to modernize and reauthorize the ESA. To learn more about last week's hearing, click here. To learn more about the ESA Working Group, click here.

6. Snake River Dams

Environmentalists concerned about salmon spawning have advocated to undam the Snake River for decades, focusing their efforts on four dams on the lower part of the Snake, just above its confluence with the Columbia River. Western Republicans in Congress and the *Wall Street Journal* last month pushed back, and publicly highlighted the importance of dams in the Pacific Northwest and their impacts on river commerce, agriculture and energy production. In a one-week period, Republicans from the House of Representatives hosted a Capitol Hill forum on the importance of hydropower and conducted a field tour and hearing in Eastern Washington focusing on plans to breach the dams. The Western Republicans' hydropower forums took place just days after the *Wall Street Journal* published an editorial explaining how removal of the four lower Snake River dams would make electricity far costlier and harm local residents, with the salmon seeing little benefit. The Biden administration says it has not taken a position on whether it will recommend that Congress authorize breaching the four lower Snake River dams. The Alliance earlier this year sent a letter to Agriculture Secretary Vilsack, urging his engagement on this matter, with an eye towards defending the interests of farmers and ranchers.

Last week, a coalition of environmental groups announced its intent to ask a federal judge to order the lower Snake River dams to be breached as a necessary step to prevent the extinction of endangered sockeye salmon that spawn in central Idaho. The Columbia River Keeper, Idaho Rivers United, Idaho Conservation League and the Northwest Sport Fishing Alliance filed a 60-day notice of intent to sue the Army Corps of Engineers (Corps). The Ninth Circuit (2004) has already held that the Corps has no authority to remove/breach the federal dams to address water temperatures; only Congress can do that. However, some are speculating that the move is intended as a means to push the Biden Administration to settle and try to get Congress to approve breaching.

7. Appropriations

House and Senate leaders have scheduled consideration of FY 2024 appropriations bills this month, but with deep divisions between House Republicans and Democrats and considerable differences in spending levels between Senate and House versions, a temporary continuing resolution (CR) will most likely be needed to keep the government open past September 30.

a. House Committee Approves FY 2024 Energy-Water Appropriations Bill

The House Appropriations Committee last month followed the GOP playbook setting FY 2024 spending levels below the spending caps agreed to in the debt ceiling deal and approved their version of the FY 2024 spending legislation last month, with deep cuts to Biden Administration priority renewable energy and climate-related spending. The bill funds the Department of Energy, Corps and Reclamation and passed by a 34-24 vote. The Corps would receive more than $9.5 billion in the proposal, significantly more than the $7.4 billion proposed by the Biden Administration in their budget request, and $900 million more than FY 2023 levels. But Reclamation would see current FY 2023 spending levels slashed by $91 million, even though the bill calls for FY 2024 spending levels for Reclamation to be $392.4 million more than the Biden budget request. During the markup, Committee Republicans rejected amendments offered by the Democrats that would have funded Inflation Reduction Act (IRA) climate initiatives, diversity initiatives, or advanced critical race theory.

Republicans say the spending bill would reduce appropriations for programs that are unnecessary and wasteful and would reprioritize spending that help with the overall economy and our Nation's security. While the bill contains targeted cuts to clean energy, climate, and diversity efforts at the Department of Energy, it also offsets proposed spending increases by clawing back $6 billion in spending approved in last year's IRA and the 2021 bipartisan Infrastructure Investment and Jobs Act (IIJA). The bill also includes some controversial policy and legislative riders, including Rep. Valadao's (R-CA) H.R. 215, the *WATER for California Act* and Rep. McClintock's (R-CA) H.R. 186, the *Water Supply Permitting Coordination Act* in their entirety. Among other things, the bill would kill the Biden Administration's WOTUS final rule, which has already been significantly weakened by the recent Supreme Court decision in *Sackett v. EPA (see Item 2).*

b. Senate Appropriations Committee Approves Energy and Water Development Bill

The Senate Appropriations Committee last week approved their $1.92 billion version of the FY 2024 Energy and Water Development bill and report funding the Department of Energy, the Army Corps of Engineers, and the Bureau of Reclamation. The House Appropriations Committee approved their $1.83 billion version of the bill earlier this month. Both bills exceed the Biden Administration's budget request of $1.44 billion. Once passed by each respective chamber, any differences will need to be worked out in a conference before final passage. The following excerpts are pulled from report language applicable to issues of interest to Friant water users:

B.F. Sisk Dam.-The Committee is aware of seismic issues at B.F. Sisk Dam and supports Reclamation's safety of dams modification project to remediate this reservoir. Reclamation is directed to work collaboratively with the State of California to finalize a cost share agreement for the project that accounts for the State of California's in-kind contributions (including contributions elsewhere in the State) and credits; and to work to ensure the B.F. Sisk Dam Safety of Dams Modification project can move forward as expeditiously as possible.

Friant-Kern Canal, San Luis Canal, Delta Mendota Canal.-Of the additional funding recommended for planning, preconstruction, or construction activities of critical Reclamation canals, at least $5,000,000 shall be for the Friant-Kern Canal, San Luis Canal, and Delta Mendota Canal.

Research and Development: Science & Technology Program.-Better snow modeling and estimates of snow water may improve water resource decision-making, specifically for water allocations and flood control. Within the Science and Technology Program, $5,000,000 shall be for Reclamation's Airborne Snow Observatory [ASO] Program to support implementation of ASO flights. An additional $1,500,000 shall be to support the U.S. Department of Agriculture and NOAA efforts to improve real-time and derived snow water information such that it can be immediately used for water resources decision-making.

San Joaquin River Restoration.-Permanent appropriations, available for the program in fiscal year 2024, shall not supplant continued annual appropriations, and the Committee encourages Reclamation to include adequate funding in future budget submissions.

c. House Ag Appropriations Update

The draft bill to fund the USDA and FDA "may" be considered in the House Rules Committee this week, a major step. But the committee has yet to finalize a date that it will consider the bill, likely a result of House Republican leadership struggling to thread a needle with the far-right members of the Freedom Caucus who are demanding steeper cuts. The bill would already slash more than $8 billion from various recissions and would fund the agencies at close to $18 billion. There are now about 160 amendments proposed for the bill (*POLITICO Weekly Agriculture*).

8. 2023 Farm Bill

The farm bill is an omnibus, multiyear law that is typically renewed about every five years. All signs point to a short-term extension for several Farm Bill-related provisions from the 2018 Farm Bill covering numerous food and nutrition policies and programs. Like government funding, the Farm Bill expires on September 30, 2023, creating a critical time crunch for lawmakers, who have yet to release draft text of the legislation. House Agriculture Committee Chair GT Thompson (R-Penn.) aims for an early September markup of the House bill. That would leave just a few weeks for the Senate to pass and both chambers to conference the bill.

The Senate and House are on a collision course over the topic of SNAP (food stamp assistance), as reported recently by *Politico Morning Ag*. Senate Agriculture Chair Debbie Stabenow (D-Mich.) told *Politico*, that, from her perspective, Congress is "done" with any discussion around SNAP changes, since the debt limit agreement included some work requirement changes requested by Republicans. But Speaker Kevin McCarthy (R-CALIFORNIA), in his speech last month celebrating the House's passage of the debt bill, appeared to gear up House Republicans for a farm bill battle over SNAP work requirements. The House Appropriations Committee also approved an annual spending bill last month that would slash funding for climate change and rural energy programs at USDA next year, in the face of strong opposition from minority Democrats.

