RECLAMATION
Managing Water in the West

Final Environmental Assessment

Five-Year Warren Act for Westlands Water District

CGB-EA-2020-032

Estimated Lead Agency Total Costs Associated with Developing and Producing this EA
$10,000

— BUREAU OF —
RECLAMATION

Interior Region 10 California-Great Basin
California*, Nevada*, Oregon*
*Partial
South-Central California Area Office

October 2020

Mission Statements

The mission of the Department of the Interior is to conserve and manage the Nation's natural resources and cultural heritage for the benefit and enjoyment of the American people, provide scientific and other information about natural resources and natural hazards to address societal challenges and create opportunities for the American people, and honor the Nation's trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities to help them prosper.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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Section 1 Introduction

The Bureau of Reclamation (Reclamation) provided the public with an opportunity to comment on the Draft Environmental Assessment (EA) between July 22, 2020 and August 20, 2020. Two comments were received. The comment letters are included in Appendix A. Changes between this Final EA and the Draft EA, which are not minor editorial changes, are indicated by vertical lines in the left margin of this document.

1.1. Background

Unprecedented water management challenges due to severe drought were experienced within California over the last decade. As a result, South-of-Delta Central Valley Project (CVP) contractors, such as Westlands Water District (Westlands), needed to make the most and best use of the limited available water supplies. In order to better manage their limited water supply, Westlands proposed the Westlands Groundwater Pumping and Conveyance Project. As part of this project, Westlands requested a Warren Act contract to convey groundwater (hereafter referred to as non-CVP water) in the San Luis Canal for delivery to its in-district agricultural users located in Fresno and Kings Counties (Figure 1). Westlands also requested the flexibility to perform operational exchanges of their available CVP supplies within San Luis Reservoir for storage of the non-CVP water within the reservoir and/or for delivery to their agricultural users located upstream of the points of introduction.

The Bureau of Reclamation (Reclamation) reviewed the proposed Warren Act contract and operational exchanges for a 5-year term in EA-15-001. A Finding of No Significant Impact (FONSI) was signed June 5, 2015. The proposed Westlands Groundwater Pumping and Conveyance Project would allow for Westlands to introduce up to 30,000 acre-feet (AF) per year of non-CVP water supplies into the San Luis Canal in years in which Westlands' CVP allocation were 20 percent or less for direct delivery to agricultural users located throughout the district or exchanged for delivery upstream or as storage within San Luis Reservoir. The EA analyzed impacts to water resources (including surface water, groundwater, and land subsidence), land use, biological resources, and environmental justice, as well as those potential cumulative impacts to these resources. The EA/FONSI are hereby incorporated by reference.

Westlands has requested a new Warren Act contract to allow the continued annual introduction, conveyance, and storage of up to 30,000 AF of pumped groundwater into federal facilities through 2025. The source of the water would be the same groundwater wells located throughout the district under the previous program, as well as several proposed additions.

1.2. Need for the Proposed Action

Reclamation needs to assess the potential impacts of approving the proposed Warren Act contract for conveyance of pumped groundwater in order to maximize the water supplies

available to Westlands in fluctuating hydrologic conditions. Westlands may not have adequate water supplies to meet the needs of their customers during years with lower CVP allocations. The purpose of the Proposed Action is to provide a conveyance mechanism to deliver supplemental supplies to support existing crops within the districts.

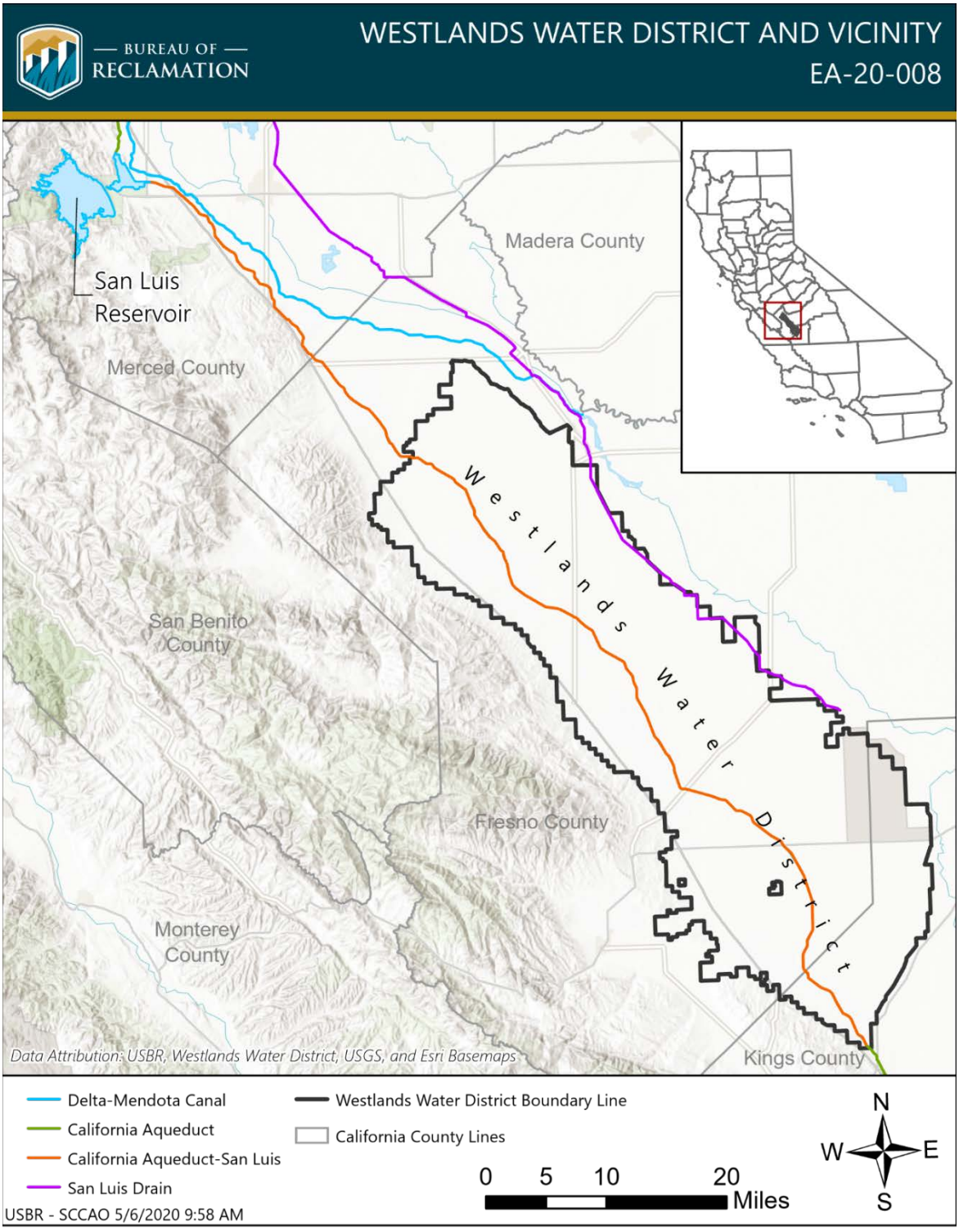

Figure 1. Proposed Action Area

Section 2 Alternatives Including the Proposed Action

This EA considers two possible actions: the No Action Alternative and the Proposed Action. The No Action Alternative reflects future conditions without the Proposed Action and serves as a basis of comparison for determining potential effects to the human environment.

2.1. No Action Alternative

Under the No Action Alternative, Reclamation would not issue a Warren Act contract to Westlands for the introduction, conveyance, and storage of their non-CVP water into federal facilities. As Westlands has an active groundwater pumping program, groundwater would still be pumped out of the aquifer as it has in the past. However, distribution of the non-CVP water would be limited to only those areas that could normally receive the water and would not enable Westlands to provide water supplies to other areas in-district.

Additional constraints under California's Sustainable Groundwater Management Act (SGMA) and the Westside Subbasin Groundwater Sustainability Plan (GSP) that applies to Westlands may limit the amount of groundwater pumping available, reducing Westlands' ability to ensure that water supplies are made available when they are most needed. For dry years with low CVP water allocations, if no other source or conveyance/storage mechanism were found, fallowing of cropland could be necessary, or permanent crops could possibly be lost.

2.2. Proposed Action

Reclamation proposes to enter into a 5-year Warren Act contract with Westlands. Under the terms of the contract, Westlands would introduce up to 30,000 AF per year of non-CVP water into the San Luis Canal in years in which Westlands' CVP allocation is 20 percent or less under the conditions outlined in Section 2.2.2 of this EA and in Appendix A. The period of introduction would be between April 1 and August 31 of a given year. However, as it was not possible to begin conveyance by April 1, 2020, the conveyance period for this year would be shifted by four months, to between October 5 and December 31. All subsequent years would use the April 1 to August 31 window.

2.2.1. Source of Non-CVP Water

The source of the non-CVP water would be pumped groundwater from groundwater wells within Westlands' district boundaries as well as other sources of non-CVP water by way of the Mendota Pool Inlet Canal. Potential groundwater sources and proposed discharge locations are listed in Table 1, and shown graphically in Appendix A. The amount of water from each source would vary, but the total quantity introduced under the Proposed Action would not exceed a combined volume of 30,000 AF in a given year.

Non-CVP water introduced into the San Luis Canal would either be directly delivered to agricultural users located downstream of the points of introduction or operationally exchanged

with Reclamation for a like amount, less conveyance losses, of Westlands' available water supplies in San Luis Reservoir. Exchanged water would either be delivered to agricultural users located upstream of the points of introduction in Westlands or stored in San Luis Reservoir as non-CVP water for later delivery to Westlands via the San Luis Canal.

Introduction of Westlands' non-CVP water and storage of the exchanged water would be scheduled annually with Reclamation and would be subject to excess capacity, operational constraints, and environmental requirements, as applicable. No Project Use Power would be used for the Proposed Action.

It is Westlands' intention to use the water in the same year in which it is introduced to federal facilities. However, if Westlands is unable to make use of water introduced into the facilities within the designated window, it may be necessary to carry the water over for later use, in accordance with Reclamation's applicable rescheduling guidelines.

No construction of new facilities or modifications to the San Luis Canal would be authorized under the Proposed Action. Reclamation proposes to issue a combined 25-year authorization for all discharge points (Table 1) involved in the Proposed Action.

Table 1. Proposed Discharge Locations

#	San Luis Canal Milepost	Facility Type	State Well ID(s)
1	105.00L	Direct Discharge	141202R01
2	105.20L	Direct Discharge	141202R02
3	107.10R	Direct Discharge	141225D01
4	107.63R	Direct Discharge	141319R01
5	108.85L	Direct Discharge	141316N05
6	110.49L	Direct Discharge	141322P01
7	110.52L	Direct Discharge	141323EO2
8	111.02R	Direct Discharge	141327E01
9	111.91R	Direct Discharge	151305D02
10	113.77	Direct Discharge	141628P01
11	114.00R	Direct Discharge	151316L01
12	114.95L	Direct Discharge	151407E01
13	115.43L	Lateral 7	151509R03 151509R04 151509R05 151503A02 151504A03 151503H01
14	116.91R	Direct Discharge	151322M01
15	117.52L	Direct Discharge	151419F01 151419Q01
16	118.46R	Direct Discharge	151431D02
17	119.56R	Direct Discharge	151431D02
18	120.80L	Direct Discharge	161404D01
19	122.59RA	Direct Discharge	161427P01
20	123.05L	Direct Discharge	161403H01
21	123.89R	Direct Discharge	161424E01
22	124.18L	Direct Discharge	161412N02
23	125.33R	Direct Discharge	161506P02

#	San Luis Canal Milepost	Facility Type	State Well ID(s)
24	125.99L	Direct Discharge	161518P04
25	126.65L	Lateral 12L	161520H01
26	127.40L	Direct Discharge	161521L01 161521N03
27	128.49R	Direct Discharge	171413A01
28	128.50L	Direct Discharge	161533J01
29	128.54L	Direct Discharge	161532A06
30	130.81R	Direct Discharge	171510M01
31	132.77L	Direct Discharge	171513A01
32	133.80L	Direct Discharge	171601N03
33	133.81L	Direct Discharge	171623J01 171623M01 181606F01 171614Q01
34	135.48RA	Direct Discharge	171526A01
35	135.96R	Lateral 14	171526L01
36	136.03L	Direct Discharge	171614Q01 171623J01 171623M01
37	137.00R	Lateral 15	171536Q02
38	137.31L	Direct Discharge	181606F01
39	137.83L	Direct Discharge	171623J01 171623M01 171614Q01 171601N03
40	138.24L	Direct Discharge	181605N01
41	139.40L	Direct Discharge	181609R01
42	140.55LA	Direct Discharge	181617R02
43	141.02R	Direct Discharge	181620F01
44	**141.07R***	Direct Discharge	181620M01
45	141.55L	Direct Discharge	181621Q02
46	142.58R	Direct Discharge	181629N02
47	143.00L	Direct Discharge	181627N01
48	143.20L	Direct Discharge	191610E01
49	**143.21R***	**Direct Discharge**	**191615N01**
50	146.35L	Direct Discharge	181720N02
51	147.75RC	Direct Discharge	191720B01
52	152.75L	Direct Discharge	191723R01
53	153.10R	Direct Discharge	191726H01
54	154.10L	Direct Discharge	191836N01
55	155.15L	Direct Discharge	191831N01
56	**155.63L***	**Direct Discharge**	**201806F01**
57	156.36R	Direct Discharge	201714K01 201712H01
58	156.37LA	Direct Discharge	201806Q01
59	156.40L	Lateral 31	201808M01
60	157.98L	Direct Discharge	201817G01
61	158.47R	Lateral 32	201714R01
62	158.95L	Direct Discharge	201820E01
63	**159.90L***	**Direct Discharge**	**201829M01**

#	San Luis Canal Milepost	Facility Type	State Well ID(s)
64	159.98R	Direct Discharge	201830G02 201831C01
65	160.50RA	Direct Discharge	201734D01
66	160.68L	Direct Discharge	201832E01
67	**161.49L***	**Direct Discharge**	**201831Q01**
68	161.60L	Direct Discharge	211805C01 211809D02
69	162.08L	Direct Discharge	211805C01 211805M01
70	162.10R	Direct Discharge	211806G01
71	162.64L	Direct Discharge	211808B01 211809L01
72	163.18R	Direct Discharge	211807E01
73	163.59L	Direct Discharge	211805M01 211808Q01
74	164.00R	Lateral 27R	211818G01
75	164.11R	Direct Discharge	211818G03
76	164.55L-A	Direct Discharge	211817N03 211816P01 211816N01 211822E01 211823E01 211823D06
77	164.55L-B	Direct Discharge	211816P01 211816N01 211822E01
78	164.63R	Direct Discharge	211818G03
79	164.95R	Direct Discharge	211833G01 211833N02 211829E01
80	**166.70R***	**Direct Discharge**	**211828G06**
81	166.90R	Direct Discharge	211827K02
82	167.04L	Lateral 37	211823D06 211919C03
83	167.84R	Direct Discharge	221804H01
84	167.86R	Direct Discharge	211833N02 211833G01
85	169.21R	Direct Discharge	221803B01
86	169.48L	Direct Discharge	211835Q01 211835N02
87	169.88L	Direct Discharge	221801E01
88	171.50LA	Direct Discharge	221812R01

*** These marked facilities are proposed to be added to the list of authorized facilities that was provided in EA-15-001.**
Note: Some wells are capable of discharging at multiple locations along the canal.

After the end of the 5-year period, the discharge locations would not be able to introduce non-CVP water into the San Luis Canal without a new Warren Act contract, which would require additional environmental review and approval from Reclamation. Additional wells and temporary, aboveground discharge facilities may be added to the program at a later date with associated environmental review by Reclamation.

2.2.2. Proposed Design Constraints and Operating Criteria

The Proposed Action is subject to water quality monitoring, groundwater monitoring, and reporting requirements as described in Reclamation's then-current water quality standards for conveyance of non-CVP water in the San Luis Canal (see Appendix B for those standards that were updated concurrently with the development of this EA).

All participating wells must have baseline sampling each year before pumping into the San Luis Canal begins for those constituents of concern used for screening-out non-compliant wells. Each

well is also required to be tested every three years for the full array of Title 22 constituents of concern. Reclamation will allow the introduction of water from two or more wells through one discharge point if the blended water meets the Title 22 standards shown in Table 6 of Appendix B, in addition to the list of water quality standards shown in Table 5 of Appendix B. Special monitoring may be required for these situations. There will be a one-time screening for the presence of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) and, if detected, Reclamation and the California Department of Water Resources (DWR) will work with Westlands on conducting additional sampling.

Non-CVP water will only enter Lateral 7 when water is being pumped into the San Luis Canal, not when flow is entering the Mendota Pool. Westlands must take weekly field measures for conductivity and turbidity at locations near Lateral 7 during these periods (see Appendix B).

All participating wells must have static maximum depth to groundwater (Max DTGW[1]) and Fall/Winter Median groundwater level[2] data established in order to participate in the Proposed Action. Any well which is missing this data will be excluded from discharging into the San Luis Canal until a groundwater level measurement can be recorded and a Fall/Winter Median groundwater level can be developed. New wells may use Fall/Winter Median and Max DTGW levels of nearby wells, upon Reclamation approval, until unique level measurements are established. This information will be used to ensure pumping does not exceed the maximum amount of groundwater pumping previously experienced in this area by incorporating the following shutoff criteria:

$$\boldsymbol{Shutoff\ Trigger} = 0.75 \times (Max\ DTGW\ - Fall/Winter\ Median)\ + Fall/Winter\ Median$$

If an individual well is shutoff due to groundwater levels reaching the shutoff trigger (75% of Max DTGW), it will not be allowed to resume pumping until it reaches 70% of the difference between the Fall/Winter Median Groundwater Level and the Max DTGW using the following equation:

$$\boldsymbol{Well\ Resumption} = 0.70 \times (Max\ DTGW\ - Fall/Winter\ Median)\ + Fall/Winter\ Median$$

Groundwater level measurements will follow a strict schedule. If a well is shutoff it will not be measured again until the next scheduled measurement date. Westlands must notify Reclamation in writing when a well is shutoff or resuming.

[1] Max Depth to Groundwater (Max DTGW) represents the maximum depth to groundwater measurement collected from an individual well

[2] Fall/Winter Median Groundwater Levels represent the average historical recovery level for each well. Determined by using groundwater level data recorded in the Fall/Winter after the well has had time to recover from irrigation season.

2.2.3. Environmental Commitments

Westlands shall implement the environmental protection measures included in Table 2.

Table 2. Environmental Protection Measures and Commitments.

Resource	Protection Measure
Various Resources	There will be no ground disturbance, new construction or other new installation without further environmental review and approval.
Various Resources	In areas known to be impaired by historic drainage, all groundwater pumped shall come only from wells screened below the Corcoran Clay layer.
Various Resources	Drainage water may not be introduced into the San Luis Canal under the Proposed Action.
Various Resources	The water introduced under the Proposed Action shall be used for beneficial purposes and in accordance with Federal Reclamation law and guidelines, as applicable. Use of the water shall comply with all federal, state, local, and tribal laws.
Groundwater Resources	Westlands shall comply with all applicable ordinances regarding export of groundwater.
Groundwater Resources	Water quality sampling shall include measurements of groundwater levels. Groundwater levels shall be reported to Reclamation.
Land Use/Biological Resources	The water shall not be used native lands or lands untilled for three consecutive years or more without additional environmental analysis and approval. No land conversions may occur as a result of the Proposed Action.
Water Quality	Prior to introduction, all wells shall be tested to demonstrate compliance with then-current water quality standards for conveyance of non-CVP water in the San Luis Canal.
Water Resources	Westlands will coordinate with DWR and the State Water Project's Facilitation Group during the introduction of the non-CVP water into the San Luis Canal.
Water Quality	Reclamation requires monitoring of selenium levels in the San Luis Canal and at all discharge points as described in the Water Quality Monitoring Plan (see Appendix B). Selenium levels in the San Luis Canal shall not exceed 2 parts per billion (ppb) during periods of introduction. If water quality in the San Luis Canal exceeds 2 ppb, Reclamation and/or its operating entity will require additional sampling at all discharge points to ensure that water being introduced does not exceed 2 ppb selenium.

Environmental consequences for resource areas assume the measures specified would be fully implemented. Copies of all reports shall be submitted to Reclamation.

Section 3 Affected Environment and Environmental Consequences

This section identifies the potentially affected environment and the environmental consequences involved with the Proposed Action and the No Action Alternative, in addition to environmental trends and conditions that currently exist.

3.1. Resources Eliminated from Further Analysis

Reclamation analyzed the affected environment and determined that the Proposed Action did not have the potential to cause direct, indirect, or cumulative adverse effects to the resources listed in Table 3.

Table 3. Resources Eliminated from Further Analysis

Resource	Reason Eliminated
Air Quality	The pumps to be used for the Proposed Action are already existing and in place. They would be operated with or without the Proposed Action, and do not represent a new source of air emissions. The groundwater supplies being pumped are able to be utilized either locally without introduction into federal facilities, or can be conveyed to the San Luis Canal for other distribution in-district.
Cultural Resources	There would be no impacts to cultural resources as a result of implementing the Proposed Action as the Proposed Action would facilitate the flow of water through existing facilities to existing users. No new construction or ground disturbing activities would occur as part of the Proposed Action. Reclamation has determined that these activities have no potential to cause effects to historic properties pursuant to 36 CFR Part 800.3(a)(1).
Global Climate Change	In EA-15-001, Reclamation determined that there would be no impacts to climate change due to the groundwater pumping, as the pumps to be used were already existing and in place and would be operated with or without the proposed Warren Act Contract. Similarly, the Proposed Action does not include construction of new facilities or modification to existing facilities. While pumping would be necessary to extract and convey the non-CVP water, no additional electrical production beyond baseline conditions would occur. As such, there would be no additional impacts to global climate change. Global climate change is expected to have some effect on the snowpack of the Sierra Nevada and the runoff regime. It is anticipated that climate change would result in more short-duration high-rainfall events and less snowpack runoff in the winter and early spring months by 2030 compared to recent historical conditions (Reclamation 2016, pg 16-26). However, the effects of this are long-term and are not expected to impact CVP operations within the five-year window of the Proposed Action. Further, CVP water allocations are made dependent on hydrologic conditions and environmental requirements. Since Reclamation operations and allocations are flexible, any changes in hydrologic conditions due to global climate change would be addressed within Reclamation's operation flexibility. In addition, pumping would be further curtailed under the Proposed Action based on the design constraints and operating criteria included in 2.2.2 and, as such, there would be even less emissions under the Proposed Action than those previously covered and Reclamation's determination is unchanged.
Indian Sacred Sites	The Proposed Action would not limit access to and ceremonial use of Indian Sacred Sites on Federal lands by Indian religious practitioners or affect the physical integrity of such sacred sites. There would be no impacts to Indian sacred sites as a result of the Proposed Action.
Indian Trust Assets	The Proposed Action would not impact Indian Trust Assets as there are none in the Proposed Action area.

3.2. Biological Resources

3.2.1. Affected Environment

A species list was obtained from the U.S. Fish and Wildlife Service (USFWS 2020) on April 3, 2020 at https://ecos.fws.gov/ipac/. Reclamation utilized that list, records from the California Natural Diversity Database (CNDDB 2020) and other information on file to compile Table 4 below.

The Proposed Action Area consists of San Luis Reservoir, the San Luis Canal, Mendota Pool, and lands within Westlands, and refuges and wildlife areas that can receive water from the San Luis Canal and Mendota Pool. The only federally listed species that may occur in the area are the Buena Vista Lake shrew, San Joaquin kit fox, blunt-nosed leopard lizard, giant garter snake, California least tern, and San Joaquin woolly-threads. The only one of these species that can use agricultural lands at all is the San Joaquin kit fox, which can forage (but not den) in crop fields where the fields lie close to native lands (Warrick et al. 2007). The majority of the Proposed Action Area consists of agricultural lands.

The Mendota Wildlife Area receives water from Lateral 7, and the giant garter snake occurs at that location, as well as a number of migratory bird species. Kern National Wildlife Refuge receives water from the California Aqueduct, via approximately 12 miles of Buena Vista Water Storage District facilities. The Buena Vista Lake shrew is found at Kern National Wildlife Refuge, which also supports a number of migratory birds.

Table 4 Federally Listed Threatened and Endangered Species

Species	Status[1]	Effects
AMPHIBIANS		
California red-legged frog (*Rana draytonii*)	T, X	No effect determination; The species and its critical habitat occur just to the west of San Luis Reservoir, but not in the reservoir itself. Proposed Action area is outside species' current range.
California tiger salamander, central population (*Ambystoma californiense*)	T, X	No effect determination; native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
BIRDS		
California Condor (*Gymnogyps californianus*)	E, X	No effect determination; native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
California Least Tern (*Sternula antillarum browni*)	E	No effect. Least terns were observed at sewage ponds at Lemoore Naval Air Station in the past, but monitoring along the San Luis Drain conducted by Reclamation a few years ago (for multiple years) failed to yield any observations. Even so, the Proposed Action would not contribute to any drainage that could contaminate potential foraging habitat, such as the San Luis Drain.
Western Snowy Plover (*Charadrius alexandrinus nivosus*)	T, X	No effect determination; not known to occur in the Proposed Action Area, which is outside of the typical range. Not expected due to lack of evaporation ponds.

Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)	T, PX	No effect determination; his species could fly over during migration but nesting habitat (extensive cottonwood-willow stands) is absent.
FISH		
Central Valley steelhead (*Oncorhynchus mykiss*)	T, X	Effects of pumping in the San Joaquin-Sacramento Delta have been/are being addressed separately.
Central Valley spring-run chinook salmon (*Oncorhynchus tshawytscha*)	T, X	Effects of pumping in the San Joaquin-Sacramento Delta have been/are being addressed separately.
delta smelt (*Hypomesus transpacificus*)	T, X	Effects of pumping in the San Joaquin-Sacramento Delta have been/are being addressed separately.
North American green sturgeon (*Acipenser medirostris*)	T, X	Effects of pumping in the San Joaquin-Sacramento Delta have been/are being addressed separately.
Sacramento River winter-run chinook salmon (*Oncorhynchus tshawytscha*)	E, X	Effects of pumping in the San Joaquin-Sacramento Delta have been/are being addressed separately.
INVERTEBRATES		
Conservancy fairy shrimp (*Branchinecta conservatio*)	E, X	No effect determination; native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	T, X	No effect determination; although suitable habitat (elderberry shrubs with stems one inch or larger in diameter at ground level) may be present in Fresno County (Kings, Kern, and Tulare Counties are outside the species' range), no land use change, conversion of habitat, construction or modification of existing facilities would occur as a result of the Proposed Action.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	T, X	No effect determination; native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	E, X	No effect determination; native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
MAMMALS		
Buena Vista Lake shrew (*Sorex ornatus relictus*)	E, X	No effect determination; critical habitat occurs near, but outside of Westlands. Known from Kern National Wildlife Refuge, but native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
Fresno kangaroo rat (*Dipodomys nitratoides exilis*)	E, X	No effect determination; Proposed Action area is outside species' range (a population at Lemoore Naval Air Station that was likely a Fresno/Tipton hybrid has been extirpated).
Giant kangaroo rat (*Dipodomys ingens*)	E	No effect determination; proposed action area is outside the species' current range.
San Joaquin kit fox (*Vulpes macrotis mutica*)	E	No effect determination. Potentially present within the action area; there are a number of CNDDB records. Native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*)	E	No effect determination; A population at Lemoore Naval Air Station that was likely a Fresno/Tipton hybrid has been extirpated) and the species is known from the Kern National Wildlife Refuge.

		Native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
PLANTS		
California jewelflower (*Caulanthus californicus*)	E	No effect determination; suitable habitat no longer present.
Kern mallow (*Eremalche kernensis*)	E	No effect determination. Known from the Kern Wildlife Refuge. Native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
palmate-bracted bird's-beak (*Cordylanthus palmatus*)	E	No effect determination; suitable habitat no longer present.
San Joaquin woolly-threads (*Monolopia congdonii*)	E	No effect determination. Potentially present within the western edge of Westlands. Native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
REPTILES		
Blunt-nosed leopard lizard (*Gambelia sila*)	E	No effect determination; may occur on the western edge of Westlands, and known from Kern National Wildlife Refuge, but native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
Giant garter snake (*Thamnophis gigas*)	T	No effect determination; occurs at Mendota Wildlife Area, which receives water from Lateral 7, but selenium would not rise above 2 ppb in Lateral 7.
Green sea turtle, East Pacific DPS (*Chelonia mydas*)	T	No effect determination; Proposed Action area is outside species' range.

[1] Status= Listing of Federally special status species.
E: Listed as Endangered
T: Listed as Threatened
X: Critical Habitat designated for this species
PX: Critical Habitat proposed for this species.

3.2.2. Environmental Consequences

No Action

Under the No Action Alternative, lands in Westlands would either continue to be farmed with other water supplies or would be fallowed**.** It is unlikely that this would change the current distribution or abundance of federally listed species in the Proposed Action Area, as the fallowed fields would typically be regularly disced, and so would not revert to a more suitable condition for the few species in the area, such as the San Joaquin kit fox.

Proposed Action

Under the Proposed Action, the water would help keep agricultural lands in production. No native lands or lands fallowed and untilled for three or more years could be brought into production with the use of the water involved in the Proposed Action. Both Mendota Wildlife Area and Kern National Wildlife Refuge water supplies may mix with groundwater introduced as a result of the Proposed Action, and this would occur partly during times of the year when these refuges would receive water supplies. However, the selenium levels are expected to remain well below the threshold for an effect on wildlife, which is 2 ppb as measured in the water

column (Reclamation and San Luis & Delta-Mendota Water Authority 2009 and references therein). In addition to the constraints detailed in 2.2.2 of this EA, water under the Proposed Action would be required to meet Reclamation's then-current water quality standards for conveyance of non-CVP water in the San Luis Canal (see Appendix B). If a well to be used for pumping water into the San Luis Canal does not meet Reclamation's criteria for selenium concentration, no water would be allowed to be introduced from that source until water quality improves sufficient to meet the requirements. With all sources of discharge of non-CVP water being required to have selenium concentrations of 2 ppb, the water introduced under the Proposed Action would have no potential of raising selenium concentration within the San Luis Canal above 2 ppb, which is an accepted limit dating back to the 1995 San Joaquin Basin Action Plan. Furthermore, using Presser and Luoma (2010), Reclamation's modeling efforts for another project have indicated that even for the North American green sturgeon, a long-lived species that is a bottom-feeder, 2.05 ppb selenium was the expected threshold for protection of this species. Because Westlands would only operate under the Proposed Action in years with 20% allocations or less, no drainage would be generated that could make its way into aquatic habitat potentially used by the giant garter snake or California least tern.

As a result, Reclamation has determined there would be No Effect to proposed or listed species or critical habitat under the Endangered Species Act of 1973, as amended (16 U.S.C. §1531 et seq.), and there would be no take of birds protected under the Migratory Bird Treaty Act (16 U.S.C. §703 et seq.). No consultation with the U.S. Fish and Wildlife Service or National Marine Fisheries Service is required.

Cumulative Impacts

As the Proposed Action would not result in any direct or indirect impacts to biological resources, it would not contribute cumulatively to any impacts.

3.3. Environmental Justice

Executive Order 12898 (February 11, 1994) mandates Federal agencies to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations.

3.3.1. Affected Environment

Westlands is located in Fresno and Kings Counties, where conditions have largely remained the same as those described previously in EA-15-001. The demographics of the counties are comparable to California's, except that the proportion of the population who identify as Hispanic or Latino is higher, and the percentage who identify as Asian is lower. In both counties, the proportion of the population identifying as Hispanic or Latino has increased in the time since the previous analysis. See Table 5 below for more information.

Table 5. Demographic Data, Estimates July 1, 2019

	Total Population	White	Black or African American	American Indian	Asian	Native Hawaiian/ Pacific Islander	Hispanic or Latino
Fresno County	999,101	76.7%	5.8%	3.0%	11.0%	0.3%	53.5%
Kings County	152,940	81.0%	7.3%	3.2%	4.5%	0.3%	55.0%
California	39,512,223	72.1%	6.5%	1.6%	15.3%	0.5%	39.3%

Source: U.S. Census Bureau 2019

3.3.2. Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not allow Westlands to introduce pumped groundwater water into the San Luis Canal. Growers would have to find alternative supplies of water, provide for alternative conveyance paths, and/or temporarily take land out of production. Farm laborers often come from minority and low-income communities. Therefore, reductions in agricultural productivity would have a disproportionate, adverse impact on those communities.

Proposed Action

The Proposed Action would support agriculture by allowing conveyance of groundwater and other sources of non-CVP water to support existing crops. Since farm laborers often come from minority and low-income communities, supporting farm employment is a benefit to those disadvantaged groups.

Cumulative Impacts

The Proposed Action would allow conveyance of water to support agriculture in a time of shortage. Because of agriculture's importance to the area's economy, any impacts, either positive or negative, tend to have a disproportionate and cumulative effect on employment and wages. Farm laborers often come from low-income and minority populations and they are therefore disproportionately affected by these trends. Similar water-moving actions have been authorized or are currently under review, including the Delta-Mendota Canal Groundwater Pump-in Program. Cumulatively these actions are expected to provide a benefit to the economic well-being of disadvantaged groups.

3.4. Water Resources

3.4.1. Affected Environment

The following sections provide updates and address changes that have occurred in the Proposed Action Area since EA-15-001.

Westlands Water District

Surface Water Surface water resources in the Proposed Action Area have generally remained the same within Westlands since the previous EA-15-001.

Reclamation makes CVP water available to contractors for reasonable and beneficial uses, but CVP water supply varies widely from year to year and sometimes even within a given year due to hydrologic conditions and/or regulatory constraints and is often insufficient to meet all of the irrigation water service contractors' water needs. As shown in Table 6 below, the South-of-Delta CVP agricultural allocations ranged from 0 percent and 100 percent of contract amounts and averaged 45 percent of contract amounts between 2005 and 2019. The allocation for South-of-Delta CVP agricultural supplies as of June 23, 2020 is 20 percent, due to a low supply of water. For 9 out of the last 15 years, the South-of-Delta CVP agricultural allocation was less than 50 percent due to drought conditions and regulatory requirements. Consequently, CVP contractors, including Westlands, adaptively manage water supplies based on current and projected hydrologic conditions (as well as regulatory and environmental requirements) in order to proactively assess their risks in making business, economic, cropping, planting, and irrigation decisions.

Table 6. South-of-Delta CVP Contract Allocations between 2005 and 2020

Contract Year	Agricultural Allocations (%)	M&I Allocations (%)[1]
2020[2]	20	70
2019	75	100
2018	50	75
2017	100	100
2016	5	55
2015	0	25
2014	0	50
2013	20	70
2012	40	75
2011	80	100
2010	45	75
2009	10	60
2008	40	75
2007	50	75
2006	100	100
2005	85	100
Average	**45**	**75**

[1] M&I water service allocations are based as a percentage of their historic use or public health and safety needs.
[2] Allocations as of June 23, 2020.

Groundwater Resources Westlands is located within the Westside groundwater subbasin (5-022.09) identified by DWR as critically overdrafted with significant, on-going and irreversible subsidence (DWR 2017, pg 13 and 15, Reclamation 2016, pg 7-12). The Westside Subbasin GSP is the approved plan for the Westlands Water District Groundwater Sustainability Agency, which includes Westlands' entire district boundaries. This GSP, completed in January 2020, provides projected maximum yields for groundwater pumping within the Westside Subbasin that would maintain various sustainability indicators as defined by SGMA.

In order to achieve the sustainability goals provided in the Westside Subbasin GSP, Westlands has planned to implement various measures, including groundwater pumping allocation management actions, additional aquifer storage and recovery operations, pumping reductions, and additional surface water imports. Within the GSP, the amount and reliability of available imported surface water was evaluated to accurately quantify the projected water budget within

the Westside Subbasin. The primary source of imported water will continue to be CVP water supplies.

Groundwater pumping is greatly increased in years with reduced CVP water supply allocations, which can be reduced by drought conditions as well as various state and federal regulatory requirements. Since 2000, Westlands' CVP water supply has been significantly reduced and groundwater pumping has steadily increased. Groundwater has been the primary source of water supply within Westlands since 2007. Westlands also monitors grower/landowner well pumping and submits groundwater pumping data to the California Statewide Groundwater Elevation Monitoring Program (Westlands 2017). In 2015, approximately 660,000 AF of groundwater was pumped by private landowners to meet in-district demands. As shown in Figure 2 (source: Westlands 2019), CVP supplies have never been sufficient to meet demands within Westlands.