We expect Farm Bill negotiations to heat up before the expected month-long August break. Given the delays from the debt ceiling negotiations, lawmakers have yet to release the draft text of the Farm Bill legislation in both chambers. Leaders in the House and Senate, Rep. Glen "GT" Thompson (R-Penn.) and Sen. Debbie Stabenow (D-Mich.) have mentioned their desire to share draft legislation soon. Even with the progress, all signs point to a short-term extension to sometime in the early part of next year. Mark Limbaugh and his team at TFG have put together some great resources on the Farm Bill:

- Senate Agriculture Committee Spotlight on Farm Bill
- Congressional Research Service Farm Bill Primer
- US lawmakers float possible farm bill extension amid delays
- Rural Development Opportunities and the 2023 Farm Bill
- A farm bill test run

You can read TFG's full Farm Bill report here.

a. Alliance Engagement

Engaging in the development of the next 2023 Farm Bill is one of our top priorities this year for the Alliance. The Alliance in April publicly rolled out its "Six Point Plan" intended to guide the organization's advocacy efforts in Washington, D.C. Passing a 2023 Farm Bill that addresses Western agricultural challenges was a top priority. Flexibility in farm bill conservation title programs is a critical underpinning to successful implementation in the West. For example, climate mitigation should not just focus on carbon reduction and assume that planting more carbon-sequestering trees or no-till farming activities will solve the problem. We want to see 2023 Farm Bill conservation title programs that are administered efficiently and effectively, and support projects like irrigation modernization that provide multiple, stacked benefits, rather than simply focusing on climate fixes. The IRA contains massive funding for climate-smart agriculture through existing Farm Bill conservation programs.

Once again, we're working with our partners in the Western Agriculture and Conservation Alliance -the "WACC" – on the conservation title. The WACC earlier this year finalized its Farm Bill platform, which, among other things, puts priority on improving implementation of the

Watershed and Flood Prevention Operations ("PL-566") and the Regional Conservation Partnership Program, encouraging active management for grazing, and seeking to provide better and faster conservation program technical assistance and compliance. The Alliance co-founded the WACC 12 years ago in an effort to better advocate for farm bill conservation title provisions that help Western farmers and ranchers, as well as the environment. The current farm bill has a strong Western flavor in large part due to the efforts of the WACC. Hill interest in WACC Farm Bill activity remains robust, and we can now resume our plan to pursue Farm Bill advocacy based on our approved platform. We're currently working on a WACC letter for Senator Bennet in support of PL-566 legislation (see below) he intends to introduce.

b. PL-566 update

Finding ways to make the NRCS PL-566 watershed program implementation nimbler and one that prioritizes projects that generate multiple benefits (like irrigation modernization projects in the West) is one of our priorities for the 2023 farm bill. We've been working with the office of Senator Bennet (D-COLORADO) on draft legislation that will place higher priority on multi-benefit projects and also set mandatory funding levels for PL-566. There is bipartisan interest in the "multi-benefit" part of this, but fiscally conservative Republicans are leery about the mandatory spending provisions of the draft bill.

JUDICIARY

9. *Arizona v. Navajo Nation*

The Supreme Court of the United States last month ruled 5-4 against the Navajo Nation, supporting the U.S. argument that the treaty at issue does not require the federal government to take the affirmative steps that the Navajo Nation contends. The Family Alliance was part of a Western water user *amicus* brief filed in support of the federal government and Arizona in this case. In its decision, the Court specifically recognized the concerns raised in the Western Water Users *amicus* brief and cited that brief. The Court also embraced the Alliance's and water users' argument that water right claims should be made in water right adjudications. We are pleased by the Court's judgment, which eliminates another possible layer of uncertainty regarding Western water decision-making. From a practical standpoint, this decision should eliminate the possibility of a new method being established for tribes to pursue water outside of the established process of filing and pursuing claims in basin-wide adjudications, involving all affected water users and States. Alliance General Counsel Norm Semanko said this demonstrates the importance that amicus briefs can play in these kinds of cases.

ALLIANCE INITIATIVES

10. Colorado River Initiative

The Colorado River serves 40 million individuals and irrigates 5.5 million acres of farmland across

seven states. More than two decades of drought have significantly diminished flows in the 1,450-mile-long river, and drained water supplies in lakes Powell and Mead, which also provide hydropower to millions of people. The Alliance will continue to underscore the importance of protecting Western irrigated agriculture, using policy principles adopted by the board of directors in March 2022.

a. DOI Announces Long-Term Colo. River Planning Process

As previously reported, the Colorado River Lower Basin states have coalesced around a plan to voluntarily conserve a major portion of their river water in exchange for more than $1 billion in federal funds. The availability of those federal funds, as well as improved recent hydrology, helped grease the Lower Basin deal. The June 2023 forecast from the Colorado Basin River Forecast Center shows a projected inflow of 13.85 million acre-feet into Lake Powell for 2023, which is 144% of the average inflow. Now, all 7 Basin states can focus on the critically important long-term solution: advancing the process for the development of new operating guidelines replacing the 2007 Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead at the end of 2026.

The Department of the Interior last month initiated a formal process for the development of a long-term but interim operating plan for the Colorado River Basin, commencing a multiyear process that will shape the future of the river. The Bureau of Reclamation will oversee efforts to create a new operating plan for the river and its reservoirs. The agency expects to release a draft proposal for public comment late in 2024. Now, Reclamation is taking comments on what stakeholders would like to see (or not see) in a new operating plan for the system through a 60-day comment period. The *Federal Register* notice also revealed that Reclamation plans to release a web-based tool that will allow users to "explore, create, and compare potential operating strategies" for the Colorado River. The online tool is set to be released in the fall of this year.

b. Alliance Actions

Colorado River policy engagement has been a top priority for the Alliance in recent years. Our recent outreach work in Arizona and Colorado generated some interest from journalists in the weeks that followed. I authored a 7,500-word article on Colorado River agricultural water that ended up being the cover story for this month's *The Water Report*. That publication provides monthly detailed analyses from a variety of industry experts across the West who are trying to address challenging water issues. I was recently quoted in *NACSAA News*, a quarterly compilation of climate smart agriculture developments in this story: "States Reach Deal to Protect Drought-Stricken Colorado River". *Irrigation Today* magazine also interviewed me for this story: "Water agreement quells the flames of Colorado river dissension" .

Alliance President Pat O'Toole is featured in a soon-to-be-released documentary called "Green Desert", which Pat and I recently previewed. It's powerful, and Pat is prominently featured, being interviewed on the roof of the hotel before our conference in Reno last February. Earlier this

month, I talked with a producer of a feature-length documentary that is being developed on the ongoing water situation in the Western US. The producers were compelled by Pat's statements at the recent Getches-Wilkinson Center's Summer Conference in Boulder. Pat will likely be included in the final film.

11. 2023 Farmer Lobbyist Trip

As previously reported, we plan to schedule the 2023 Alliance farmer lobbyist trip for this fall in D.C. After polling those of you who are interested in traveling back to D.C. this fall, the majority of those who responded said **the week of September 25** works for them. That means September 25 (Monday) will be a travel day, we'll have two solid days of meetings on Tuesday and Wednesday, some more meetings on Thursday morning, with Thursday p.m. and Friday a.m. set aside as times to travel back West. Please mark your calendars!