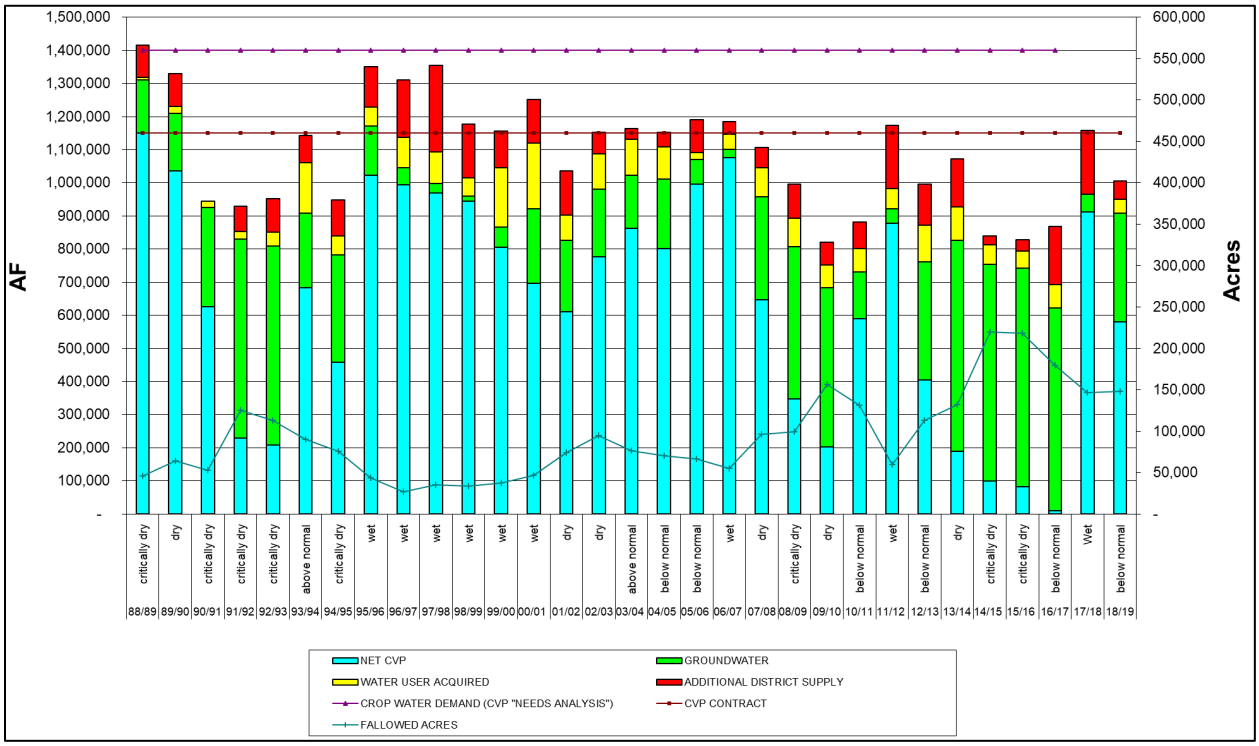

Figure 2. Westlands Available Water Supplies 1988 through 2019

Westlands has implemented a groundwater management program to reduce the potential for future extreme subsidence and has operated its water resource activities under the concept of conjunctive use. Based on the conjunctive use concept, water users are expected to continue mixed use of CVP, other surface water supplies, and groundwater, with greater emphasis on groundwater use during dry periods when surface water is limited or expensive, and use surface water during wetter periods in lieu of groundwater in order to allow recharge of the groundwater basin. Under the Westside Subbasin GSP, Westlands plans to avoid undesirable results such as groundwater level declines, irreversible subsidence, and degraded water quality, among others, by maintaining the projected maximum sustainable yield which averages between 304,000 AF annually over the GSP's 50-year horizon (Westlands 2020).

Groundwater pumped and introduced into the San Luis Canal during the previous agreement is shown in Table 7. Westlands only pumped groundwater for discharge into the San Luis Canal in 2015 and 2016, during time periods in which Westlands had an allocation of 20 percent or less of its contracted CVP supply. Nearly all of the water supplies pumped under the previous action were utilized by Westlands in the year that they were pumped.

Table 7. Groundwater Supplies Introduced Under the Previous Warren Act Contract (acre-feet)

Water Year	**2015**		**2016**	
Water Type	Gross Introductions	Net Used	Gross Introductions	Net Used
January	0	0	0	0
February	0	0	7,818	7,604
March	0	0	8,234	8,027
April	0	0	5,228	5,072
May	5,014	4,764	5,858	5,687
June	8,250	7,838	1,482	1,480
July	6,341	6,024	0	0
August	2,932	2,786	0	0
September	0	0	0	0
October	0	0	0	0
November	0	0	0	0
December	0	0	0	0
Totals	22,537	21,412	28,620	27,870

Groundwater Quality The groundwater in the Westside Groundwater Subbasin is known to have elevated concentrations of Total Dissolved Solids (TDS), which are considered to be the constituent of primary concern for agricultural uses of the pumped groundwater supplies (Westlands 2020). Testing of San Luis Canal water supplies occurred during times groundwater was pumped in 2015 and 2016 at Check 13 (Table 8) and Check 21 (Table 9). This data for the time periods that Westlands pumped groundwater shows that constituents such as TDS and selenium changed very little between the two monitoring locations.

Table 8. Water Quality Analysis for the San Luis Canal at Check 13 During Pumping

Collection Date (Month-Year)	**Dissolved Boron (mg/L) – Max: 0.2**	**Dissolved Bromide (mg/L)**	**Dissolved Chloride (mg/L) – Max: 250**	**Dissolved Nitrate (mg/L) – Max: 10**	**Dissolved Nitrate + Nitrite – (mg/L) Max: 10**	**Dissolved Sodium (mg/L) – Max: 69**	**Specific Conductance (µS/cm @ 25C)**	**Total Arsenic**	**Total Dissolved Solids (mg/L)**	**Total Manganese**	**Total Organic Carbon**	**Total Selenium**	**Turbidity**
Jan-15	0.3	0.31	99	6.8	1.51	72	No Data	0.002	No Data	0.025	6.10	0.001	4.00
Feb-15	0.2	0.24	77	4.7	1.00	63	No Data	0.002	No Data	0.017	5.90	0.001	4.00
Mar-15	0.2	0.25	76	3.3	0.70	60	No Data	0.002	No Data	0.022	6.50	<0.001	7.00
Apr-15	0.3	0.30	102	3.0	0.53	72	No Data	0.002	No Data	0.022	4.90	0.001	5.00
May-15	0.2	0.32	107	3.0	0.69	68	634	0.003	No Data	0.011	6.70	0.001	2.44
Jun-15	0.2	0.31	108	2.1	0.49	75	637	0.003	357	0.021	5.00	0.001	2.34
Jul-15	0.2	0.30	108	2.0	0.38	72	643	0.003	360	0.018	5.40	0.001	2.68
Aug-15	0.3	0.30	108	0.6	0.13	79	653	0.003	360	0.036	5.50	0.001	4.46
Sep-15	0.2	0.40	130	0.5	0.12	87	716	0.004	388	0.073	5.20	0.001	4.76

Collection Date (Month-Year)	Dissolved Boron (mg/L) – Max: 0.2	Dissolved Bromide (mg/L)	Dissolved Chloride (mg/L) – Max: 250	Dissolved Nitrate (mg/L) – Max: 10	Dissolved Nitrate + Nitrite – (mg/L) Max: 10	Dissolved Sodium (mg/L) – Max: 69	Specific Conductance (µS/cm @ 25C)	Total Arsenic	Total Dissolved Solids (mg/L)	Total Manganese	Total Organic Carbon	Total Selenium	Turbidity
Oct-15	0.2	0.36	119	0.1	0.05	77	687	0.005	380	0.087	4.90	0.001	4.03
Nov-15	0.2	0.33	134	1.1	0.20	85	687	0.003	392	0.035	3.70	0.001	3.00
Dec-15	0.2	0.39	126	0.6	0.11	82	679	0.003	385	0.013	4.20	0.001	2.79
Jan-16	0.2	0.39	125	4.2	0.84	82	659	0.002	No Data	0.027	4.40	0.002	4.87
Feb-16	0.3	0.29	100	6.0	1.19	69	637	0.002	No Data	0.019	6.40	0.001	5.00
Mar-16	0.2	0.14	52	4.0	0.85	41	426	0.002	No Data	0.040	6.80	<0.001	6.44
Apr-16	0.3	0.27	93	2.5	0.52	67	594	0.002	No Data	0.016	6.10	0.001	3.04
May-16	0.2	0.28	97	2.3	0.47	64	573	0.002	No Data	0.022	5.00	0.001	3.04
Jun-16	0.2	0.30	105	2.2	0.49	69	585	0.002	No Data	0.016	4.80	0.001	2.87

Table 9. Water Quality Analysis for the San Luis Canal at Check 21 During Pumping

Collection Date (Month-Year)	Dissolved Boron (mg/L) – MCL: 0.2	Dissolved Bromide (mg/L)	Dissolved Chloride (mg/L) – Max: 250	Dissolved Nitrate mg/L) – Max: 10	Dissolved Nitrate + Nitrite – (mg/L) Max: 10	Dissolved Sulfate	Specific Conductance (µS/cm @ 25C)	Total Arsenic	Total Dissolved Solids (mg/L)	Total Manganese	Total Organic Carbon	Total Selenium	Turbidity
Jan-15	0.2	0.36	116	0.2	<0.01	47	671	0.004	370	0.023	4.6	0.001	<1
Feb-15	0.2	0.41	120	0.8	0.13	60	690	0.003	393	0.017	3.6	0.002	<1
Mar-15	0.4	0.39	116	3.0	0.66	111	788	0.002	442	0.011	4	0.001	<1
Apr-15	0.3	0.29	98	3.0	0.42	58	637	0.002	363	0.013	5.3	0.001	<1
May-15	0.2	0.32	106	2.2	0.42	52	644	0.003	356	0.018	5.1	0.001	1.38
Jun-15	0.2	0.31	109	2.0	0.49	52	645	0.003	357	0.017	5.5	0.001	1.07
Jul-15	0.3	0.30	109	2.4	0.52	64	672	0.003	373	0.013	5	0.001	1.27
Aug-15	0.3	0.30	108	0.4	0.10	83	723	0.004	405	0.033	6.1	0.002	4.4
Sep-15	0.4	0.34	110	0.8	0.13	101	763	0.004	451	0.111	6.9	0.001	14.8
Oct-15	0.3	0.48	157	<0.1	<0.01	65	806	0.005	448	0.059	6.7	0.002	6.34
Nov-15	0.3	0.33	135	<0.1	<0.01	71	773	0.004	435	0.055	6.3	0.001	9.28
Dec-15	0.2	0.45	141	1.2	0.26	39	703	0.003	390	0.014	3.7	0.001	2.25
Jan-16	0.2	0.39	127	<0.1	<0.01	48	682	0.003	377	0.01	4	0.002	1.43
Feb-16	0.2	0.37	122	<0.1	<0.01	49	685	0.003	380	0.008	4.3	0.001	2
Mar-16	0.2	0.17	63	4.3	0.69	45	469	0.002	263	0.019	7	<0.001	3.64
Apr-16	0.3	0.22	76	3.4	0.61	84	613	0.003	347	0.014	6.4	0.001	2.31
May-16	0.2	0.26	90	3.0	0.42	59	597	0.002	329	0.055	5	0.001	6.63
Jun-16	0.2	0.25	85	2.0	0.35	51	553	0.003	307	0.069	4.4	0.001	10

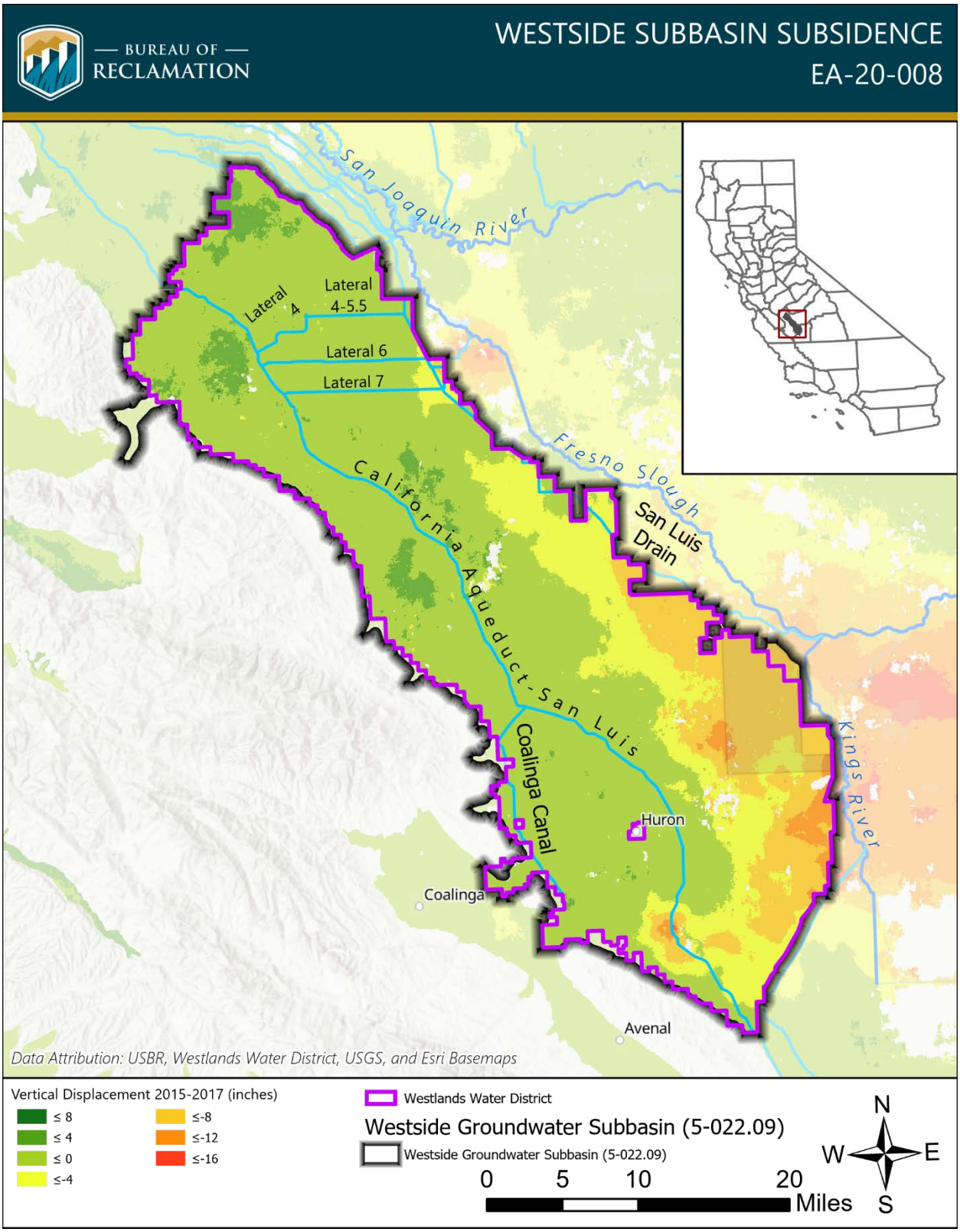

Figure 3. Subsidence in the Westside Subbasin (2015-2017)

Subsidence A 2017 National Aeronautical and Space Administration (NASA) report prepared for DWR (Farr et al. 2017) documented that the two main subsidence bowls in the San Joaquin Valley (centered on Corcoran and El Nido) previously identified in 2015, had grown wider and deeper between March 2015 and September 2016 and that a third area, near Tranquillity in Fresno County also experienced intensified subsidence. The maximum total subsidence in these areas during that time was: 22 inches near Corcoran, 16 inches southeast of El Nido, and 20 inches in the new area near Tranquillity. All three subsidence bowls are outside of the Proposed Action Area. However, the report found that the section of the San Luis Canal/California Aqueduct located in Westlands near the City of Avenal in Kings County dropped two feet due to subsidence caused by excessive groundwater pumping (Farr et al. 2017) (Figure 3).

3.4.2. Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not permit introduction of non-CVP water into federal facilities. As Westlands has an active groundwater pumping program, groundwater would still be pumped out of the aquifer as it has in the past. However, distribution of the non-CVP water would be limited to only those areas that could normally receive the water and would not enable Westlands to provide water supplies to other areas in-district.

Proposed Action

Surface Water Similar to the findings of EA-15-001 regarding the previous action, the Proposed Action would allow groundwater and other non-CVP water to be conveyed and/or stored in CVP facilities when excess capacity is available. The Proposed Action would not interfere with the normal operations of the San Luis Canal (as it would be scheduled prior to introduction), nor would it impede any State Water Project (SWP) or CVP obligations to deliver water to other contractors or to fish and wildlife habitat.

As described in the previous EA-15-001, TDS water quality values reported for water from the wells at that time ranged from 530 to 1,180 mg/L. This is expected to be representative of the groundwater pumped and conveyed under the Proposed Action. In addition to the constraints detailed in 2.2.2 of this EA, water under the Proposed Action would be required to meet Reclamation's then-current water quality standards for conveyance of non-CVP water in the San Luis Canal (see Appendix B). If a well to be used for pumping water into the San Luis Canal does not meet Reclamation's standards, no water would be allowed to be introduced from that source until water quality improves sufficient to meet the requirements. Reclamation also requires that flow in Lateral 7 would be moving toward the San Luis Canal for any water to be pumped into Lateral 7 for the Proposed Action, ensuring that no groundwater pumped under the Proposed Action would end up in the Mendota Pool.

Some groundwater wells included in the Proposed Action are located in areas known to be impacted by historic drainage. However, as described in the Environmental Commitments of the Proposed Action in 2.2.3, these wells are all screened below the Corcoran Clay layer which separates the shallow and deep aquifers. Therefore, the water pumped from these wells would not come from the layers which are drainage-impaired. The groundwater pumped and conveyed under the Proposed Action would also not be used on land known to be drainage-impaired, and therefore would not mobilize contaminants present in those areas.

Groundwater The Proposed Action allow for the pumping of up to 30,000 AF per year of groundwater at various locations within Westlands, for conveyance in federal facilities, during years in which their CVP allocation is 20 percent or less. The water involved in the Proposed Action is within the range of historical pumping during the irrigation season, and would be pumped regardless of whether Reclamation allowed its conveyance in federal facilities. The Proposed Action only allows Westlands' growers to convey the water to the areas of the district with greatest need.

Westlands shall monitor and report groundwater quality to Reclamation pursuant to the then-current water quality standards for conveyance of non-CVP water in the San Luis Canal. Additionally, under the Proposed Action, Westlands will maintain groundwater levels as described in the constraints detailed in 2.2.2, which would have an overall beneficial impact to groundwater in comparison to the No Action Alternative.