ADMINISTRATIVE & MISCELLANEOUS

- Alliance President Pat O'Toole traveled to Washington last week, where he met with members of Congress, key committee staff, and Biden Administration appointees to advance some of our initiatives. Forest health, NEPA concerns, and agency capacity were all priority topics.

- I made the trip to Spokane last month, where I provided a federal affairs update to the Tri States (ID/OR/WA) water users meeting.

- I'll be traveling to Palm Springs (CALIFORNIA) later this month and making a presentation with Mike Wade (California Farm Water Coalition) at the Agricultural Media Summit, which will be attended by over 100 journalists from around the country.

This is a quick summary of just a few of the issues the Alliance has been engaged in. Please do not hesitate to contact me at dan@familyfarmalliance.org if you would like further information about what the Alliance is doing to protect water for Western irrigated agriculture.

Agenda No. 4.D.

Operations & Maintenance Report

A compilation of current FWA operations and maintenance activities throughout the 152-mile canal system.

June 2023

OPERATION & MAINTENANCE REPORT

SAFETY, EDUCATION & TRAINING

- Operations Department held tailgate safety meetings in the Lindsay yard, and outlying field office staff attended the Canal and Maintenance meeting.
- Friant staff received environmental training on endangered species completing the annual review.
- Delano, Lindsay, and Orange Cove Foremen held tailgate safety meetings discussing. safety hazards and precautions associated with employees' work assignments.
- Employees received various safety training throughout the year, such as Weed and pest labels, new laws and regulations on pesticides and applications, and Working in Extreme temperatures. Anti-Harassment training, Defensive driving, and Industrial Hazard communications.

ACCIDENTS & INJURIES

- Friant staff has worked 2410 days without a lost-time injury accident.
- Friant staff has worked 476 days without a liability accident.

MAINTENANCE SUPERVISION

GENERAL SUPERINTENDENT REPORT

SUBSIDENCE

- Staff worked with Stantec on the Water Quality monitor program.
- Staff continued working with the County of Tulare and Stantec for
- middle-reach plan reviews.
- Managed new construction projects being proposed for the upcoming FY23/24 outage.
- Staff attended MRRCP field meetings and weekly Teams meetings with USBR and JV contractors.
- Managed system leaks in the MRCCP construction zone and met with Bureau and Contractor representatives on system tie-ins.
- Participated in Southern Contractor's water operations coordination meetings.
- Weekly staff meeting with COO, Operations Supervisor, and Division Maintenance Forman.
- Worked with Friant staff to formulate FY24 OM&R budget.

PERSONNEL ITEMS

- Staff worked on several personnel items, including annual reviews, policy conformance, and other matters.
- General Superintendent conducted staff meetings with Division Forman and Operations Supervisor.

CONSTRUCTION & MAINTENANCE

FOREMEN REPORTS: DELANO, LINDSAY, & ORANGE COVE MAINTENANCE

WEED & PEST CONTROL

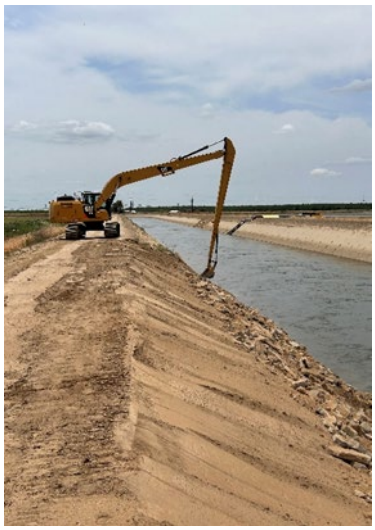
- The following is a summary of the chemical products used during the month by maintenance staff for weed and pest control on various canal sections and the product inventory on hand:

PRODUCTS	UNITS	MAINTENANCE YARD USAGE			TOTAL USAGE	END OF MONTH ON-HAND	
		Delano	Lindsay	Orange Cove			
Cleartraxx	**Gal**	0	0	0	**0**		**0**
Copper Sulfate - Old Bridge	**Lbs.**	0	9,500	0	**9,500**		**0**
Copper Sulfate - Chem One	**Lbs.**	1,850	1,050	15,800	**18,700**		**20,737**
Argos Copper	**Gal**	0	0	0	**0**		**0**
Captain XTR	**Gal**	0	0	0	**0**		**0**
Deploy	**Gal**	0	0	0	**0**		**0**
Diphacinone	**Lbs.**	0	0	93	**16**		**128**
Diuron 4L - Loveland	**Gal**	0	0	0	**0**		**0**
Diuron 4L - Drexel	**Gal**	0	0	0	**0**		**1,890**
Dimension 2EW	**Oz**	0	0	0	**10**		**0**
Weather Guard Complete	**Oz**	0	0	0	**0**		**67.00**
Finale	**Oz**	0	0	0	**0**		**0**
Milestone VM	**Oz**	0	0	0	**0**		**220**
Roundup - Custom	**Gal**	4	232.50	30	**266.50**		**604.50**
Roundup - Pro Conc	**Gal**	240	283	204	**727**		**608**
Forfeit 280	**Oz**	0	0	0	**0**		**0**
Sonar Genesis	**Gal**	0	0	0	**0**		**2.00**
Cheetah	**OZ**	0	69	4,448	**4,517**		**13,887**
Liberate Lecitech	**OZ**	0	0	0	**0**		**438**

- Delano and Lindsay's maintenance staff continued the application of Roundup Custom as part of the annual weed control program along the canal right-of-way for post-emergence control of weeds.
- Delano maintenance staff continued the application of Roundup Pro Concentrate as part of the annual weed control program.
- Lindsay's maintenance staff began the annual application of Diuron as a preemergent for spring and summer weed control.
- Lindsay and Delano's maintenance staff continued with the application of Copper Sulfate in the Canal prism to control algae in the FKC.
- Lindsay maintenance staff began the application of Roundup PRO for post-emergence control of weeds along the FKC right of way.
- Lindsay maintenance staff continued rodent control and damage repair.

CANAL & DIVERSION STRUCTURES

- Lindsay maintenance staff due to heavy rainfall and severe flooding, all drains had to be cleared repeatedly due to trash and debris.
- Lindsay maintenance staff had to repair washouts due to heavy rainfall to avoid additional erosion and potential cavitation behind the liner.




Lindsay maintenance staff back filled liner with riprap where panels had collapsed.

- Delano maintenance staff continues their structure gate maintenance for the year; Repairs Radial and Slide gates such as oil leaks, gearboxes, motor couplers, wire rope inspection, etc. Staff will Lubed all grease points and wire ropes, repair all metalwork, security fence repairs, deck cleaning, touch-up painting, Buoy ball and wire rope replacement, and debris removal.


Lindsay maintenance staff rebuilt bank at Deer Creek River for DCTRA ponds.

- Delano staff continues embankment maintenance to upper and lower Embankments and around structures such as blockhouses, turnouts, bridge abutments, utility tractors, motor graders, and earth-moving equipment. By backfilling eroded areas, compacting, and grading materials.

Embankment maintenance will prevent erosion to the inside/outside banks, roads, gate structures, and concrete liners.

- Lindsay maintenance staff made a complete inspection of Lindsay section and made repairs to guardrails and bar gates in preparation for fresh paint.
- Lindsay maintenance staff removed trash illegally dumped on several locations along FKC.
- Lindsay maintenance staff continued yearly grading of all roads and right of way.
- Delano Staff continues reverse flow pumping, Maintenance requirements, installing generators, fuel tanks, electrical lines, and debris screen.
- Delano staff added wings to bridge to eradicate the transient problem under coffee bridge.
- Delano staff assisted Lindsay crew in the transporting of concrete rip rap to the Lindsay section.