Subsidence Groundwater pumping is known to be a leading cause of subsidence in the San Joaquin Valley. However, the groundwater to be conveyed under the Proposed Action is within the range of historical pumping by Westlands, and would be pumped regardless of whether Reclamation allowed its conveyance in federal facilities. Additionally, Reclamation's monitoring requirements (Appendix B) are designed to prevent subsidence and the guidelines set forth in the Westside Subbasin GSP apply to Proposed Action. Specifically, shutoff triggers and resumption triggers have been developed to avoid contribution of the participating wells on overdrafting groundwater levels and increasing rates of subsidence in the Action area.

As shown in Figure 4, Max DTGW (also referred to as Critical Head) is the greatest amount of drawdown (lowest depth to water) that has occurred within a particular well.

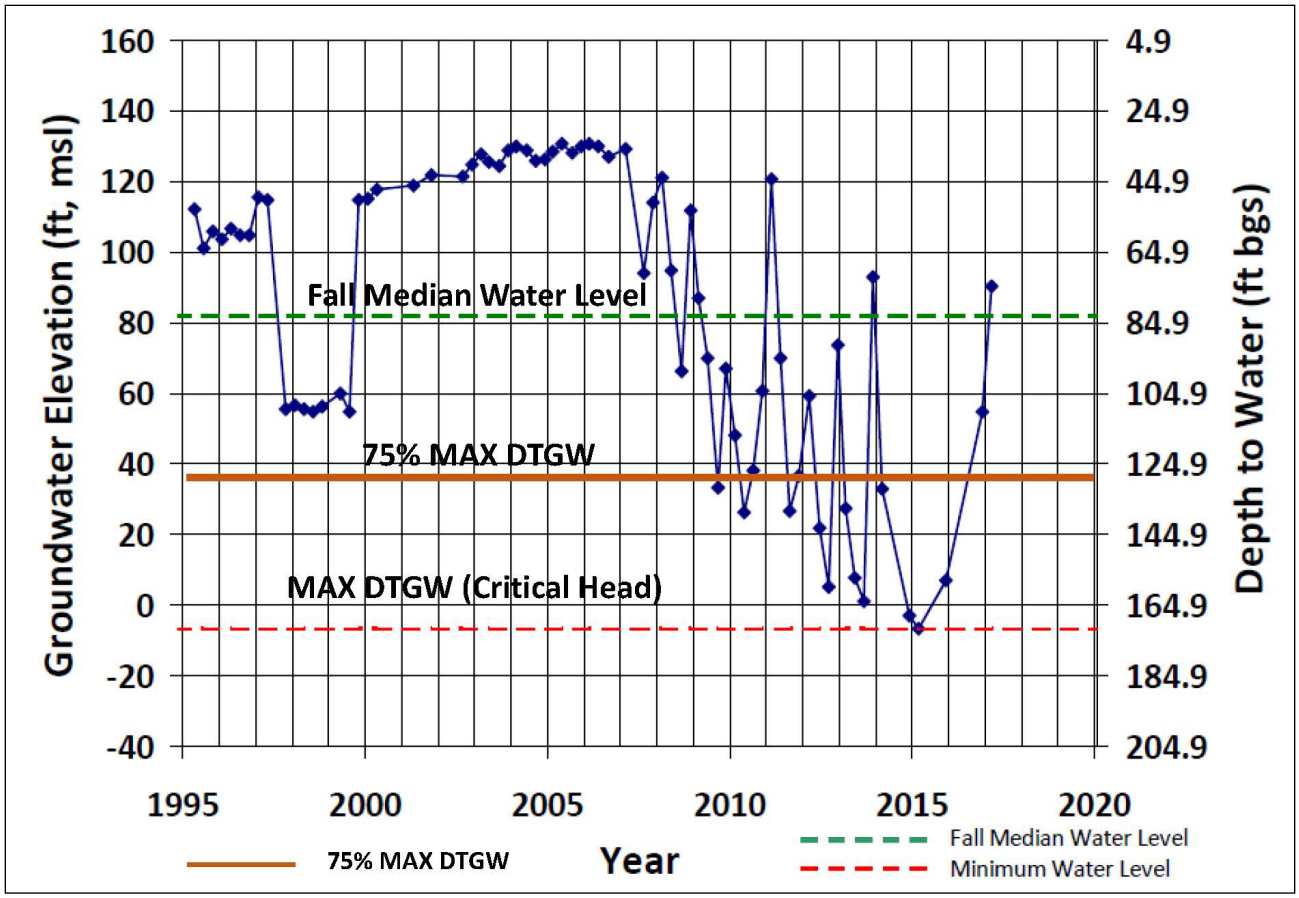

Figure 4. Example of Operation of the Shutoff Trigger

The shutoff trigger included in 2.2.2 requires pumping to stop at 25% above the maximum drawdown experienced by any of the wells participating in the Program, i.e., 75% Max DTGW. This prevents further lowering of water levels beyond what has historically occurred in a given well as illustrated in Figure 4. The resumption trigger also ensures that wells recover prior to restarting pumping. Therefore, it is highly unlikely any subsidence will occur as result of the use of groundwater from the Proposed Action.

Westlands shall monitor and report groundwater levels to Reclamation pursuant to the then-current water quality standards for conveyance of non-CVP water in the San Luis Canal as well as the constraints detailed in 2.2.2.

Cumulative Impacts

Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. To determine whether cumulatively significant impacts are anticipated from the Proposed Action or the No Action alternative, the incremental effect of both alternatives were examined together with impacts from past, present, and reasonably foreseeable future actions in the same geographic area.

Reclamation has reviewed existing or foreseeable projects in the same geographic area that could affect or could be affected by the Proposed Action, as Reclamation and CVP contractors have

been working on various drought-related projects, including this one, in order to manage limited water supplies due to current hydrologic conditions and regulatory requirements. This and similar projects would have a cumulative beneficial effect on water supply during critically dry years.

As in the past, hydrological conditions and other factors are likely to result in fluctuating water supplies which drive requests for water service actions. Water districts provide water to their customers based on available water supplies and timing, while attempting to minimize costs. Farmers irrigate and grow crops based on these conditions and factors, and a myriad of water service actions are approved and executed each year to facilitate water needs. It is likely that over the course of the Proposed Action, districts will request various water service actions, such as transfers, exchanges, and Warren Act contracts (conveyance of non-CVP water in CVP facilities). Each water service transaction involving Reclamation undergoes environmental review prior to approval.

Surface Water The San Luis Canal carries water from CVP, SWP and other sources, for use by contractors located along the San Luis Canal/California Aqueduct. Poor water quality from multiple sources has the potential to cause a cumulative impact on downstream water users. In order to reduce the risk of cumulative impacts to water quality, all water introduced to the San Luis Canal would be tested as required by the then-current water quality standards for conveyance of non-CVP water in the San Luis Canal as well as the constraints detailed in 2.2.2, and if water quality standards cannot be met, introductions from that source would not be allowed until water quality standards are met.

Groundwater Many irrigation districts and individual growers in the San Joaquin Valley rely on groundwater as part of their supply, with volumes pumped varying in response to surface water allocations (CVP and SWP), hydrologic conditions and changes in crop patterns. Pumped water may be used directly on-site, sold/transferred, or exchanged for water at another location.

Groundwater overdraft is an ongoing challenge throughout California, and the San Joaquin Valley in particular has been identified as a high priority, which is recognized in the Westside Subbasin GSP. Overdraft is a cumulative problem, caused by many small actions throughout the basin. However, the Proposed Action only allows conveyance of water that would already be pumped to areas within Westlands with the greatest need. Therefore, there would be no contribution to cumulative impacts to groundwater as a result of the Proposed Action itself.

Subsidence Subsidence in the San Joaquin Valley is a cumulative problem, caused by groundwater pumping at many locations throughout the area. As noted previously, groundwater is likely to be pumped for agricultural use in similar volumes regardless of Reclamation's Proposed Action. However, Reclamation has included operating criteria (design constraints), in order to avoid the contribution of the Proposed Action to these cumulative adverse impacts in the Action area. Therefore, the Proposed Action is not anticipated to contribute to cumulative subsidence impacts beyond ongoing existing trends.

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Section 4 Consultation and Coordination

4.1. Public Review Period

Reclamation provided the public with an opportunity to comment on the Draft EA between July 22, 2020 and August 20, 2020. Two comment letters from private individuals/organizations were received and are included as Appendix A of this Final EA.

The comment letters included conclusory position statements about the Proposed Action. None of these comments address the analysis in this EA, and as such, no responses to these statements are necessary. Substantive comments related to Reclamation's Proposed Action and analysis are addressed below.

Comments Regarding the Need for Environmental Impact Statement

The comment letters advance the position that an EA does not adequately study the potential impacts of the Proposed Action and that an Environmental Impact Statement (EIS) is needed to further analyze and address potential impacts.

This EA and its scope of analysis were developed consistent with NEPA regulations, guidance from the Council on Environmental Quality (CEQ), and the Department of the Interior's NEPA regulations. In accordance with NEPA, an EA is initially prepared to determine if there are significant impacts from carrying out the Proposed Action. An EA is defined by CEQ as a "concise public document" that "briefly provide[s] sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact" (40 CFR 1508.9).

Reclamation has followed applicable procedures in the preparation of this EA, which includes the required components of an EA as described in the CEQ's NEPA regulations (40 CFR 1508.9): discussion of the need for the proposal, alternatives as required, environmental impacts of the proposed action and alternatives, and listing of agencies and persons consulted. EA-15-001 analyzed the potential direct, indirect, and cumulative impacts of Reclamation's Proposed Action (the issuance of a 5-year Warren Act contract and land use authorizations[s] for up to a 25 year period) on the following resources: water resources, land use, biological resources, socioeconomics, environmental justice, cultural resources, Indian Trust Assets, Indian Sacred Sites, air quality, and global climate.

The comments propose that additional alternatives should be considered but did not indicate what those alternatives should be. In accordance with the Department of the Interior's NEPA regulations (43 CFR Part 46.310), EAs are not required to develop alternatives unless there are issues related to unresolved conflicts concerning alternative uses of available resources.

Comments Regarding Water Quality Data and Monitoring Measures

The comments state that the Draft EA did not provide enough water quality data from prior years for study and the proposed constraints would not be protective enough to prevent adverse impacts downstream and examples of prior exceedances in Maximum Contaminant Levels (MCLs) for arsenic, selenium, and Total Dissolved Solids (TDS) for those discharge points that

were authorized in the previous agreement. The comments state that an EA is not the appropriate document to determine the effects of providing 25-year land use authorizations to Westlands for its additional discharge points due to the 5-year duration of the Warren Act contract in the Proposed Action.

Although exceedances have been observed previously, the measures and requirements described in the Proposed Action and the Water Quality Monitoring Plan (WQMP) included as Appendix B have been determined to be protective of water quality for water supplies being conveyed within the San Luis Canal. Additional data on water quality has been added to Section 3.4 of this EA that further supports Reclamation's determination. The data shows that during period that Westlands pumped groundwater for introduction and conveyance in the San Luis Canal, water quality constituents between Check 13 and Check 21 varied very little. The discharges were in compliance with the then-current water quality criteria and were not the cause of any exceedance of any water quality requirements with the San Luis Canal below this area. Regarding those wells locations that exceeded the MCLs for arsenic, selenium, and TDS, the water quality requirements described in the WQMP and the Proposed Action would include monitoring that would preclude discharge from those wells that do not meet the criteria until such time that they have shown acceptable water quality.

The 25-year land use authorizations for the discharge points allows for continued use of the discharge points when there is a current agreement in effect that allows for their use in making discharges into the San Luis Canal. As the applicability of discharges at these locations only lasts as long as the Warren Act contract in the Proposed Action while adhering to the then-current water quality requirements (described within the WQMP) and within the constraints of the Proposed Action, there are no impacts associated with the discharge points that extend beyond the 5-year duration of the Warren Act contract.

Comments Regarding Potential Impacts to Beneficial Uses, Including Fish and Wildlife

The comments speculate that the impacts to the beneficial use of water supplies delivered via the San Luis Canal and California Aqueduct have not been adequately studied. The comments remark that effects to downstream fish and wildlife have not been analyzed and that the concentration of selenium in discharged waters should be limited to ensure that concentrations within the San Luis Canal do not exceed 1.5 ppb and background salinity levels remain 800 mg/L or less.

Reclamation's water quality requirements defined in the WQMP and restated in this EA have been agreed upon to be protective of game fish species and other wildlife considerations. Specifically, the requirement for selenium concentrations to remain at or below 2 pbb are shown to be protective within this and prior EAs. Additional information on the selenium threshold in regard to wildlife has been added to Section 3.2 of this EA. There is no evidence that wildlife using the receiving waters are being impacted by background salinity levels (as noted previously in response to comments by California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service). Furthermore, Reclamation's standards for the Proposed Action limits the maximum TDS in San Luis Canal to 450 mg/L. Finally, water supplies will be protected from further degradation by avoiding mixing with waters in the Mendota Pool, as water will not be pumped into Lateral 7 when water is flowing into the Mendota Wildlife Area

The comments also propose that the potential impacts to the Mendota Wildlife Area have not been studied and addressed within the EA. The Proposed Action does not involve any delivery of water to wildlife refuges and the water quality requirements and constraints described in this EA address mixing of potential groundwater supplies pumped by Westlands and discharged into the San Luis Canal. These requirements are protective of water supplies and would limit degradation of water supplies that would potentially be delivered to downstream refuges. Additionally, subsidence impacts (also discussed below) have been analyzed in the EA and the Proposed Action would not contribute to the subsidence-caused water conveyance problems being experienced at the Mendota Wildlife Area.

Comments Regarding the Potential Subsidence Impacts of Groundwater Pumping

The comments assert that the EA does not provide protective measures that avoid subsidence along the San Luis Canal and surrounding lands.

The requirements described in the WQMP and within the constraints of the Proposed Action are determined to be protective of groundwater overdraft and are in line with the Westside Subbasin Groundwater Sustainability Plan 2020 management strategies. These management strategies are based on a calculated sustainable yield for both historical and projected water budgets with an implementation horizon that should result in sustainable groundwater conditions in the Westside Subbasin by the year 2040. Additionally, the shutoff triggers and resumption triggers of the Proposed Action have been developed to avoid contribution of the participating wells on overdrafting groundwater levels and increasing rates of subsidence.

Reclamation has considered every comment in the comment letters. No additional information was provided that changed the analysis contained in this EA.

4.2. List of Coordination with Agencies and Persons

Reclamation is coordinating with Westlands, DWR, and the San-Luis Delta-Mendota Water Authority regarding the Proposed Action.

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Appendix A: Comment Letters Received on Draft Environmental Assessment

August 20, 2020

Mr. Brian Lopez
U.S. Bureau of Reclamation
South-Central California Area Office
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Comments on the Draft Environmental Assessment (DEA) for Groundwater Pump-ins Enabled by the Bureau of Reclamation Warren Act Contract for Westlands Water District (EA-20-008, CGB-EA-2020-032)

Dear Mr. Lopez:

Thank you for the opportunity to comment. We have reviewed the subject Draft Environmental Assessment (DEA) and find that it is incomplete with regard to addressing environmental impacts in several areas, which we address in detail in comments below. Furthermore, the DEA lacks sufficient data to determine compliance with NEPA, provisions of State of California water quality laws under Porter Cologne and the federal Clean Water Act, the federal and State of California Endangered Species Acts (ESA and CESA), and the California Environmental Policy Act (CEQA). The groundwater pump-in project ("Project" or "Pump-In Project") is a substantial and complex project that clearly requires a comprehensive Environmental Impact Statement (EIS) to properly address potential impacts and alternatives to the proposed project.

The National Environmental Policy Act (NEPA) compels an informed process. NEPA requires that federal decision makers be informed of the environmental consequences of their decisions and undertake an assessment of the environmental effects of their proposed actions prior to making decisions.[1] An informed decision document under NEPA should include all relevant data, including past monitoring data along with analysis of that data, to help inform the public and decision makers as to impacts and guide future implementation of the project.

The Draft Environmental Assessment (DEA) is incomplete in several respects, which we will discuss. There are significant data gaps that hinder the public and decision makers' from making an informed decision regarding the potential environmental consequences of allowing these discharges of contaminated groundwater into the San Luis Canal/California Aqueduct. Also completely neglected are the impacts from discharging this contaminated water and substituting or exchanging it with water exported from the Delta Estuary or other exchanges that have the potential to impact the American River, Yuba River, Sacramento River and Shasta dam operations.

There is substantial evidence that previous similar Westlands Water District (Westlands) pump-in projects have caused and—if permitted again, will continue to cause—water pollution, land subsidence, increased water supply costs to others, and damage to the California Aqueduct, which serves millions of people. The DEA fails to provide a complete assessment of the impacts of this project, fails to include effects of these prior pump-ins on subsidence damages to the San Luis Canal (the federal/state portion of the California Aqueduct, SLC), and completely neglects to include any information and analysis of prior water quality data, quantity of groundwater pumped, percent of aqueduct flow comprised of Westlands' groundwater pump-ins, or contaminant mass balance in the SLC from previous groundwater pump-ins associated with this project. The DEA, as presented, does not support a "fair argument" that this project does not have significant environmental impacts. A full Environmental Impact Statement (EIS) is required so that the environmental impacts, as well as costs and damage to downstream beneficial uses, can be adequately analyzed and described to the public and decision makers. The DEA fails to identify and examine the potential impacts of the Project.

Further, the NEPA process must be completed before an agency makes a final decision on a proposed action. We note that the DEA states on page 3 that the window for the conveyance period for this project in 2020 would commence on August 1, 2020, twenty days prior to the end of the comment period on the DEA. The conveyance period for this project in 2020 should commence when the NEPA and the associated CEQA documentation for this project have been finalized, not before it. Allowing discharge of this contaminated groundwater prior to completion of the NEPA analysis and Record of Decision precludes public input and analysis. It predetermines the federal action, contrary to NEPA requirements to carefully weigh and consider public input.

[1] https://ceq.doe.gov/docs/get-involved/Citizens_Guide_Dec07.pdf

Westlands, a state agency with a singular focus of providing irrigation water to roughly 350 vertically integrated irrigation operations,[2] is not the appropriate state agency to lead such a complex project impacting a broad geographical area and numerous downstream beneficial uses. Our organizations have stated in previous comments that the Department of Water Resources (DWR) should be the lead state agency for such a geographically complex project that impacts multiple counties and jurisdictions. Also, as an owner of the California Aqueduct, DWR is better able to ensure enforcement measures and non-degradation of these beneficial uses of water.