FWA Crew assisted DEID in desilting project.

O&M Roads

Lindsay maintenance staff begun annual Grading of all roads & Right of Ways.

BRIDGE

- Lindsay maintenance staff-initiated repairs on St. Johns bridge replacing deck boards and running pads.


Lindsay staff repaired Bridge.

YARD & BUILDING

- Delano, Lindsay maintenance staff continued to perform routine maintenance and repairs, yard cleaning, vehicle/equipment repairs, facility improvements, and office duties.
- Delano and Lindsay's staff continue installing Bollard guard posts to prevent vehicles and heavy equipment from damaging FWA structures.

RIGHT-OF-WAY MAINTENANCE

- Delano, Lindsay maintenance staff continued the removal of illegally dumped trash and removed debris from gate structures to the local solid waste/recycling facility.
- Delano maintenance staff continued to repair and install security fencing to prevent public access from entering the Friant-Kern Canal right-of-way and structured areas.
- Delano staff continue Painting, Bar gates, Bollard posts, guard railings, warning signs, Liner markers, structures, security fence wings, electrical panels, and block house doors.
- Lindsay maintenance staff made a complete inspection of Lindsay section and made repairs to guardrails and bar gates in preparation for fresh paint.

The following is a summary of the vehicle and heavy equipment preventive maintenance services and repairs made by the technical services staff.

DELANO, LINDSAY, & ORANGE COVE	TYPE	QUANTITY
In-House Inspections	B – Semi-annual	5
	C - Annual	5
	E - Equipment	0
	BIT - 90-Day Heavy Equipment	5
Outside Inspections	B – Semi-Annual	0
	C - Annual	0
	Smog Test	0
	Smoke Test	0
DELANO, LINDSAY, & ORANGE COVE	TYPE	QUANTITY

Lindsay staff installed new bar gate posts and supports, repaired, and made preparation for fresh paint.

	Trucks	8
	Heavy Equipment	0
	Utility Equipment	0
Outside Repairs	Light Vehicles	0
	Trucks	0
	Heavy Equipment	0

ENGINEERING ACTIVITIES

ENGINEER AND ENGINEER TECHNICIAN REPORT

June

RIGHT OF WAY

- Staff continue to work with USBR to ensure ROW boundaries are maintained.
- Staff continues to respond to developers and consultants to ensure the FKC and ROW are maintained.
- Staff continue to better organize computer files with better descriptions of documents contained within and to make finding information easier.
- Staff attended preconstruction meeting at the job site for the North Kern Water Storage District permanent discharge at MP 142.06.

OPERATIONS ACTIVITIES

OPERATIONS SUPERVISOR REPORTS

Operations Staff during the month of May delivered 219,341 acre-feet. Total water diverted year-to-date to FKC Contractors is 541,985 acre-feet.

- Reported sump pump deliveries of 11 acre-feet and a year-to-date total of 256 acre-feet.
- Reported sump pump deliveries of 17 acre-feet and year to date total of 271 acre-feet.
- Staff completed and sent out the ROWD's for the month of June.
- Staff installed new flow com meter at Ivanhoe #6
- Staff ran new communication lines at Phillips.
- Staff installed a transmitter at Garfield and International.
- Staff checked and calibrated 10 transmitters.
- Staff completed 51 differential head tests.

ELECTRICAL

- Staff completed the TID inspection for the sump pump.
- Staff installed pumps in 3 venturi wells.
- Staff installed lighting in the downstream blockhouse at Kaweah.
- Staff completed PMs at the entire northern end of the canal.
- Staff trenched and installed conduit and comm lines at Phillips.
- Staff met with the rep from SCE to discuss power options for TID.
- Staff checked the solar power at the measuring bridge.

SCADA

- Staff took water orders while the water resource tech was on vacation.
- Staff analyzed why Tipton Ditch Gate 1 is not closing.
- Staff worked with Epic IO Programmers, testing new programming for communications. This is for the communications upgrade.
- Staff checked our ADCP meter to measure flow at the Measuring Bridge, Belmont, DCTRA pit, the canal at Ave. 96, and Casa Blanca.
- Staff calibrated the EC sensor and restored communications with the EC sensor at Kern Check.
- Staff replaced the faulty loop isolator at Kern Check.
- Staff continued to make improvements in Geo Scada HMI.
- Staff assisted Instrument Tech with testing meters.
- Staff took water orders while the water resource tech was on leave.

AGENDA REPORT NO. 4.E.

DATE: Jul7 27, 2023

TO: Board of Directors

FROM: Austin Ewell

SUBJECT: Water Blueprint for the SJV

SUMMARY:

The Water Blueprint for the San Joaquin Valley (Blueprint) is a non-profit group of stakeholders, working to better understand our shared goals for water solutions that support environmental stewardship with the needs of communities and industries throughout the San Joaquin Valley.

Blueprint's strategic priorities for 2022-2025: Advocacy, Groundwater Quality and Disadvantaged Communities, Land Use Changes & Environmental Planning, Outreach & Communications, SGMA Implementation, Water Supply Goals, Governance, Operations & Finance.

Mission Statement: *"Unifying the San Joaquin Valley's voice to advance an accessible, reliable solution for a balanced water future for all."*

Committees:

Executive/Budget/Personnel: Board approved an additional $100,000 increment for Hallmark consistent with the contract and scope. The annual invoicing including newly established categories for GSA's coinciding with irrigable acres will be sent be the end of the month, along with an annual summary of accomplishments and future goals. Board has approved the evaluation criteria for specific priorities/efforts to help bridge the water deficit in the San Joaquin Valley. The projects/efforts selected will be identified for valley wide support. With the finalized criteria and selection of projects/efforts the Blueprint will meet again with Advisor Villaraigosa to highlight alignment with the Governor's water resiliency plan.

Advocacy/Communications: Blueprint has reorganized its work groups and committees to better drive results. The Advocacy committee is specifically focused on Blueprint priorities established through the Evaluation Criteria and the possible upcoming water bond. The Blueprint signed on to a CA Water Bond coalition letter with Southern California and the Bay Area. The Board has provided direction to coordinate efforts with the Collaborative Action Plan where alignment exists.

Water Blueprint SJV & CWI – Unified Water Plan

The Blueprint and California Water Institute have kicked off the joint development of a Unified Water Plan for the San Joaquin Valley as called for in the recently awarded Bureau of Reclamation grant. Both Stantec and The Hallmark Group will be engaged on the development of the plan. The final water plan will include measures to address San Joaquin Valley needs and potential portfolios to address needs and objectives, this report will ultimately be transmitted to Congress by Reclamation in 2025.

Drinking Water Feasibility Study – CSU Fresno State, FWA, Self-Help, Sustainable Conservation

Fresno State is finalizing the scope of work and budget for subcontractors. They expect to have a project timeline ready by July. As a reminder the partners for the feasibility study have initially identified potential Fresno County districts/areas generally for recharge projects. Initial modeling for Fresno State/California Water Institute has preliminarily identified FID, Consolidated ID, Raisin City WD and North Fork Kings GSA for strong multi benefit recharge potential. The group is focused on multi-benefits for recharge with a focus on drinking water with measurable results.

SJV Water Collaborative Action Program (SJVWCAP):

Phase II, Work Groups are meeting and discussing priorities and drafting for their respective areas, Safe Drinking Water; Sustainable Water Supplies; Ecosystem Health; Land Use, Demand Reduction, Land Repurposing; Implementation.

RECOMMENDED ACTION:

There is no recommended action at this time. The Board gave initial direction to pursue this collective effort and report back on its status.

The purpose of this document is to identify criteria by which projects proposed by the Water Blueprint for the San Joaquin Valley ("Blueprint") will be evaluated. Use of the word "project" is not intended to limit the application of these criteria to actions that involve physical improvements to or construction of facilities. Rather, it is intended to include any action, including advocacy, the Blueprint may decide to undertake to achieve its water supply objectives to **increase average annual supply by 2 million acre-feet** over the baseline. It is also important to note that any project the Blueprint undertakes must provide measurable benefits.

Using these criteria, each proposed alternative will be scored to select the projects the Blueprint will pursue. It should be noted that many of these criteria are subjective, and not every criterion is entitled to equal weight. The paramount question is whether a project is feasible, and the Blueprint reasonably could decide some criterion, for example yield of the project, is entitled to greater weight than other criteria, for example time to benefit. The principal purpose of subjecting alternative projects to this scoring process is to facilitate better informed, more deliberate decision making.

BLUEPRINT SCORING CRITERIA DEFINITIONS	
Term	Definition
Feasible	1. Is it capable of being accomplished in a successful manner and within a reasonable period of time taking into account economic, environmental, legal, and technological factors? 2. Impact to other water user's supply and can't be mitigated. 3. Dependent / Reliant on another project.
Yield	How much water is the project capable of delivering on an annual basis over its expected useful life?
Cost per Acre Foot Storage Projects Sources of Funding	Cost basis per acre foot (cost/af) + cost of financing. In addition to cost/af of water delivered, what is the per acre foot cost of capacity? Are grants or WIFIA loans available to reduce cost?
Time to Benefit	How long will it take for the project to produce water?
Scale of Geographic Region Benefit	Number of basins benefitting
Source of Water to be Developed	Will the project produce "new" water supply or will it shift the use of water supply that currently meets an existing demand?
Potential to Benefit Multiple Interests	e.g. Irrigation, Municipal and Industries, Fish and Wildlife, Vulnuerable Communities

Project:

Action:

Description:

Comments:

	Criteria	Max Points Per Criterion	Score	Points	
1	**Feasible**		YES	YES	
2	**Yield**	25	>150 TAF	25	
3	**Cost per AF**	25	<$300 / AF	25	
4	**Scale of Geographic Region Benefit**	20	>10	20	
5	**Time to Benefit**	10	< 2 yrs	10	
6	**Source of Water to be Developed**	10	NEW	10	
7	**Potential to Benefit Multiple Interests**	10	YES	10	
8	**Opposition to Project**	10	NONE	10	
9	**Supports DAC/SDAC**	10	YES	10	
10	**Further State Policy**	5	YES	5	
	Max PTS	**125**			125 **Total Points**

BLUEPRINT REVISED SCORING CRITERIA

Max Points	Criteria	Score	Points	Additional Considerations/Data
	Feasible		YES NO	
25	Yield	>150 TAF 100 - 149 TAF 50 - 99 TAF 20 - 49 TAF <20 TAF	25 20 15 10 5	
25	Cost per AF	<$300 / AF $301 - $400 / AF $401 - $500 /AF $501 - $600 /AF $600 - $1,000 /AF >$1,000 /AF	25 20 15 10 5 0	
20	Scale of Geographic Region Benefit (Multiple Subbasins)	>10 7 -9 4 -6 1 -3	20 15 10 5	
10	Time to Benefit	< 2 yrs 3 - 7 yrs 8 - 11 yrs 12 - 15 yrs 16 - 19 yrs > 20 yrs	10 8 6 4 2 0	
10	Source of Water to be Developed	NEW EXISTING	10 0	
10	Potential to Benefit Multiple Interests	YES NO	10 5	
10	Opposition to Project	NONE MODERATE SIGNIFICANT	10 5 0	
10	Supports DAC/SDAC	YES NO	10 0	
5	Furthers State Policy (e.g. Reliance on Delta)	YES NO	5 0	
125	Total Points			

Project: Restoration of California Aqueduct Conveyance Capacity

Action: Raise canal liners to restore conveyance capacity

Description: San Luis Canal: $290 million to restore partial capacity; possibly more than $2 billion for full restoration.

Comments: The conveyance capacity of these canals, which are used to serve 31 million Californians and 3.5 million acres of the world's most productive farmland, has diminished over several decades due to land subsidence. Restored conveyance capacity will serve multiple purposes, including capitalizing on big storms when they do occur, more effectively utilizing existing and new surface and groundwater storage projects, and recharging groundwater basins on which numerous disadvantaged communities rely.

	Criteria	Max Points (125)	Score	Points			Notes:
1	Feasible		YES	YES			
2	Yield	25	20 - 49 TAF	10			
3	Cost per AF	25	>$1,000 /AF	0			
4	Scale of Geographic Region Benefit	20	>10	20			
5	Time to Benefit	10	12 - 15 yrs	4			
6	Source of Water to be Developed	10	NEW	10			
7	Potential to Benefit Multiple Interests	10	YES	10			
8	Opposition to Project	10	MODERATE	5			
9	Supports DAC/SDAC	10	YES	10			66% reimb
10	Further State Policy	5	YES	5	74	Total Points	

July 19, 2023

Honorable Gavin Newsom
Governor, State of California
1021 O Street, Suite 9000
Sacramento, CA 95814

Honorable Toni Atkins, President pro Tempore
California State Senate
1021 O Street, Suite 8518
Sacramento, CA 95814

Honorable Robert Rivas, Speaker
California State Assembly
1021 O Street, Suite 8330
Sacramento, CA 95814

Honorable Ben Allen
California State Senate
1021 O Street, Suite 6610
Sacramento, CA 95814

Honorable Susan Eggman
California State Senate
1021 O Street, Suite 8530
Sacramento, CA 95814

Honorable Eduardo Garcia
California State Assembly
1021 O Street, Suite 8120
Sacramento, CA 95814

Honorable Carlos Villapudua
California State Assembly
1021 O Street, Suite 6340
Sacramento, CA 95814

SUBJECT: Resources and Climate Resilience Bond Priorities

Dear Governor Newsom, President Pro Tempore Atkins, Speaker Rivas, Senators Allen and Eggman, and Assemblymembers Garcia and Villapudua:

The increasing volatility of climate change across California and the Colorado River basin is a warning that the state must act swiftly to protect its residents and businesses from the cyclical threat of droughts and floods. To strengthen California's resilience to these climate-related challenges, the below signed entities from across the state respectfully request inclusion of $9.5 billion in water infrastructure investments in any resources and climate resilience bond package that takes shape for the 2024 ballot.

California's overwhelming dependence on rain and snow-based water systems places the state's residents, businesses, and ecosystems at heightened risk of catastrophic disruption. Similarly, the state's overwhelming dependence on outdated infrastructure to transport and store water continues to ignore the near-term needs for climate adaptation. The only way to avoid a calamitous water shortage – or catastrophic flooding events – and subsequent environmental and economic degradation is to improve the adaptive management capacity of our current water system, increase water efficiency, conservation, and storage in the state, and to increase the availability of drought-resilient water resources.