Our organizations provide these comments on Reclamation's DEA for a proposed five-year Warren Act Contract[3] for the Westlands Groundwater Pumping and Conveyance Project. In accordance with NEPA, Reclamation, as the Federal lead agency, made the DEA available for a 30-day public comment period closing on August 20, 2020.[4] Our organizations have previously submitted comments on this project: 1) Scoping Comments for Westlands Water District Proposed Conveyance of Nonproject Groundwater from the Canal side project using the California Aqueduct dated March 2, 2010, and 2**)** Comments to the US Bureau of Reclamation (Reclamation) on the Draft Environmental Assessment Westlands Water District Groundwater Warren Act Contract EA-15-001 & FONSI-15-001, dated March 26, 2015, and 3) Comments on the Draft Initial Study/Negative Declaration for Westlands Water District Warren Act Contract for Groundwater Pump In Program, SCH # 2020050434, dated June 15, 2020. Our previous comments are incorporated here by reference.[5]

The following evaluation and comments supplement previous comments with more detail on key issues.[6] Comments are organized in two parts: (1) a summary of the project as described in the DEA as background for the our critique, and (2) a critique of the project, monitoring plans, and environmental impact analysis.

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[2] See https://www.latimes.com/environment/story/2020-02-28/westlands-water-district-gets-permanent-u-s-contract-for-massive-irrigation-deliveries

[3] The Warren Act (Act of February 21, 1911; Chapter 141, 36 Stat. 925) authorizes USBR to enter into contracts to impound, store, or convey non-CVP water in federal facilities, when excess capacity is available. Warren Act Contracts are issued by Reclamation to allow movement of non-federal water through federal facilities.

[4] See: https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=46184

[5] http://calsport.org/news/wp-content/uploads/Conservation-Gr-04-19-2018-Cmt-Ltr-Delta-Mendota-CanalGroundwater-Pump-in-DEA-18-007-and-FON....pdf

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[6] https://calsport.org/news/wp-content/uploads/Env-Advocate-Cmts-WWD-SLC-Pump-in-2020-IS_ND_6-10-2020-Cal-Aqueduct.pdf

SUMMARY OF PROJECT AS DESCRIBED BY RECLAMATION IN THE DEA

Proposed Pump-in Project Summary

Under the Pump-in Project, Reclamation would enter into a five-year Warren Act Contract (for the years 2020-2025) to allow Westlands to pump in up to 30,000 acre-feet per year (AF/y) (and up to 150,000 AF over the five-year life of the project) of potentially highly contaminated non-CVP groundwater into the California Aqueduct-San Luis Canal (SLC), in years in which Westlands Water District's CVP allocation is 20% or less. Reclamation has specified conditions outlined in Section 2.2.2 of the DEA and in the Water Quality Monitoring Plan in Appendix A. The period of introduction would be between April 1 and August 31 of a given year, except for 2020. Non-CVP water introduced into the SLC would either be directly delivered to agricultural users or wildlife refuges located downstream of the points of introduction or operationally exchanged with Reclamation for a like amount, less conveyance losses, of Westlands' available water supplies in San Luis Reservoir. The delivery of non-CVP water to wildlife refuges is a critical aspect of the Pump-in Project to evaluate because of the sensitivity of the refuges to contamination (discussed in detail below). Exchanged water would either be delivered to agricultural users located upstream of the points of introduction in Westlands or could be exchanged for water stored in San Luis Reservoir as non-CVP water for later delivery to Westlands via the San Luis Canal. The impacts of these exchanges, the quantities, timing, and location from where the water is taken, like the Delta Estuary for example, are not disclosed or defined.

In addition, Reclamation proposes to issue a combined 25-year authorization for 88 discharge points (identified in Table 1 of the DEA, pages 4-6) involved in the Westlands Pump-in Project. We discuss this further in the Comments and Recommendations section below.

Proposed Design Constraints and Operating Criteria

The Westlands Pump-in Project is supposed to be subject to water quality monitoring, groundwater monitoring, and reporting requirements as described in Reclamation's current San Luis Canal Non-Project Water Pump-in Program 2020 Water Quality Monitoring Plan dated May 2020 (WQMP) and provided in Appendix A of the DEA. There are numerous inconsistencies, as discussed in our detailed comments. Further enforcement actions are absent and instead are left to vague assurances between Westlands and Reclamation. These vague assurances do not mitigate impacts nor is it clear how they will be enforced.

Water Quality Monitoring Requirements

<u>Baseline sampling and routine sampling of individual wells</u>

The WQMP requires that all participating wells must have baseline sampling each year before pumping into the San Luis Canal begins for those constituents of concern used for screening-out non-compliant wells. Further, the WQMP requires that for all constituents in the Table 5 short list (except as specified in the footnotes), monitoring will continue to occur weekly for four consecutive weeks, and then monthly for the duration of pumping into the SLC.

In addition, each well is also required to be tested every three years for the full array of Title 22 constituents of concern. On page 7 of the DEA it states that, "*Reclamation will allow the introduction of water from two or more wells through one discharge point if the blended water meets the Title 22 standards. Special monitoring may be required for these situations*." As we discuss in detail below, the Title 22 Drinking Water standard for selenium is not protective of fish and wildlife resources that use water from the aqueduct and this is inconsistent with the short list of water quality standards for selenium set forth in Table 5 in the WQMP. This inconsistency needs to be corrected. Further, the impacts of any such inconsistency, including the failure to monitor and enforce protective fish and wildlife water quality standards for selenium, have not been disclosed.

Also included with the sampling of individual wells is one-time screening for the presence of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) and, if detected, Reclamation and the California Department of Water Resources (DWR) will work with Westlands on conducting additional sampling.

Table 5 from 2020 SLC WQMP

San Luis Canal
Non-Project Water Pump-in Program
Water Quality Monitoring Plan

Table 5. Water Quality Standards, Short List

Constituent	Units	Maximum Contaminant Level	Detection Limit for Reporting	CAS Registry Number	Recommended Analytical Method
Arsenic	mg/L	0.01 (1)	0.002 (2)	7440-38-2	EPA 200.8
Boron	mg/L	2.0 (13)		7440-42-8	EPA 200.7
Bromide	mg/L	(14)			
Chloride	mg/L	250 (7)		16887-00-6	EPA 300.1
Chromium, total	mg/L	0.05 (1)	0.01 (2)	7440-47-3	EPA 200.7
Hexavalent chromium	mg/L	0.010 (1)	0.001 (2)	18540-29-9	EPA 200.8
Manganese	mg/L	0.05 (7)		7439-96-5	EPA 200.7
Nitrate (as nitrogen)	mg/L	10 (1)	0.4 (2)	7727-37-9	EPA 300.1
Selenium	mg/L	0.002 (10)	0.001	7782-49-2	EPA 200.8
Sodium	mg/L	69 (12)		7440-23-5	EPA 200.7
Specific Conductance	µS/cm	1,600 (7)			SM 2510B
Sulfate	mg/L	500 (7)		14808-79-8	EPA 300.1
Total Dissolved Solids	mg/L	1,000 (7)			SM 2540C
Total Organic Carbon	mg/L	(14)			EPA 415.3
Gross alpha[4]	pCi/L	15 (3)	3 (3)		SM 7110C
1,2,3-Trichloropropane	mg/L	0.000005 (4)	0.000005 (5)	96-18-4	SRL 524M
One-Time Screening					
Perfluorooctanic acid (PFOA)[5]	ng/L	N/A	0.82 (15)		EPA 537.1
Perfluorooctanesulfonic acid (PFOS)[5]	ng/L	N/A	2.7 (15)		EPA 537.1

Short list to be measured before pumping occurs, then weekly for four consecutive weeks, and monthly for the duration of pumping into the San Luis Canal.
(4) Monthly testing only
(5) One-time screening conducted prior to pumping individual wells and from Lateral 7 at the Adams Avenue pump station. Although there are no MCLs developed yet, there are notification levels and response levels. The notification levels are 5.1 PPT (PFOA) and 6.5 PPT (PFOS). The response levels are 10 PPT (PFOA) and 40 PPT (PFOS) based on a running four quarter average. The lowest concentration minimum reporting levels (LCMRL) are 0.82 ng/L (PFOA) and 2.7 ng/L (PFOS).

<u>Lateral 7 water quality monitoring</u>

Non-project water is only allowed to enter Lateral 7 when water is being pumped into the SLC,

not when flow is entering the Mendota Pool. Westlands is required to take weekly field measures for conductivity and turbidity at locations near Lateral 7 during these periods.

In addition to non-project well sampling, Westlands must collect samples from Lateral 7 at the Adams Avenue pump station. Lateral 7 water must be tested for the full suite of Title 22 (Table 6) every year. Table 5 constituents will be sampled weekly for the first four weeks, then monthly for the duration of pumping.

There will be a one-time screening for the presence of Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) from Lateral 7 at Adams Avenue pump station and if detected, Reclamation and DWR will work with Westlands on conducting additional sampling.

Water Quality Monitoring of the Aqueduct

Mean daily salinity and turbidity will be measured with the DWR sensors that report real-time data to the California Data Exchange Center (CDEC). Westlands is required to download daily average data for SLC Checks 13 and 21 to measure changes in the canal between these checks that may be attributable to the addition of the non-project water.

The WQMP includes maximum allowable changes in the SLC caused by the addition of Westlands' groundwater pump-ins. These commitments are summarized in Table 4 on page 12 of the WQMP and are included below. If the addition of the non-project water is increasing the salinity (measured as electrical conductivity, or EC) of water in the SLC more than 100 µS/cm between Check 13 and Check 21, Reclamation will work with Westlands and the well operators to turn off high salinity wells. These are vague directives that lack enforcement. Without an absolute requirement that these high salinity wells are turned off, the impacts of such delay or failure to act are not considered.

The addition of non-project water must not raise the salinity in the SLC at Check 21 above 700 µS/cm, equivalent to 450 mg/L Total Dissolved Solids.

If the salinity of water passing Check 13 is greater than 700 µS/cm, Reclamation and Westlands will coordinate with DWR to modify or restrict non-project pumping. Once again, these are vague directives that lack enforcement. Without an absolute requirement that these high salinity wells are turned off, such action cannot be ensured, but the potential impacts of such delay or failure to act are not disclosed.

Also, at Check 21 are requirements for TDS (NTE 450 mg/L) and selenium (NTE 2 µg/L).

Table 4. Maximum allowable changes in the San Luis Canal caused by the addition of non-project groundwater

Constituent	Monitoring Location	Maximum concentration in the San Luis Canal
Electrical conductivity	Between San Luis Canal Checks 13 and 21	Less than 100 uS/cm increase between the checks
Turbidity	Between the Lateral 7 upstream site and downstream site	Less than 10 NTU
Electrical conductivity	In the San Luis Canal at Check 21	Not to exceed 700 uS/cm
Total dissolved solids		Not to exceed 450 mg/L
Concentration of selenium		Not to exceed 2 ug/L
Concentration of any Title 22 constituent		Less than half of a Title 22 MCL

Depth to Groundwater Commitments

The WQMP also includes requirements to measure groundwater levels and a shutoff trigger to reduce subsidence impacts. The shutoff trigger included in the WQMP requires pumping to stop at 25% above the maximum drawdown experienced by any of the wells participating in the Program, i.e., 75% Max DTGW. The intent is to prevent further lowering of water levels beyond what has historically occurred in a given well, as illustrated in Figure 4 of the DEA.

Well owners are required to measure the initial depth to groundwater in each well before pumping into the SLC, and monthly from April through August and every other month outside of that range while the 2020 Pump-in Program is in effect. An individual well will be shutoff when its Depth to Groundwater reaches 75% of the difference between the Fall/Winter Median Groundwater Level and the Max DTGW using the following equation:

Shutoff Trigger= 0.75(Max DTGW-Fall/Winter Median) + Fall/Winter Median*

If an individual well is shutoff due to groundwater levels reaching the shutoff trigger, it will not be allowed to resume pumping until it reaches 70% of the difference between the Fall/Winter Median

Groundwater Level and the Max DTGW using the following equation:

Well Resumption= 0.70 (Max DTGW-Fall/Winter Median) + Fall/Winter Median*

Groundwater level measurements are supposed to follow a strict schedule. If a well is shutoff it will not be measured again until the next scheduled measurement date. The participants must notify Reclamation in writing when a well is shutoff or resuming.

As shown in Figure 4, Max DTGW (also referred to as Critical Head) is the greatest amount of drawdown (lowest depth to water) that has occurred within a particular well.

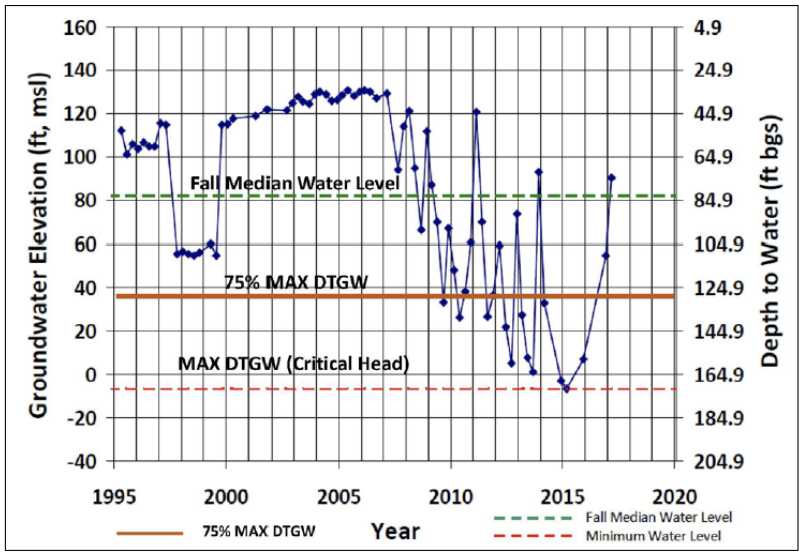


Figure 4. Example of Operation of the Shutoff Trigger

SPECIFIC COMMENTS AND RECOMMENDATIONS

Authorization of Discharge Points into the SLC should be for no more than 5 Years.

Reclamation proposes to issue a combined 25-year authorization for 88 discharge points (identified in Table 1 of the DEA, pages 4-6) involved in the Pump-in Project. The environmental impact of authorizing these discharges for 25 years has not been evaluated or disclosed. Further, sanctioning this groundwater discharge for a 25-year period for all discharge points in a document that covers only a 5-year Warren Act Contract for those discharges further fails to disclose the environmental impacts. As we will discuss below, 35 of the 88 discharge points identified in Table 1 of the DEA under Westlands' previous pump-in projects had at least one well that exceeded maximum contaminant levels (MCLs) identified for the constituents As, Se or TDS. This information is summarized in Appendix A to our comments. We note here that the use of the MCL terminology to the water quality standards applicable to this project leads to confusion because MCLs generally refer to federal drinking water standards, which these are not. Nevertheless, in our comments we will use Reclamation's definitions as defined in the DEA.

Inclusion of these discharge points for 25-years is arbitrary and capricious and not supported by any water quality data from previous groundwater pump-ins or long-term analysis of potential future impacts. Moreover, it is a violation of Article 14(f) of the current Warren Act Contract between Reclamation and Westlands that states, "*At all times during the term of this Contract, the Contractor shall be in compliance with the requirements of the then-current Quality Assurance Project Plan (Plan) prepared by the Contracting Officer to monitor Non-Project Water introduced into and conveyed through the Project Facilities*."[7] We therefore recommend that only those discharge points that do not exceed MCLs for constituents identified in Table 4 of the WQMP be authorized for 5 years, and that NO discharge points be authorized for a longer period.

Water Quality Monitoring at all Discharge Points

On page 8 of the DEA, in Table 2, Environmental Protection Measures and Commitments is the following, "*Reclamation requires monitoring of selenium levels in the San Luis Canal and at all discharge points* [emphasis added] *as described in the water quality monitoring plan (see Appendix A). Selenium levels in the San Luis Canal shall not exceed 2 parts per billion (ppb) during periods of introduction. If water quality in the San Luis Canal exceeds 2 ppb, Reclamation and/or its operating entity will require additional sampling at all discharge points to ensure that water being introduced does not exceed 2 ppb selenium*."

We note that the WQMP does not include water quality monitoring at all discharge points as a requirement of the program. It requires monitoring at the wellhead, Lateral 7, and in the SLC at Checks 13 and 21. The WQMP should be revised to be consistent with the DEA and include the more appropriate and stringent monitoring requirements described in the DEA. The environmental impacts that may result from the failure to comply with the monitoring of selenium levels in the San Luis Canal and all discharge points needs to be analyzed and disclosed.

[7] https://www.usbr.gov/mp/warren-act/docs/contract-westlands-multiyear-convey-nonproject-water.pdf

Changes in SLC water quality requirements in the 2020 WQMP must be Addressed and Environmental Impacts Analyzed and Disclosed.

We note that the 2015 WQMP[8] restricted salt contamination in the Aqueduct between Checks 13 and 21 compared with the 2020 WQMP as follows:

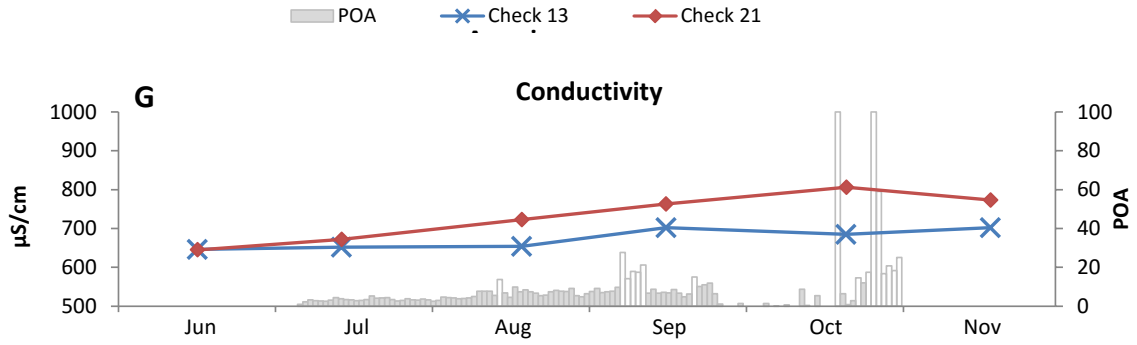
- A maximum allowable change caused by pumped GW at Check 21 (Kettleman) of not to exceed 600 µS/cm EC (the 2020 WQMP allows 700 µS/cm);
- Less than 50 µS/cm EC change between Check 13 and Check 21 (the 2020 WQMP allows no more than 100 µS/cm EC change);

There is no mention of these changes in EC requirements in the SLC in either the DEA or the 2020 WQMP, nor is there any analysis of the effects of this allowable EC increase or explanation as to why these EC control requirements have been weakened. We further note that compliance with the 2015 EC requirements in the SLC were exceeded routinely in 2015 as documented in DWR's report on non-project water pump-ins for 2015[9], as depicted in Figure 3-5 from that report:

CDEC continuous EC Data Checks 13 and 21 in 2015 From (DWR 2016)

Water Quality Assessment of Non-Project Turn-ins to the California Aqueduct, 2015

Figure 3-5 Water Quality Constituents-of-Concern at Check 13 and Check 21 and Westlands Water District Percentage-of-Aqueduct Values



[8] See Appendix C, starting at pdf pg 4: https://www.usbr.gov/mp/nepa/includes/documentShow.php?Doc_ID=21986

[9] See: https://calsport.org/news/wp-content/uploads/Water-Quality-Assessment-of-Non-Project-Turn-ins-to-the-California-Aqueduct-2015.pdf

Note that Article 14(f) of the current Warren Act Contract between Reclamation and Westlands states, "*At all times during the term of this Contract, the Contractor shall be in compliance with the requirements of the then-current Quality Assurance Project Plan (Plan) prepared by the Contracting Officer to monitor Non-Project Water introduced into and conveyed through the Project Facilities."*[10] We see clear evidence from DWR reports of prior Westlands groundwater pump-ins that water quality requirements have been routinely exceeded both at the wellhead and at Check 21 in the SLC. This record of non-compliance argues for improved enforcement of water quality standards and the impact from these past discharges needs to be disclosed.