California's water infrastructure needs cannot be met by ratepayers alone. Necessary maintenance and repair of legacy water systems and rising costs to purchase, treat, and distribute water have, in recent years, increased the cost of water across California. Between 2010 and 2018, water rates in San Diego increased 60 percent, rates in Los Angeles increased 87 percent, in San Jose 93 percent, and in San Francisco 141 percent. The rising costs have left more Californians struggling to keep up. As a resources and climate resilience bond package takes shape, it is imperative that there is robust water-related infrastructure investment to ensure California can continue to strengthen its resilience to drought and floods.

Additionally, we believe it is imperative that water resilience investments be guided by a lens that recognizes the needs of our state's disadvantaged communities and populations, and that investments be tailored to improve equity and access to resources for communities of color and seek to improve and mitigate the growing affordability gap for millions of Californians.

We respectfully ask for consideration of the following priorities in the development and shaping of a resources and climate resilience bond package for the 2024 ballot:

Investments in Recycled Water Projects: $1.8 Billion

California's economy is overly reliant on water from annual precipitation, which is becoming increasingly erratic due to climate change. Today, less than 5% of California's water supply is manufactured from drought-resilient sources like recycled water. Other similarly arid regions around the world, such as Australia and Israel, recycle between 30% and 90%. To strengthen California's drought resilience, the State Water Resources Control Board's goal is to increase recycled water from 714,000 acre-feet per year in 2015 to 2.5 million by 2030. However, the Board's Water Recycling Funding Program has a huge backlog of shovel-ready recycled water projects. Substantial state

investment is urgently needed to strengthen drought resilience while limiting ratepayer impacts. We request your consideration of a recycled water package that includes funding for small- and medium-scale water recycling projects ($1 billion), and specifically-identified funding for large-scale regional recycling projects ($800 million).

While there is a tremendous need for funding assistance for recycled water and potable reuse projects throughout the state, ensuring a dedicated allocation of funding for large-scale regional recycling projects is an important consideration.

Large-scale regional water recycling projects can scale the transition to a drought-resilient future at a lower per-unit cost. Within the Southern California region, the Metropolitan Water District of Southern California is partnering with the Los Angeles County Sanitation Districts in planning to construct a Regional Recycled Water Program that will purify treated wastewater to replenish groundwater basins, supply businesses, and augment Metropolitan's treated supply for Southern California. This new project would provide needed water quality and supply benefits for many underserved communities in Southern California and, at full-scale, could produce enough water to serve 500,000 households. In addition, the City of Los Angeles' Groundwater Replenishment Program is one of the largest recycled water projects in the state, and is expected to produce more than 21,000 acre-feet of water per year – enough drinking water for 250,000 residents. A substantial state investment to support the design and construction of these projects would help to accelerate their advancement. In the Bay Area, the Santa Clara Valley Water District is partnering with local municipalities in planning a state of the art advanced wastewater purification facility, the Purified Water Project, that will be used to replenish Silicon Valley's high priority groundwater basin that is stressed by extended droughts due to climate change and the resulting large reductions in available imported water. A substantial state investment would help support the cost of the Purified Water Project that will provide drinking water and help prevent subsidence in this region of critical economic importance.

Investments in Regional Water Resilience: $2.25 Billion

State assistance is needed to help local water managers meet the "Conservation as a Way of Life" objectives without disproportionately impacting under-resourced customers and exacerbating water affordability challenges. Investments in conservation, efficiency, interconnectivity, conjunctive use, groundwater storage, and additional local water supply development, including stormwater management and ocean and brackish water desalination, will also help advance the "All of the Above" concept of providing necessary tools and mechanisms for water managers to protect their communities and economies from future drought.

Throughout Southern and Central California alone, there are more than $20 billion in shovel-ready infrastructure projects that have been identified by water suppliers. In the San Joaquin Valley, the Water Blueprint for the San Joaquin Valley is developing a solution to improve the regional resilience of the San Joaquin Valley and address the imbalance between water supply and demand, which will only grow in the future without significant action. This solution involves a combination of improved utilization of local San Joaquin Valley water supplies, increased reliability of surplus Delta water when

available, and demand reduction through land repurposing and agricultural efficiency improvements and conservation.

We request your consideration of a regional water resilience package that includes funding in the following categories:

- Groundwater storage: $250 million
- Water use efficiency: $500 million (split 50/50 for urban and agricultural WUE)
- Desalination: $500 million
- Stormwater capture and management: $500 million
- Regional and interregional conveyance: $500 million

Investments in Dam Safety and Reservoir Operations: $850 Million

According to DWR's Division of Safety of Dams, 102 California dams are rated less-than-satisfactory. Of those, 84 dams have hazard classifications of significant or above, indicating risk to life or property should the dams fail. However, dam repair and rehabilitation are not an eligible use of State Revolving Funds or Proposition 1 dollars. Eligible grant projects should include, but not be limited to: dam safety projects at high hazard dams; new spillways and repairs at existing dams to facilitate implementation of Forecast Informed Reservoir Operations; and reservoir seismic retrofit projects.

Investments in Surface Water Storage Inflation Adjustments: $500 Million

Nearly a decade has passed since California voters approved $2.7 billion to support the Water Storage Investment Program as part of Proposition 1. However, due to inflation, the Proposition 1 grant awards no longer cover the full value of the public benefits these projects provide. An adjustment to the grant awards is needed to cover public benefits as originally intended by Proposition 1.

Investments in State Water Project Public Benefits: $1.5 Billion

As California strives to boost the resilience of its water supply in the face of climate change impacts, we must adapt existing infrastructure to capture and convey as much water as possible during less frequent, more intense weather patterns. Investment in the State Water Project system advances a number of important water- and climate-resilience public benefits for California. Investments are necessary to improve existing SWP infrastructure and system operations to facilitate water supply storage and delivery capability improvements, including:

- Supporting SWP and Central Valley Project (CVP) conveyance canal subsidence repair costs

- Developing new system or off-aqueduct surface or ground water storage capacity to improve operations and efficiencies of the SWP and to facilitate the timing of storm and wet-weather flow capture for the benefit of water resilience improvements, groundwater recharge, and innovative arrangements to assist in the provision of safe drinking water for disadvantaged communities, environmental water, or other public benefits

- Improve and facilitate recreational opportunities at SWP facilities that provide public recreation.

Additionally, capital investments in the SWP are necessary to facilitate achievement of the state's goals for the SWP's energy use to be 100 percent renewable or zero-carbon emission resources, and to provide for operational efficiencies of the SWP's operations to provide statewide electricity grid reliability benefits.

Investments in Clean Water and Contaminant Prevention: $500 Million

An estimated 7.5 million Californians rely on drinking water contaminated by Per-and Polyfluoroalkyl Substances (PFAS), a grouping of more than 4,500 chemicals that resist heat, oils, and water. Current scientific research suggests that exposure to high levels of certain PFAS may lead to adverse health outcomes. In 2019, the State Water Board developed a phased investigation action plan requiring testing of drinking water systems and site investigations at high-risk locations for PFAS. Regional water agencies and water suppliers need state assistance to identify and remove PFAS and other contaminants of emerging concern and to provide drinking water to small systems across the state.

Investments in Urban Flood Resilience: $1 Billion

Over the past two decades, state bond measures have provided significant flood protection funding to the Central Valley through the Urban Flood Risk Reduction Program and then allocated much smaller sums for statewide purposes. While we recognize the unique challenges in the Central Valley, the result is a decades-long underfunding of flood protection for cities in other areas of the state where most Californians live and work. The state can no longer ignore the intensifying storms and increased runoff that threaten life, property, and key components of the California economy located in our coastal watersheds, which are all likely to become more severe under climate change conditions. Every region of the state is impacted by changing hydrologic conditions due to climate change.