Pump-In Project Likely to Harm State Fish and Wildlife Designated Beneficial Uses Associated with the California Aqueduct.

The groundwater contributions from the Pump-in Project are conveyed south through the California Aqueduct and stored in four reservoirs (Pyramid Lake, Castaic Lake, Silverwood Lake, and Lake Perris). The aqueduct and these four reservoirs are regulated under four Regional Water Boards jurisdictions. Designated fish and wildlife beneficial uses of the Aqueduct and downstream reservoirs are listed in Table 1.

The Central Valley Regional Water Quality Control Board (CV Regional Board) does not include fish (WARM) as a beneficial use for the aqueduct. Yet the DWR has promoted fishing along the Aqueduct and identifies five locations within or near Westlands (Fairfax, Three Rocks, Huron, Avenal Cutoff, and Kettleman City sites) (DWR 2008)[11]. Further, the CV Regional Board includes WARM beneficial use designation for the Delta Mendota Canal,[12] so we can only surmise that the omission of a WARM beneficial use designation for the California Aqueduct is an oversight. Nonetheless, the Pump-in Project should be protective of downstream beneficial uses of the water from the California Aqueduct and these impacts need to be disclosed and addressed in a full EIS that would replace this deficient DEA. Existing data simply do not support the adoption of an EA/FONSI for environmental impacts of this action. Due to the high percentage of volumes in the Aqueduct and resulting high contaminant levels represented by the Westlands' pump-ins during certain time periods, especially drought conditions, humans who fish the California Aqueduct are likely to be periodically exposed to much higher contaminants than the long-term average. In addition, there will be higher contaminant levels in fish than monitored in canal water due to accumulations in fish tissue. This exposure, warnings, and existing monitoring data are not disclosed, especially to low income communities in the surrounding areas, and there is no mention of fish tissue monitoring. Monitoring does not include biological monitoring so that impacts can be assess and identified.

[10] Ibid.

[11] See: https://calsport.org/news/wp-content/uploads/DWR_Fishing-Along-the-SWP.pdf

[12] See: https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf

Table 1. Fish and Wildlife Beneficial Uses Associated with CA Aqueduct south of Pump-in Project

Waterbody Name	WARM	COLD	SPWN	WILD	RARE
California Aqueduct[13]				E	
Castaic Lake[14]	E	I	E	E	E
Pyramid Lake[5]	E	E		E	E
Silverwood Lake[15]	E		E	E	
Lake Perris[16]	E	E		E	E

E: Existing beneficial use.

I: Intermittent beneficial use.

WARM: Warm Freshwater Habitat - Uses of water that support warm water ecosystems including but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

COLD: Cold Freshwater Habitat - Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

SPWN: Spawning, Reproduction, and/or Early Development - Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.

WILD: Wildlife Habitat - Uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

RARE: Endangered Species - Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered.

[13] See: https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf

[14] See Beneficial Use Designations of Inland Surface Waters, Los Angeles Regional Water Board: https://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/2020/Chapter_2/Chapter_2_Table_2-1/Chapter_2_-_Table_2-1.pdf

[15] See: https://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/docs/ch2_bu.pdf

[16] See: https://www.waterboards.ca.gov/santaana/water_issues/programs/basin_plan/docs/2019/New/Chapter_3_June_2019.pdf

Effects on Refuge Water Supplies – Percent of Aqueduct of Westlands Pump-ins

The DEA acknowledges on page 12 that groundwater from the Pump-in Project will comingle with refuge water supplies: "*Both Mendota Wildlife Area and Kern National Wildlife Refuge water supplies may mix with groundwater introduced as a result of the Proposed Action, and this would occur partly during times of the year when these refuges would receive water supplies. However, the selenium levels are expected to remain well below the threshold for an effect on wildlife, which is 2 ppb as measured in the water column…*" However, the DEA assumes the wellhead MCL of 2 µg/L selenium established in the 2020 WQMP will be adhered to, without providing any data on the water quality performance of prior Westlands pump-ins. We note that almost 40% of the discharge points Reclamation identified in Table 1 of the DEA had at least one well sample that exceeded MCLs identified in the DEA for the constituents As, Se or TDS. This information is summarized in Appendix A to our comments. Information on volumes from each well, and which wells were shut down was not provided in the DWR reports. Westlands also did not provide this information, as was requested under the California Public Records Act.[17] These elevated selenium concentrations at the wellheads occurred even though the 2015 WQMP[18] for this project listed an MCL for selenium of 2 µg/L, shown in Table 4 below. A lack of surveillance and enforcement has been a critical flaw of previous pump-in projects. The environmental impacts from this failure needs to be disclosed and analyzed.

San Luis Canal
Non-Project Ground Water Pump-in Program
2015 Water Quality Monitoring Plan

Table 4. Water Quality Standards, Initial Test

Constituent	Units	Maximum Contaminant Level		Detection Limit for Reporting		CAS Registry Number	Recommended Analytical Method
Arsenic	mg/L	0.010	(1)	0.002	(2)	7440-38-2	EPA 200.8
Boron	mg/L	2	(12)			7440-42-8	EPA 200.7
Bromide	mg/L		(16),(17)			24959-67-9	EPA 300.1
Chloride	mg/L	250	(7)			16887-00-6	EPA 300.1
Chromium, total	mg/L	0.05	(1),(17)	0.01	(2)	7440-47-3	EPA 200.7
Chromium, hexavalent	mg/L	0.01	(1),(17)			18540-29-9	EPA 218.6
Manganese	mg/L	0.05	(6)			7439-96-5	EPA 200.8
Mercury	mg/L	0.002	(1)	0.001	(2)	7439-97-6	EPA 245.1
Nitrate (as NO3)	mg/L	45	(1)	2	(2)	7727-37-9	EPA 300.1
Selenium	µg/L	2	(10)	0.4		7782-49-2	EPA 200.8
Sodium	mg/L	69	(12)			7440-23-5	EPA 200.7
Sulfate	mg/L	250 - 600	(7)			14808-79-8	EPA 300.1
Total Dissolved Solids	mg/L	500-1500	(17)				SM 2540 C
Total Organic Carbon	mg/L		(16),(17)			7440-44-0	EPA 415.1
Gross alpha	pCi/L	15	(3),(17)	3	(3)	12587-46-1	SM 7110C

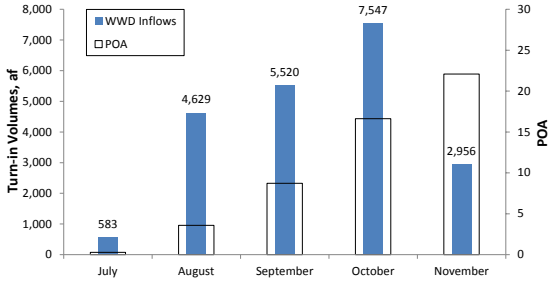
[17] https://calsport.org/news/wp-content/uploads/Canal-Integration-Program-Third-Response-Schifferle-071720.pdf

[18] See Appendix C, pdf pg 4: https://www.usbr.gov/mp/nepa/includes/documentShow.php?Doc_ID=21986

The DEA also fails to disclose any data on the percent of flow in the Aqueduct (POA) comprised of Westlands groundwater pump-ins. In 2014 and early 2015 there were days within the fall and winter months when the Dos Amigos Pumping Plant ceased pumping, resulting in Westlands pump-ins contributing 100% of the flow in the aqueduct on those days as depicted in the Figures 3-1 and 3-2 from DWR 2015[19] and Figure 3-1 from DWR 2016[20] reports below. Some of these time periods overlap with refuge water deliveries to Kern NWR. The impacts from deliveries of degraded water to the refuge needs to be monitored and disclosed.

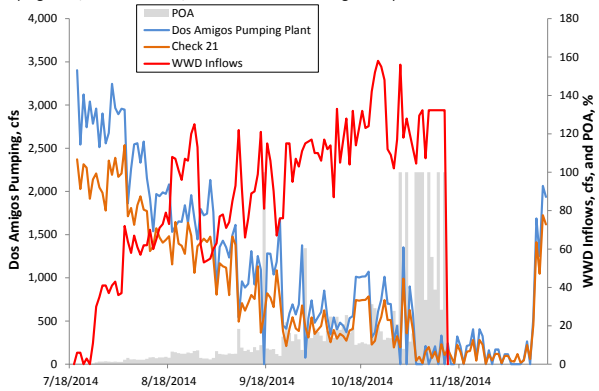
Water Quality Assessment of Non-Project Turn-ins to the California Aqueduct, 2014

Figure 3-1. Monthly Inflows to the Aqueduct from Westlands Water District and Calculated Percentage-of-Aqueduct Values



Notes: af = acre-feet, POA = percentage-of-Aqueduct, WWD = Westlands Water District

Figure 3-2. Daily Inflows to the Aqueduct from Westlands Water District, Pumping at Dos Amigos Pumping Plant, Check 21 Flows, and Calculated Percentage-of-Aqueduct Values



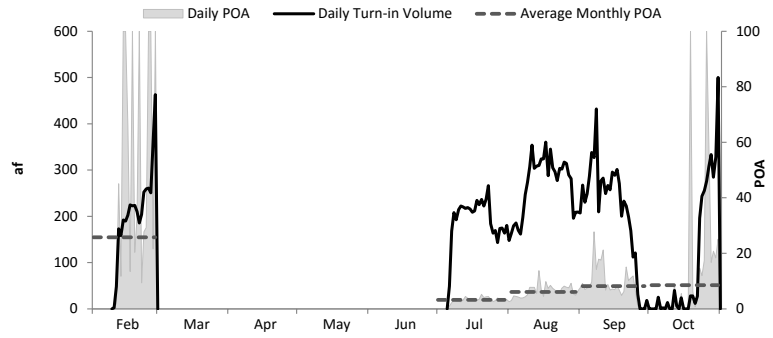
Notes: cfs = cubic feet per second, POA = percentage-of-Aqueduct, WWD = Westlands Water District

[19] (DWR) California Department of Water Resources. October 2015. Water Quality Assessment of Non-Project Turn-ins to the California Aqueduct, 2014. Technical Memorandum Report**,** Division of Operations and Maintenance State Water Project Operations Support Office Environmental Assessment Branch Sacramento, California, 140 pp. https://calsport.org/news/wp-content/uploads/Water-Quality-Assessment-of-Non-Project-Turn-ins-to-the-California-Aqueduct-2014.pdf

[20] (DWR) California Department of Water Resources. December 2016. Water Quality Assessment of Non-Project Turn-ins to the California Aqueduct, 2015. Technical Memorandum Report**,** Division of Operations and Maintenance State Water Project Operations Support Office Environmental Assessment Branch Sacramento, California, 172 pp. https://calsport.org/news/wp-content/uploads/Water-Quality-Assessment-of-Non-Project-Turn-ins-to-the-California-Aqueduct-2015.pdf

Water Quality Assessment of Non-Project Turn-ins to the California Aqueduct, 2015

Figure 3-1 Daily Inflows to the Aqueduct from Westlands Water District and Calculated Percentage-of-Aqueduct Values



DAPP Pumping	18,297	66,662	110,738	150,896	175,307	190,325	127,735	70,871	31,353
Total Turn-in Volume	4,297	-	-	-	-	5,014	8,251	6,341	2,932
Average Monthly POA	26[a]	-	-	-	-	3.3[a]	6.1	8.2	8.6

Notes:
af = acre-feet, DAPP = Dos Amigos Pumping Plant, POA = percentage-of-Aqueduct
POAs of 100 percent during February and October represent days when Dos Amigos PP was inactive.
[a]Calculations for monthly POAs begins on the first day of turn-in operations.

The California Department of Fish and Wildlife (CDFW) submitted comments on the Westlands' IS/ND for the Pump-in Project dated June 22, 2020.[21] CDFW wrote that, "*Mendota Wildlife Area (MWA) is located directly adjacent to Westlands, and several groundwater wells are located either directly adjacent to the MWA or in the nearby vicinity. Some of these wells pump groundwater into the Inlet Canal, which runs along the southern boundary of the MWA and connects to the WWD via Lateral Canals 6 and 7. Although not identified as a subsidence prone area in the ND, MWA has been significantly affected by groundwater overdrafting and subsidence*." The DEA fails to provide sufficient information regarding the thresholds for overdrafting and subsidence and enforcement to enable the public and decision makers to determine whether such thresholds would be sufficient to prevent subsidence, the associated environmental impacts, and costs to other beneficial users. The Project's potentially significant direct and cumulative contributions to land subsidence require a full EIS.

With respect to water quality requirements of pumped groundwater and associated refuge water quality impacts CDFW noted for Mendota Pool, "*The primary disqualifying factor would be high salinity levels, where any well with TDS exceeding 1,000 mg/L would be disqualified. This upper limit is 20% higher than the daily mean TDS water quality objective for the MWA of 800 mg/L or less (Reclamation Water Contract Number 14-OC-200 for Refuge Water Supplies to MWA). The addition of water with TDS higher than 800 mg/L would increase the salinity of the receiving waters in the MWA*."

CDFW recommended "*…that an analysis with thresholds of significance for aquatic species be included in the IS/ND with measures proposed to reduce any potentially significant impacts*." Reclamation

[21] See: https://ceqanet.opr.ca.gov/2020050434/2/Attachment/5CSO8N

likewise needs to conduct a full EIS analysis for this project and disclose the impact of discharging these contaminants on Refuge Water Supplies and other uses

Water Quality Standards for Selenium in the DEA are not Protective of Downstream Fish and Wildlife Beneficial Uses.

On page 13 of the DEA, Reclamation concludes that the Pump-in Project would have no effect on proposed or listed species or critical habitat under the federal ESA of 1973, as amended (16 U.S.C. §1531 et seq.), and there would be no take of birds protected under the Migratory Bird Treaty Act (16 U.S.C. §703 et seq.). Reclamation concludes that no consultation with the U.S. Fish and Wildlife Service or National Marine Fisheries Service is required. As previously noted, the DEA assumes the wellhead MCL of 2 µg/L selenium established in the 2020 WQMP will be adhered to with only vague enforcement assurances. Past data on the water quality performance of prior Westlands pump-ins draws this assumption into question. No biological data or monitoring is provided in the DEA to support such a conclusion.

Moreover, on page 7 of the DEA, it is stated that "*Reclamation will allow the introduction of water from two or more wells through one discharge point if the blended water meets the Title 22 standards*." The Title 22 selenium objective of 50 µg /L and the 20 µg /L EPA drinking-water MCL for selenium, are not protective of fish and wildlife resources that use water from the Aqueduct, which require levels less than 2 µg /L, specifically 1.5 µg /L. The blending of water from two or more wells to meet "Title 22 water quality standards" clearly is not protective of endangered species, migratory birds using the Pacific Flyway and other fish and wildlife that rely upon waters from the San Luis Canal/California Aqueduct.

On July 13, 2016 the Environmental Protection Agency (EPA) released a Final Updated Clean Water Act (CWA) section 304(a) recommended national chronic aquatic life criterion for the pollutant selenium in fresh water.[22] The final criterion supersedes EPA's 1999 CWA section 304(a) recommended national acute and chronic aquatic life criteria for selenium. The 2016 criterion reflects the latest scientific information, which indicates that selenium toxicity to aquatic life is primarily based on organisms consuming selenium-contaminated food rather than direct exposure to selenium dissolved in water. The federal register notice identified revised chronic selenium criteria in water for lentic waters (e.g., meaning of, relating to, or living in still waters, such as lakes, ponds, or swamps) and lotic waters (e.g., rivers and streams). EPA's revised chronic selenium criterion for lentic waters of a monthly mean of 1.5 µg /L is the criterion that should be applied to water in the California Aqueduct to protect fish and wildlife beneficial uses.

As noted in the DEA, both Mendota Wildlife Area and Kern National Wildlife Refuge water supplies may mix with groundwater introduced as a result of the proposed Pump-in Project, as well as downstream State Water Project reservoirs. Rare species that could be impacted by selenium from Westlands' contaminated groundwater discharges from the Pump-in Project include the federally listed as endangered Buena Vista Lake shrew, federally listed as threatened giant garter snake, and federally protected bald eagle (USFWS 2017).

[22] See: https://www.federalregister.gov/documents/2016/07/13/2016-16585/recommended-aquatic-life-ambient-water-quality-criterion-for-selenium-in-freshwater

CDFW comments on the IS/ND for the Pump-in Project noted, *"Special-status species in the Project vicinity include the State and federally threatened giant garter snake, the State threatened and federally endangered San Joaquin kit fox (Vulpes macrotis mutica), the State and federally endangered Tipton kangaroo rat (Dipodomys nitratoides nitratoides), the State and federally endangered and State fully protected blunt-nosed leopard lizard (Gambelia sila), the State threatened Swainson's hawk (Buteo swainsoni), the State threatened Nelson's antelope squirrel (Ammospermophilus nelsoni), the State threatened tricolored blackbird (Agelaius tricolor), the federally endangered and California Rare Plant Rank (CRPR) 1B.2 San Joaquin woollythreads (Monolopia congdonii), the CRPR 1B.2 Munz's tidy-tips (Layia munzii), the State candidate for listing crotch bumble bee (Bombus crotchii), and the State species of special concern American badger (Taxidea taxus), Tulare grasshopper mouse (Onychomys torridus tularensis), San Joaquin coachwhip (Masticophis flagellum ruddocki), and burrowing owl (Athene cunicularia)."*

These complex issues related to impacts on fish and wildlife beneficial uses require a full analysis of the proposed project and potential project alternatives that could better minimize environmental risks. This should be done as part of a full EIS and consultation with the CDFW and the USFWS is essential.