Of the funding in this section, we recommend $300 million for the State Flood Subvention Program, which reimburses local agencies for the state's cost share in high-risk flood zones for projects authorized and approved by the U.S. Army Corps of Engineers. The voters have not approved bond funding for this program since Proposition 84 and 1E in 2006. With much of the remaining funding barely covering the existing state's cost share, the program is projected to run out of funds soon.

Investments in Coastal Resilience: $1 Billion

The Ocean Protection Council estimates sea levels will likely (67% probability) increase by over one foot by 2050. The San Francisco Bay Area, which comprises about half of California's total shoreline, is particularly vulnerable given its low, highly developed shoreline. An upcoming report from the Metropolitan Transportation Commission estimates the region could need as much as $110 billion in flood protection infrastructure improvements by 2050 to avoid catastrophic damages from a 100-year storm event under a severe sea level rise scenario. Nature-based, multi-benefit solutions should be implemented wherever possible, yet some shoreline resilience projects will require grey or grey-ish infrastructure solutions. Of the funding allocated in this section, we recommend $500 million be earmarked for the San Francisco Bay Area broken into the following buckets: $250 million for the State Coastal Conservancy for restoration

projects consistent with the San Francisco Bay Restoration Authority, and $250 million for the Department of Water Resources Coastal Watershed Program for flood protection projects in the San Francisco Bay that may not be eligible for either Coastal Conservancy or SFBRA support.

Investments in Multi-Benefit Land Repurposing: $100 Million

Implementation of California's Sustainable Groundwater Management Act in critically overdrafted groundwater basins in the San Joaquin Valley is anticipated to result in the loss of a minimum of 500,000 acres of productive farmland. This funding would increase regional capacity to repurpose irrigated agricultural land to reduce reliance on groundwater while providing community health, economic well-being, water supply, habitat, renewable energy, and climate benefit.

Thank you for your leadership and considering our views. We look forward to actively engaging in the process of shaping and finalizing a resources and climate resilience bond package for the 2024 ballot.

Sincerely,

Charles Wilson, Executive Director
Southern California Water Coalition

Jim Wunderman, President & CEO
Bay Area Council

Austin Ewell, Voluntary Executive Director
Water Blueprint for the San Joaquin Valley

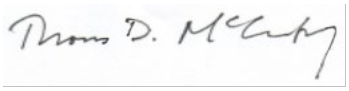
Jon Switalski, Executive Director
Rebuild SoCal Partnership

Matthew Stone, General Manager
Santa Clarita Valley Water Agency

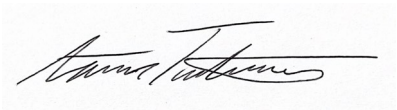
Adel Hagekhalil, General Manager
Metropolitan Water District of Southern California

Adnan Anabtawi, General Manager
Mojave Water Agency

Heather Dyer, Chief Executive Officer
San Bernardino Valley Municipal Water District



Thomas McCarthy, General Manager
Kern County Water Agency



Aaron Tartakovsky, Founder & CEO
Epic Cleantec

Melanie Richardson, P.E.
Santa Clara Valley Water District

Cynthia Murray, President & CEO
North Bay Leadership Council

Rachel Murphy, General Manager
Contra Costa Water District

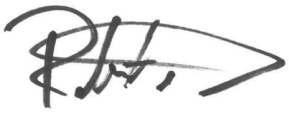
Mark Northcross, Principal
NHA Advisors

Richard Lambros, Executive Director
Secure Water Alliance

Mike Roos, President
Southern California Leadership Council

Anselmo G. Collins, Sr. Assistant GM
Los Angeles Dept. of Water & Power

Jack Monger, CEO
Industrial Environmental Association



Robert Sausedo, President/CEO
Community Build, Inc.

Maria S. Salinas, President & CEO
LA Area Chamber of Commerce

Martin Ludlow

Martin Ludlow, President
Groundswell

cc:

Senator Dave Min, Chair – Senate Natural Resources and Water Committee
Senator Anna Caballero, Chair – Senate Governance and Finance Committee
Assemblymember Rebecca Bauer-Kahan, Chair – Assm. Water, Parks, and Wildlife Ctte.
Assemblymember Luz Rivas, Chair – Assembly Natural Resources Committee
California Natural Resources Secretary Wade Crowfoot
Department of Water Resources Director Karla Nemeth
SWRCB Chair Joaquin Esquivel

Water Blueprint
for the San Joaquin Valley

July 19, 2023

RE: 2023 Membership and Accomplishments

The Water Blueprint for the San Joaquin Valley (Blueprint) is a broad coalition of stakeholders that is working to solve one of the San Joaquin Valley's greatest challenges. California regulations, water policy, and dwindling water supplies create the need for a thoughtful dialog among diverse interest groups to develop and advance a pragmatic set of solutions.

Strategically aligned with the Governor's water resilience portfolio, the Blueprint strives for a comprehensive, balanced, and diversified approach to meet all of the Central Valley's water needs, while simultaneously protecting and enhancing natural ecosystems. By establishing crucial connections to improve water conveyance, our efforts are grounded in a resilient framework that can adapt to the challenges posed by climate change and extreme hydrologic cycles. At the core of the Blueprint plan lies a simple yet powerful objective: to more effectively manage water resources to serve multiple purposes. A key element of the plan is diverting a portion of the surplus wet-year water into groundwater storage, ensuring its availability for use during dry years. This objective has been our driving force from the inception of our initiative, and it continues to guide the projects/efforts we wholeheartedly support. Over the past year the Blueprint has accomplished the following:

Reclamation Funding for Valley Water Plan

The Water Blueprint secured one million dollars in funding from the Bureau of Reclamation for the implementation of the Valley Water Plan. This funding played a crucial role in supporting the initiatives and projects outlined in the Plan, such as infrastructure development, conservation efforts, and sustainable water management practices.

Hundreds of Participants Attend Blueprint Meetings with Elected Officials & Policy Makers

The Water Blueprint fostered strong collaboration among various elected officials, local governments, including cities and counties, farmers, public water agencies, environmental organizations, and other interest groups. Through regular meetings, workshops, and forums, the initiative promoted dialogue and cooperation, resulting in better decision-making processes for sustainable water management.

info@waterbluprintca.com
www.waterblueprintca.com

These meetings also provided a platform for open discussions, information sharing, and collaboration, allowing policymakers to stay informed about the progress of the initiative and provide valuable input.

Engagement and Planning with Governor's Infrastructure Czar

The Water Blueprint established a productive engagement with Antonio Villaraigosa, the Infrastructure Advisor to the State of California, who will play a prominent role in water management and policy decisions. Through regular consultations and discussions, the initiative benefited from his expertise and guidance, ensuring that the strategies and actions taken aligned with best practices and innovative approaches.

Contracting with the Hallmark Group for Consulting Services

The Water Blueprint has contracted with the Hallmark Group, a renowned consulting firm, to provide expert services and guidance with the goal of achieving the Blueprint's water supply objectives. Their expertise in water management, policy analysis, and strategic planning enhanced the effectiveness of Blueprint initiatives and contributed to the development of actionable and impactful recommendations.