Water Quality Data from Previous Pump-ins is not Provided in DEA

Data on groundwater quality from participating wells from previous pump-ins is not provided in the DEA. The only groundwater data from individual wells for a Westlands previous pump-in that was available on the web was collected by the DWR in 2008.[23] Some of the wells sampled in 2008 are included in Table 1 of the DEA for the current project. Further, we received DWR Technical Memoranda Reports on the Non-Project Turn-ins to the California Aqueduct for the years 2014 2015 and 2016[24] from a Public Records Request to Westlands in July 2020.[25] That data from 2008 and 2014-16 highlights the significant variability of selenium in well water from the Westlands pump-ins and many of the samples reported were well above the MCL for selenium in the WQMP (2 µg/L).

Reclamation's San Luis Canal Non-Project Water Pump-in Program Water Quality Monitoring Plan from 2015 required that:

[23] Select Project, then WWD 2008 Pump Ins at: https://wdl.water.ca.gov/waterdatalibrary/WaterQualityDataLib.aspx

[24] (DWR) California Department of Water Resources. November 2017. Water Quality Assessment of Non-Project Turn-ins to the California Aqueduct, 2016**.** Technical Memorandum Report**,** Division of Operations and Maintenance State Water Project Operations Support Office Environmental Assessment Branch Sacramento, California, 146 pp. https://calsport.org/news/wp-content/uploads/Water-Quality-Assessment-of-Non-Project-Turn-ins-to-the-California-Aqueduct-2016.pdf See also https://calsport.org/news/wp-content/uploads/Water-Quality-Assessment-of-Non-Project-Turn-ins-to-the-California-Aqueduct-2015.pdf https://calsport.org/news/wp-content/uploads/Water-Quality-Assessment-of-Non-Project-Turn-ins-to-the-California-Aqueduct-2014.pdf

[25] https://calsport.org/news/wp-content/uploads/Canal-Integration-Program-Third-Response-Schifferle-071720.pdf

"*Westlands will provide the following information to Reclamation prior to pumping groundwater into the canal:*

> *- the location of each well, pumping rate, and point of discharge into the San Luis Canal (Appendix B);*
>
> *- complete water quality analyses (Table 5) and Table 4 for new wells and each new year of pump-ins*
>
> *- the depth to groundwater in every well before pumping into the San Luis Canal commences…*

When the Project is operating, Westlands will provide DWR and Reclamation with periodic (daily and weekly, as necessary) schedules which identify the approved source wells flow rates, locations of pump-in by Aqueduct Mile Post, and deliveries by Reach.

Westlands shall provide weekly updates identifying the current and anticipated water quality changes within the SLC by using the daily model. The goal is to provide Reclamation and the State Water Project Facilitation Group with a day-to-day prediction of downstream water quality using real-time pump-ins, real-time upstream background flows, and current background water quality data."

Inexplicably, none of this data from previous pump-ins is presented in the DEA. The DEA fails to include any prior data from previous Westlands groundwater pump-ins on water quality, quantity of groundwater pumped by each well, depth to groundwater of each well prior to pumping, or contaminant mass balance in the SLC. Data on the previous performance of the Pump-in Project is essential information missing from the DEA. It is important to estimate mass balance contaminant loading in the California Aqueduct from these discharges to ensure that discharges do not harm downstream beneficial uses and to determine the impacts from continuing the Pump-in Program. These data are also important to inform decision makers and the public with regard to the cumulative impacts of the Pump-in Project.

As emphasized for other issues as well, the DEA should be withdrawn and replaced with an EIS that includes all of this critical information and related analysis for public comment review.

Monthly Monitoring of Aqueduct Water Quality at Check 21 near Kettleman City is Insufficient to Assess Environmental Impacts of Pump-in Project

The California Department of Water Resources (DWR) conducts monthly monitoring of the California Aqueduct and has documented occurrences of elevated levels of concern for selenium at Check 21 near Kettleman City (station number KA017226), especially during times when surface water flows have been restricted in the Aqueduct and groundwater from Westlands is being pumped into the Aqueduct.[26] As denoted in Figure 1 (on the following page), monthly water quality samples at Check 21 have exceeded the US EPA's July 2016 Final Updated CWA section 304(a) recommended national chronic aquatic life

[26] Water quality data for the California Aqueduct at Check 21 near Kettleman City is available here: http://wdl.water.ca.gov/waterdatalibrary/waterquality/index.cfm

criterion for the pollutant selenium in fresh water 12 times between January 2012 and January 2020. These proposed objectives include a lentic water quality objective of 1.5 µg/L[27], which would be the applicable selenium objective for Kern National Wildlife Refuge and other wetlands and reservoirs that are fed by water from the Aqueduct. Further, the once-a-month water quality sampling is insufficient to establish a monthly mean water quality calculation, to capture contaminant spikes that accumulate downstream, or to assess potential bioaccumulation in the food chain. Refuge water delivered to the Kern National Wildlife Refuge is diverted from the California Aqueduct in Kern County near Check 29, downstream of where groundwater from the Pump-in Project is pumped into the Aqueduct. Inexplicably, DWR stopped collecting water quality data from Check 29 after November 2016.[28]

Elevated selenium in the Aqueduct is typically associated with drier water years when a larger proportion of total volume in the Aqueduct is comprised of groundwater inputs. Groundwater inputs entering into the Aqueduct (from various sources including Westlands) were 46 percent of the total volume entering the aqueduct in 2014[29], 44 percent in 2015[30], and 8.3 percent in 2016.[31]

[27] See; https://www.federalregister.gov/documents/2016/07/13/2016-16585/recommended-aquatic-life-ambient-water-quality-criterion-for-selenium-in-freshwater

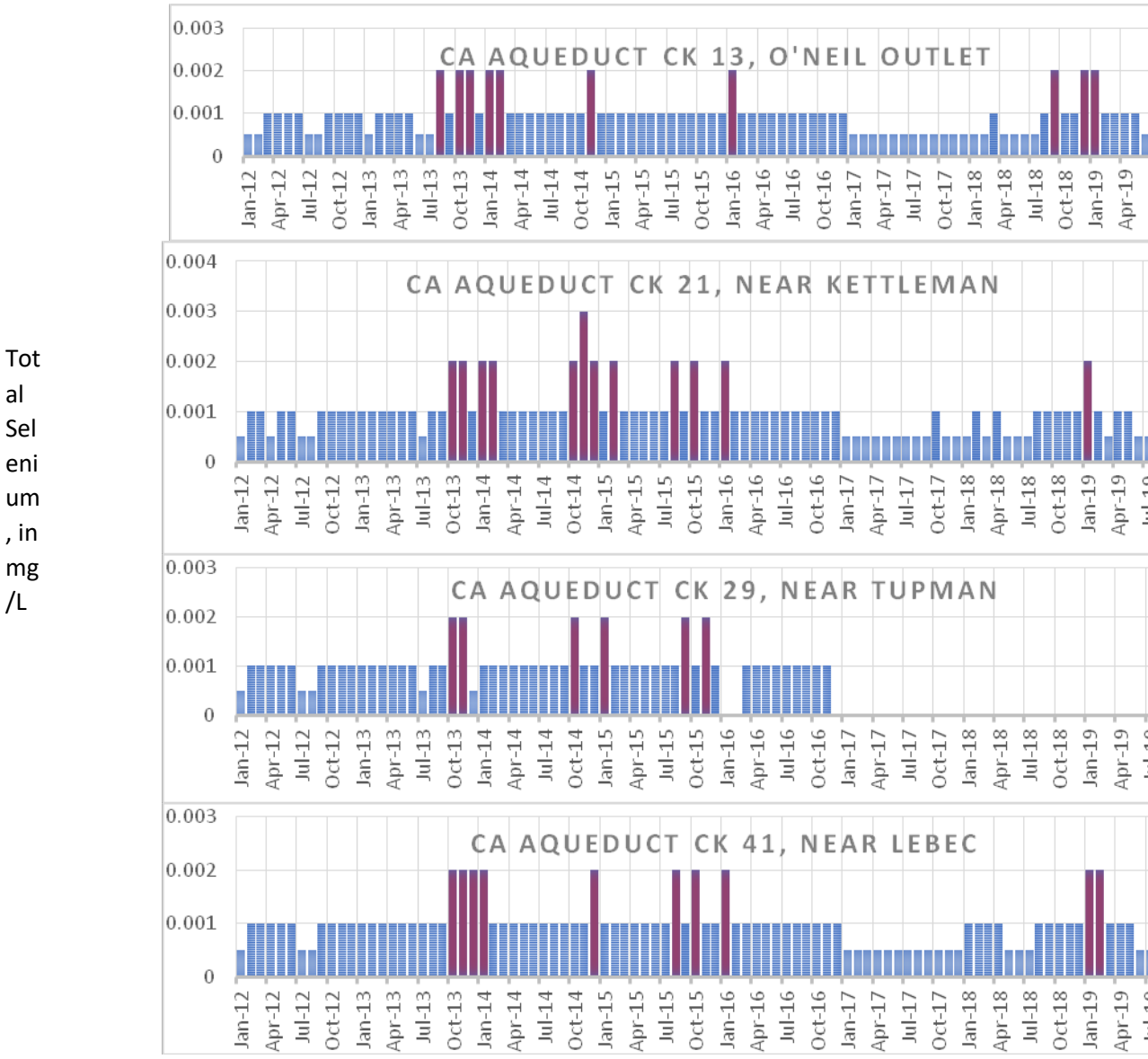
[28] Selenium & Arsenic concentrations in the California Aqueduct at Check 29, downstream of where groundwater has been pumped into the canal increased markedly in 2015 and in the case of Arsenic were approaching the Maximum Contaminant Level for drinking water of 0.010 mg/L.
See http://www.water.ca.gov/waterdatalibrary/waterquality/station_group/index.cfm

[29] See page 86 in: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/State-Water-Project/Management/Bulletin-132/Bulletin-132/Files/Bulletin-132-15-r.pdf

[30] See page 84 in: : https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/State-Water-Project/Management/Bulletin-132/Bulletin-132/Files/Bulletin-132-16-r.pdf

[31] See page 94 in: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/State-Water-Project/Management/Bulletin-132/Bulletin-132/Files/Bulletin-132-17-r.pdf

Figure 1. Total selenium concentrations in water samples from the California Aqueduct at Checks 13, 21, 29, and 41. Light-shaded bars at 0.0005 mg/L are non-detections, dark blue bars are detections at 0.001 mg/L, and red bars are samples that equaled or exceeded 0.002 mg/L, and exceeded the lentic water quality objective for selenium of 0.0015 mg/L (1.5 µg/L).



Warren Act Contract and Agreement Between DWR and Westlands allowing the Pump-in Project are not Included in the DEA.

The proposed Westlands 5-year Warren Act Contract (Contract) is not included with the DEA and has not been made available for public review, thus an informed decision and analysis is precluded. A copy of the current Contract is available on USBR's website and the term of this contract is through June 30, 2022.[32] Will there be changes to the contract after 2022? Further, Exhibit D to this contract, which identifies the minimum water quality standards for monitoring the quality of Non-Project Water introduced by Westlands into the SLC is not included with the Warren Act Contract. In order to accurately assess the impacts and cumulative impact of this Project, a copy of the Contract and all Exhibits for the time period being considered (2020-2025) should be disclosed and included in the environmental analysis for this Project.

Further, adding to the incomplete project description and definition of the project, apparently there exists an Agreement between DWR and Westlands for introduction and conveyance of local groundwater in the California Aqueduct that is likewise not provided for public review. We note that an Agreement between DWR and Westlands for the introduction and conveyance of groundwater into the Aqueduct was signed in 2008 (SWPAO #08052).[33] Without these documents, the public is prevented from seeing key information regarding the contractual requirements of this action. Omitting these key documents keeps the public in the dark regarding the project definition, baseline and potential contractual remedies available to downstream beneficial uses that are harmed by the degradation of water quality in the SLC/California Aqueduct.

Subsidence Impacts are not Disclosed & Monitoring Requirements are Insufficient.

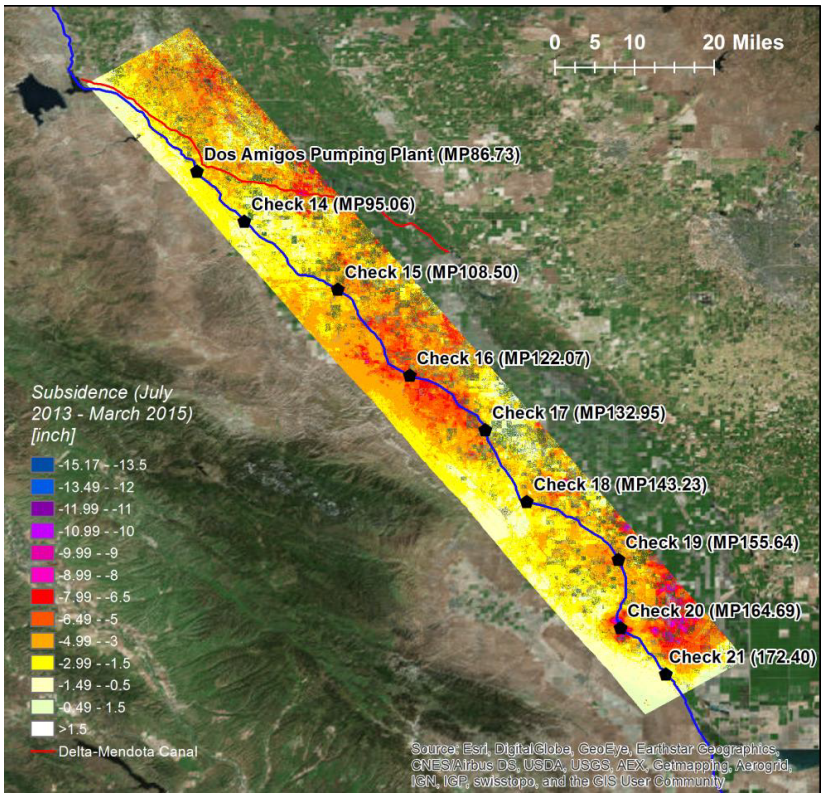
As denoted on page 16 of the DEA, "*A 2017 National Aeronautical and Space Administration (NASA) report prepared for DWR (Farr et al. 2017) documented that the two main subsidence bowls in the San Joaquin Valley (centered on Corcoran and El Nido) previously identified in 2015, had grown wider and deeper between March 2015 and September 2016 and that a third area, near Tranquillity in Fresno County also experienced intensified subsidence*."

Land subsidence is a major and growing consequence of groundwater pumping in the project area and threatens the California Aqueduct and other infrastructure. Increases in subsidence, impacts and costs to the California Aqueduct, and long-term cumulative impacts are significant. USGS recently reported, "*Extensive groundwater pumping from San Joaquin Valley aquifers is increasing the rate of land subsidence, or sinking. This large-scale and rapid subsidence has the potential to cause serious damage to the water delivery infrastructure that brings water from the north of the valley to the south where it*

[32] See: https://www.usbr.gov/mp/warren-act/docs/contract-westlands-multiyear-convey-nonproject-water.pdf

[33] The 2008 Agreement between DWR and Westlands for the introduction and conveyance of groundwater into the Aqueduct was included in Appendix A of the 2015 Final EA for the Pump-in Project. See pdf pg 19: https://www.usbr.gov/mp/nepa/includes/documentShow.php?Doc_ID=21984

helps feed thirsty cropland and cities. According to a new report by the U.S. Geological Survey the subsidence is occurring in such a way that there may be significant operational and structural challenges that need to be overcome to ensure reliable water delivery."[34] Further, DWR has been funding and working with NASA's Jet Propulsion Laboratory (JPL) to monitor subsidence in the Valley since July 2013. It uses interferometric synthetic aperture radar (InSAR) from satellites and aircraft to record the distance between the radar and the ground surface. This work has identified significant areas of subsidence in Westlands as shown in the figure below taken from DWR's 2017 California Aqueduct Subsidence Study Report.[35]



The Survey data in the DWR Subsidence Report show this section of the Aqueduct, the San Luis Canal (Los Banos to Kettleman City), has subsided the most over the years.[36] The DWR report identifies a number of significant operational impacts of subsidence to the Aqueduct including: reduction in conveyance capacity, increase in power cost, decrease in available freeboard (the difference in elevation

[34] See: http://www.usgs.gov/newsroom/article.asp?ID=3731#.VRRBAKMtHVQ

[35] See: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Engineering-And-Construction/Files/Subsidence/Aqueduct_Subsidence_Study-Accessibility_Compatibility.pdf

[36] Ibid.

between the crest of the canal and the water level as fixed by design requirements). These effects are significant and costly to repair.

CDFW provided comments on the Westlands' IS/ND for this project on subsidence effects to MWA, "*MWA is located within the Delta-Mendota Subbasin and borders the Westside Subbasin. Both the Westside and Delta-Mendota Subbasins are designated as critically overdrafted by the California Department of Water Resources, and such overdrafting is a serious issue within the Mendota Pool area due to ongoing subsidence. Over the years, the Mendota Dam has experienced subsidence, and the California Department of Water Resources, Division of Safety of Dams has required the water level to be lowered due to the subsequent compromised integrity of the dam. The lowered water level at the dam has resulted in lower water levels to the gravity flow and lift pump inlets at the MWA. The northernmost gravity flow inlet receives no water, causing loss of trees and habitat along the northern edge of the wildlife area. The lift stations no longer pump efficiently because the inlets are not fully covered with water, allowing air to be pulled into the pumps and decreasing water flows. Decreased water flow results in MWA operating its pumps for longer periods, increases the electricity cost and personnel cost to monitor and maintain the pumps, and increases wear and tear on the pumps.*

Continued subsidence affects the ability of CDFW to operate the MWA according to its management objectives, and other areas where water is no longer delivered by gravity could increasingly lose associated wetland and riparian habitat features. Subsidence is irreversible and damage to surface water conveyance features caused by subsidence can only be mitigated by removal of damaged infrastructure and replacement, or re- engineering and reconstruction of infrastructure to allow surface water to flow at an acceptable level.[37]"

These impacts are not disclosed in the DEA. It is encouraging to see that the 2020 WQMP includes groundwater level monitoring and shutoff triggers. But neither the DEA nor the WQMP identify rates of pumping or quantities of water that could be safely pumped from the areas of high subsidence while staying within these generous thresholds. And while the DEA indicates that the subsidence rate will be monitored during the implementation of the Pump-in Project, it provides no clear plan for what happens when monitoring reveals excessive subsidence. The impacts of this action are complex, broad and far reaching, and need to be considered in a full EIS analysis. Consistent with recommendations from CDFW on the Project, a full EIS should evaluate all areas that would be affected by increased subsidence, including the MWA, and develop a plan to offset losses of wetland and riparian vegetation communities caused by changes in hydrology associated with subsidence caused by Project pumping. CDFW recommended that the plan address mitigation for impacted habitat value and function, to achieve a minimum no net loss of these habitats, consistent with California Fish and Game Commission policy on Wetlands Resources.