Development Toward 2-million acre-feet of Additional Water Supply for the Valley

In February 2020, David Sunding, Ph.D., and David Roland-Holst, Ph.D., released an economic analysis of current and anticipated water supply restrictions affecting the San Joaquin Valley that was prepared on behalf of the Blueprint. The report concluded that without actions to improve water supply, up to one million acres may be fallowed in the San Joaquin Valley over a period of two to three decades. Based on this analysis the Blueprint has set an ambitious goal to create an additional 2-million acre-feet of water supply for the Valley. In furtherance of that goal, we developed an inventory of projects the implementation of which will contribute to meeting existing and future demands for water in the Valley. To make the most efficient use of resources, the Blueprint developed criteria to evaluate projects, rank, and subsequently prioritize projects that provide the greatest benefits in the shortest amount of time at a reasonable cost per acre-foot. Those with the highest score will be fully supported by the Blueprint on the path toward implementation.

Development of Project Ranking Tool

These ranking criteria were developed with the input of numerous experts, from a wide range of water agencies and groundwater sustainability agencies, engineers, water project operators, disadvantaged communities, housing experts, and environmental scientists. This tool will be made available for use by the public to evaluate water projects that may contribute to the Blueprint water supply goal.

Early projects that have been identified include improving groundwater recharge, increasing off stream surface storage, and constructing new or expanding existing regional water conveyance facilities. The Blueprint also believes that creating a resilient Valley water supply demands efficient operations of the State and Federal Water projects. New biological opinions issued for operations of these projects in 2019 restored operational flexibility, including the elimination of an April – May inflow export ratio and

modification of actions to avoid entrainment of listed species in the Delta. The 2019 biological opinions increased the average south-of-Delta delivery capability by more than 350,000 acre-feet, compared to operations under the 2008 and 2009 biological opinions. The Blueprint will work diligently to support efforts to maintain these operational improvements and to identify and pursue other common-sense changes in operations.

Your contribution will enable the Blueprint to develop implementation plans for these projects to move them from concept to completion. Our two-year objective is to increase water supply to the Valley by 350,000 acre-feet.

As we reflect upon these accomplishments, we remain resolute in our commitment to further advance the Water Blueprint for the San Joaquin Valley. With unwavering determination, we will continue to advocate for sustainable water management practices, champion effective policies, and foster collaborations that promote the well-being of our farms, communities, and ecosystems.
We are grateful for your support and engagement in our shared mission. Together, we can ensure a prosperous and sustainable future for the San Joaquin Valley.

Please feel free to visit the Water Blueprint for the San Joaquin Valleys' website at waterblueprintca.com. If you have any questions, please reach out to Austin Ewell at austin@ewellgroup.com or (559) 437-1990.

Sincerely,

Austin Ewell, Executive Director
Water Blueprint for the San Joaquin Valley

Infrastructure Bond Framework

- **$1.8 billion for investments in recycled water projects**
  - The Governor's Water Supply Strategy outlines incremental recycled water production goals of:
    - 800,000 acre-feet of new recycled water production by 2030
    - 1.8 MAF of new recycled water production by 2040
  - The SWRCB's Water Recycling Funding Program has a substantial backlog of shovel-ready recycled water projects right now
  - Proposed breakdown of funding allocation
    - $1B – small- and medium-scale water recycling projects
    - $800M – large-scale regional water recycling projects
- **$2.25 billion for investments in regional water resilience**
  - Groundwater storage: $250M
  - Water use efficiency: $500M (split 50/50 for urban and agricultural WUE)
  - Desalination: $500M
  - Stormwater capture and management: $500M
  - Regional and interregional conveyance: $500M
- **$850 million for investments in dam safety and reservoir operations**
  - More than 80 dams throughout California have hazard classifications of significant or above, indicating risk to life or property should the dams fail
  - Eligible grant projects should include (but not be limited to):
    - Dam safety projects at high hazard dams
    - New spillways and repairs at existing dams to facilitate FIRO
    - Reservoir seismic retrofit projects
- **$500 million for surface water storage inflation adjustments**
  - Due to inflation, Proposition 1 grant awards do not fully cover the value of the public benefits that the projects provide – an adjustment to the grant awards is needed to cover public benefits as originally intended by Proposition 1

- **$1.5 billion for investments in State Water Project public benefits**
  - $750M for improvements to existing SWP infrastructure and system operations to facilitate water storage and delivery capability improvements
    - SWP and CVP conveyance canal subsidence repairs
    - Develop new system or off-aqueduct storage capacity to improve operations and efficiencies
    - Improve and facilitate recreational opportunities at SWP facilities

  - $750M for capital investments to facilitate achievement of the State's goals for the SWP's energy use to be 100% renewable or zero-carbon emission resources, and to provide for operational efficiencies of the SWP's operations to provide statewide electricity grid responsiveness and reliability benefits

- **$500 million for investments in clean water and contaminant prevention**
  - Regional water agencies and water suppliers need funding assistance to identify and remove PFAS and other contaminants of emerging concern and to provide drinking water to small systems across the state

- **$1 billion for investments in urban flood resilience**
  - Past bond measures have provided significant flood protection funding to the Central Valley through the Urban Flood Risk Reduction Program and then allocated much smaller sums for statewide purposes
    - This has resulted in under-funding of flood protection for cities and other areas of the state where most Californians live and work

  - Of the total proposed allocation, $300M should be allocated to the State Flood Subvention Program, which reimburses local agencies for the state's cost-share in high-risk flood zones for projects authorized and approved by the U.S. Army Corps of Engineers

- **$1 billion for investments in coastal resilience**
  - The Ocean Protection Council estimates sea levels will likely increase by over one foot by 2050, leaving California's developed shoreline particularly vulnerable

- **$100 million for investments in multi-benefit land repurposing**
  - Funding in this area would increase capacity to repurpose agricultural land to reduce reliance on groundwater while providing community health, economic well-being, water supply, habitat, renewable energy, and climate benefits

Total Infrastructure Bond Framework: $9.5 B

AGENDA REPORT NO. 4.F.

DATE: July 27, 2023

TO: Board of Directors

FROM Wilson Orvis, Chief Financial Officer

SUBJECT: San Luis & Delta Mendota Water Authority Update

SUMMARY:

Friant Water Authority staff engaged with San Luis & Delta-Mendota Water Authority (SLDMWA) via the Finance and Administration Committee (FAC) meeting on July 10, 2023 and the Board of Directors' (BOD) Meeting on July 13, 2023 as well as additional meetings throughout the month.

There were two items associated with SLDMWA over the last month that pertain to FWA operations: (1) San Joaquin River Releases to Mendota Pool and (2) Future Adjustment of Water Year (WY) 2023 OM&R Rates.

San Joaquin River Releases to Mendota Pool:

- From April through July of 2022, due to a temporary interruption of service of sufficient quantities of substitute water to be conveyed through project facilities operated and maintained by SLDMWA, Reclamation released flows that bypassed Friant Dam down the San Joaquin River to the Mendota Pool to meet Exchange Contractor demand.
- FWA and SLDMWA are continuing to have discussions regarding how these releases are to be treated under the Memorandum of Understanding between FWA and SLDMWA.

Future Adjustment of WY 23 OM&R Rates:

- At the July FAC meeting, SLDMWA staff indicated that they had requested updated surveys from each SLDMWA contractor regarding their anticipated monthly deliveries. With the results of these surveys, staff are working on updated OM&R rates for WY 2023 to account for the allocation increase from 80% to 100% that was issued earlier in the year. It is anticipated that a rate adjustment recommendation will be brought to the FAC and Board in early August.

Attachment(s):

- None this month.

Friant WATER AUTHORITY

Notes