[37] See: https://ceqanet.opr.ca.gov/2020050434/2/Attachment/5CSO8N

Compliance with Clean Water Act is Absent.

As the USEPA (EPA) noted in scoping comments submitted for the Westlands groundwater pump-ins in 2010, the proposed discharge of contaminated groundwater from Westlands with potentially high salt, boron, chromium, arsenic, selenium and other metals would be subject to the National Pollution Discharged Elimination System (NPDES) permitting requirements pursuant to the federal Clean Water Act. Further EPA noted, "*Permits will need to be designed to ensure the discharges do not cause or contribute to exceedences of applicable State water quality standards or degradation of designated beneficial uses."* [38]

The Clean Water Act prohibits the discharge of "pollutants" through a "point source" into a "water of the United States" unless they have an NPDES permit. Such a permit would contain limits on what can be discharged, monitoring and reporting requirements, and other provisions to ensure that the discharge does not harm water quality or human health. The term point source is also defined very broadly in the Clean Water Act. It means any discernible, confined and discrete conveyance, such as a pipe, ditch, channel, tunnel, conduit, discrete fissure, or container.[39]

No compliance with the federal Clean Water Act is provided in the DEA. Thus, the public is precluded from analyzing the permit and conditions to ensure protection and non-degradation of water supplies under the NPDES permit and potential mitigation measures. As we have noted above, groundwater from almost half of the wells included in Table 1 of the DEA have been reported in past monitoring reports to contain elevated concentrations of various metals and constituents such as selenium that can bioaccumulate in the food chain thus have amplifying the impacts on the environment (DWR 2016, 2017).[40]

Cumulative Impacts

Cumulative impacts from these discharges and potential exchanges are not disclosed or analyzed. We adopt by reference our comments from previous exchanges and transfers and previous scoping

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[38] See: http://calsport.org/news/wp-content/uploads/EPA-comments-Westlands-WD-EIR-NOP-3-4-10.pdf

[39] See: https://www.epa.gov/npdes/npdes-permit-basics

[40] DWR Groundwater Data from WWD 2008 Pump Ins at:
https://wdl.water.ca.gov/waterdatalibrary/WaterQualityDataLib.aspx
And the following DWR Groundwater Data from WWD Pump-ins:
https://calsport.org/news/wp-content/uploads/Water-Quality-Assessment-of-Non-Project-Turn-ins-to-the-California-Aqueduct-2016.pdf

https://calsport.org/news/wp-content/uploads/Water-Quality-Assessment-of-Non-Project-Turn-ins-to-the-California-Aqueduct-2014.pdf

https://calsport.org/news/wp-content/uploads/Water-Quality-Assessment-of-Non-Project-Turn-ins-to-the-California-Aqueduct-2015.pdf

comments.[41] In addition to the continued extraction of water from already over-drafted groundwater basins, the impacts from discharging this groundwater to the SLC for irrigation of Westlands's toxic soils and exacerbating an existing subsurface agricultural drainage problem on the west-side of the San Joaquin Valley are not disclosed nor mitigated. Selenium found in groundwater and drainage water in Westlands is known to create life threatening impacts to migratory birds, wildlife and fish, magnifying up the food chain as these pollutants accumulate. These impacts are merely brushed aside. No data from previous pump-ins is provided to support Reclamation's conclusions of no impact in the DEA. No alternatives are considered. Finally, there is insufficient analysis of the cumulative impact of discharging these contaminants into drinking water, wildlife refuge supplies, or downstream fish and wildlife beneficial uses.

Data from previous pump-ins is not provided in the DEA. The only groundwater data from individual wells for a previous Westlands groundwater pump-in that was available on the web was collected by the DWR in 2008.[42] Further, we received DWR Technical Memoranda Reports on the Non-Project Turn-ins to the California Aqueduct for the years 2014[43], 2015[44] and 2016[45] from a Public Records Request to

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[41] See comments provided http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=14341
"Resnicks'Westside Mutual Water District member lands in Westlands Water District to the AEWSD service area and Westside Exchange Program are not disclosed nor analyzed. Nor are the impacts to Madera County from the potential groundwater transfers likely contemplated under the proposed action. The existing Exchange Program involves delivery of Arvin's supplies to Westside member lands as exchange water, based on a 1 for 1 or "bucket for bucket" basis, up to 50,000 acre-feet (AF)."

See 30,000 acre-feet of groundwater proposed to be transferred to Westlands et. al. from the Mendota Pool http://www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=49107

See also North Valley Regional Recycled Water Program-- http://www.nvrrecycledwater.org/description.asp *The NVRRWP could produce and deliver up to 32,900 acre-feet per year of tertiary-treated recycled water to the drought-impacted west side. This water can be used to irrigate food crops, public and privately-owned landscaping, and for industrial uses. This basin transfer would alter San Joaquin River Flows and flows to refuges, and the South Delta Bay Estuary. The project would deliver up to 59,000 acre-feet per year (AFY) of recycled water produced by the cities of Modesto and Turlock via the Delta-Mendota Canal (DMC), a feature of the Central Valley Project owned by Reclamation. Instead of discharging fresh treated water into the San Joaquin River, recycled water would be conveyed from Modesto and Turlock through pipelines from their wastewater treatment facilities, crossing the San Joaquin River, ending at the DMC.*

[42] Select Project, then WWD 2008 Pump Ins at:
https://wdl.water.ca.gov/waterdatalibrary/WaterQualityDataLib.aspx

[43] (DWR) California Department of Water Resources. October 2015. Water Quality Assessment of Non-Project Turn-ins to the California Aqueduct, 2014. Technical Memorandum Report. Division of Operations and Maintenance State Water Project Operations Support Office Environmental Assessment Branch Sacramento, California, 140 pp.
https://calsport.org/news/wp-content/uploads/Water-Quality-Assessment-of-Non-Project-Turn-ins-to-the-California-Aqueduct-2014.pdf

[44] (DWR) California Department of Water Resources. December 2016. Water Quality Assessment of Non-Project Turn-ins to the California Aqueduct, 2015. Technical Memorandum Report. Division of Operations and Maintenance State Water Project Operations Support Office Environmental Assessment Branch Sacramento, California, 172 pp. https://calsport.org/news/wp-content/uploads/Water-Quality-Assessment-of-Non-Project-Turn-ins-to-the-California-Aqueduct-2015.pdf

Westlands in July 2020.[46] The DEA should include this prior data, and any other relevant data on wellhead water quality, flows from each well, percent of Aqueduct comprised of Westlands pump-ins, water quality summary of Checks 13 and 21 in the Aqueduct, and mass balance modelling to assess the influence of the pump-ins on SLC water quality and effects to downstream beneficial uses.

Previous ground water pump-ins by Westlands can provide critical insights to the operation and impacts of the proposed Project. The DWR first adopted specific operating criteria for access to the California Aqueduct in 1990. The program was renewed yearly through 1994. Pump-ins from Westlands water users into the SLC were approximately 9,600 acre-feet (AF) in 1990; 72,000 AF in 1991; 97,000 AF in 1992; 12,400 AF in 1993; and 84,500 AF in 1994. However, in 1995, the integration of groundwater into the SLC was suspended because of concerns by DWR and other agencies that groundwater could degrade the water quality in the SLC.[47] No biological monitoring has been required to assess the long-term impacts from these pump-in projects.

Additionally, we refer Reclamation to the CDFW recommendations on the IS/ND[48] for this project with respect to cumulative effects, "*…lowered water quality and increased salt loading could potentially impact sensitive aquatic species such as the giant garter snake, and affect habitats for sensitive status species, especially in the context of other existing and pending projects affecting water quality and ground subsidence of Mendota Pool, the MWA, and surrounding areas. CDFW recommends that the cumulative impacts analysis include the effects to special status species from this Project and other current and foreseeable projects*."

More Robust Monitoring Program & Enforcement Are Needed.

To protect downstream beneficial uses, we recommend the following be incorporated into a revised WQMP for the Pump-in Project:

- Well water should not be conveyed into the Aqueduct until it has been confirmed that the well water does not exceed the selenium wellhead standard of 2 µg/L (from Table 4 of the WQMP);
- Weekly monitoring of wells (while pumps are running) that have had at least one water quality sample above 2 µg/L selenium during the 2015 and 2016 pump-ins;

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[45] (DWR) California Department of Water Resources. November 2017. Water Quality Assessment of Non-Project Turn-ins to the California Aqueduct, 2016. Division of Operations and Maintenance State Water Project Operations Support Office Environmental Assessment Branch Sacramento, California, 146 pp. https://calsport.org/news/wp-content/uploads/Water-Quality-Assessment-of-Non-Project-Turn-ins-to-the-California-Aqueduct-2016.pdf

[46] https://calsport.org/news/wp-content/uploads/Canal-Integration-Program-Third-Response-Schifferle-071720.pdf

[47] From page 3 of IS/ND for Westlands Pump-in Project 2020: https://ceqanet.opr.ca.gov/2020050434/2/Attachment/764QUt

[48] See: https://ceqanet.opr.ca.gov/2020050434/2/Attachment/5CSO8N

- Weekly water quality sampling for selenium at Check 21 of the California Aqueduct while Westlands is pumping groundwater into the Aqueduct;
- The selenium objective for the California Aqueduct should be 1.5 µg/L to be protective of downstream beneficial uses associated with the Aqueduct and Mendota Pool;
- Well water pumped into the Mendota Pool should not exceed 800 mg/L TDS to protect Mendota Wildlife Area water quality;
- Weekly water monitoring of wells and the Aqueduct at Check 21 should require rapid turnaround so results are received within 7 days and can be responsive to current and changing conditions.
- Well water from Westlands should not be pumped into the Aqueduct if Dos Amigos Pumping Plant is not operating.
- There needs to be an established protocol dictating required actions and enforcement when water quality standards are exceeded at individual wells or in the aqueduct and related conveyance canals.

Conclusion

The DEA does not adequately assess the potentially significant environmental impacts from the Westlands Pump-in Project. In addition, there are reasonably available alternatives that have not been considered and should be analyzed in order to reduce the potentially significant environmental impacts. Absent from the document is any assessment of the cumulative impacts, including third party impacts and impacts to fish, wildlife and water quality. Required permits and compliance with the Clean Water Act to allow discharge of contaminants into the waters of the State and Nation have not been provided; nor have necessary consultations with federal and state wildlife agencies concerning potential endangered and threatened species impacts. The Warren Act Contract and associated Contract Exhibits and Agreement between Westlands and DWR governing the full discharge into the Aqueduct from 2020-2025 is absent and therefore could not be reviewed.

Prior to commencing with the proposed project, which has in the past and likely will continue to harm downstream uses, a complete EIS is required that includes, among other things, a revised Water Quality Monitoring Plan to ensure waters of the State and Nation are not degraded, compilation and analysis of prior groundwater water quality data, flow rates and quantities pumped from participating wells from previous pump-ins, a mass-balance model for selenium in the Aqueduct, the Warren Act Contract and Exhibits, the Agreement between DWR and Westlands, documentation of Clean Water Act permit compliance, and full analysis of alternatives and cumulative impacts. This information should be included in the EIS that replaces the EA. We object to the adoption of a FONSI for this project, and the proposed 25-year authorization for all the discharge points in Table 1 of the DEA because they are not supported by data from past groundwater pump-ins into the Aqueduct from Westlands. Lastly, the conveyance period for the Pump-in Project in 2020 should not commence prior to the completion of the appropriate NEPA and CEQA decision documents.

Thank you for the opportunity to comment. Please add our names to Reclamation's electronic notification lists for environmental documents regarding water supplies or contracts or conveyance.

Sincerely,

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(DWR) California Department of Water Resources. October 2015. Water Quality Assessment of Non-Project Turn-ins to the California Aqueduct, 2014. Technical Memorandum Report**,** Division of Operations and Maintenance State Water Project Operations Support Office Environmental Assessment Branch Sacramento, California, 140 pp.

(DWR) California Department of Water Resources. 2008. Fishing Along the SWP. Brochure. DWR, Sacramento, 9 pp.

(USFWS) U.S. Fish and Wildlife Service. October 2017. Species at Risk from Selenium Exposure in California Inland Surface Waters, Enclosed Bays and Estuaries, Final Report to the U. S. Environmental Protection Agency Inter-Agency Agreement No. DW-14-95825001-0. USFWS, Sacramento, CA, 156 pp.

Appendix A. Proposed Discharge and Well Locations from the DEA that have exceeded MCLs for As, Se or TDS in previous years of pump-ins.

Table 1. Proposed Discharge and Well Locations from the DEA that have exceeded MCLs for As, Se or TDS.[49]

SLC Milepost Discharge Location	State Well ID(s)	# of samples exceeding MCL for As[50] and (range of As reported)	# of samples exceeding MCL for Se[51] and (range of Se reported)	# of samples exceeding MCL for TDS[52] and (range of TDS reported)
105.20L	141202R02	0	1 (4 µg/L)	1 (1290 mg/L)
115.43L, Lateral 7	151509R03,151509R04 151509R05,151503A02 151504A03,151503H01	2 (10.2-11.8 µg/L)	0	8 (1010-1390 mg/L)
117.52L	151419F01	0	12 (3.4-5.8 µg/L)	1 (1300 mg/L)
127.40L	161521N03[53]	0	2 (2.8-3.9 µg/L)	0
128.49R	171413A01[54]	0	6 (8.4-22 µg/L)	0
128.50L	161533J01[55]	0	12 (4.2-6 µg/L)	0
128.54L	161532A06	0	6 (3-6.5 µg/L)	1 (1400 mg/L)
130.81R	171510M01	0	3 (2.1-2.5 µg/L)	0
133.80L	171601N03	0	2 (2.1-2.2 µg/L)	0
137.31L	181606F01	0	1 (3 µg/L)	1 (1200 mg/L)
139.40L	181609R01	0	1 (3 µg/L)	0
140.55LA	181617R02	0	0	1 (1040 mg/L)
142.58R	181629N02	0	1 (12 µg/L)	1 (1230 mg/L)
143.00L	181627N01	0	1 (7 µg/L)	1 (1070 mg/L)
152.75L	191723R01	0	0	2 (1014-1100 mg/L)
155.15L	191831N01	0	1 (2.1 µg/L)	0
156.36R	201714K01 201712H01	0 0	8 (2.1-7.4 µg/L) 2 (2.5-2.9 µg/L)	1 (1200 mg/L) 0

[49] Data Sources: DWR 2008, 2016, 2017. Locations/wells identified in blue were marked as new facilities in DEA.
[50] MCL for As is 10 µg/L from page 13 of 2020 WQMP, Table 5 Water Quality Standards Short List.
[51] MCL for Se is 2 µg/L from page 13 of 2020 WQMP, Table 5 Water Quality Standards Short List.
[52] MCL for TDS is 1000 mg/L from page 13 of 2020 WQMP, Table 5 Water Quality Standards Short List.
[53] Samples from adjacent State Well ID 161521N02.
[54] Samples from adjacent State Well ID 171413A06.
[55] Samples from adjacent State Well ID 161533J02.

156.37LA	201806Q01[56]	3 (12-13 µg/L)	5 (2.8-4.7 µg/L)	0
157.98L	201817G01	0	9 (2.4-3.2 µg/L)	0
158.95L	201820E01	0	1 (2.6 µg/L)	0
159.98R	201831C01	0	5 (2.3-2.6 µg/L)	0
161.49L	**201831Q01**	0	8 (5.3-11 µg/L)	0
161.60L	211805C01 211809D02	0 0	6 (2.3-5.4 µg/L) 1 (7 µg/L)	0 0
162.08L	211805C01 211805M01	0 0	6 (2.3-5.4 µg/L) 8 (5.2-7.5 µg/L)	0 0
162.10R	211806G01	0	2 (17-18 µg/L)	0
162.64L	211809L01	0	1 (7 µg/L)	0
164.11R	211818G03	0	6 (14-19 µg/L)	0
164.55L-A	211817N03 211816N01	0 0	7 (10-12 µg/L) 7 (2.9-5.1 µg/L)	0 0
164.63R	211818G03	0	6 (14-19 µg/L)	0
164.95R	211833G01	0	8 (3-12 µg/L)	0
166.70R	**211828G06**	0	4 (3.9-4.6 µg/L)	1 (1200 mg/L)
166.90R	211827K02	0	6 (3.7-5.6 µg/L)	0
167.04L, Lateral 37	211823D06	0	1 (3 µg/L)	0
167.86R	211833N02 211833G01	2 (11 µg/L) 0	0 8 (3-12 µg/L)	0 0

Data Sources:

(DWR) California Department of Water Resources. November 2017. Water Quality Assessment of Non-Project Turn-ins to the California Aqueduct, 2016**.** Technical Memorandum Report**,** Division of

[56] Samples from adjacent State Well ID 201806Q02.

Operations and Maintenance State Water Project Operations Support Office Environmental Assessment Branch Sacramento, California, 146 pp.

(DWR) California Department of Water Resources. December 2016. Water Quality Assessment of Non-Project Turn-ins to the California Aqueduct, 2015. Division of Operations and Maintenance State Water Project Operations Support Office Environmental Assessment Branch Sacramento, California, 172 pp.

(DWR) California Department of Water Resources. 2008. DWR Groundwater Data from WWD 2008 Pump Ins project at: https://wdl.water.ca.gov/waterdatalibrary/WaterQualityDataLib.aspx

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August 20, 2020

VIA EMAIL
blopez@usbr.gov
Mr. Brian Lopez
U.S. Bureau of Reclamation
South-Central California Area Office
1243 N Street
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Re: Comments on Five-Year Warren Act for Westlands Water District
EA-20-008
CGB-EA-2020-032

Dear Mr. Lopez:

INTRODUCTION

On behalf of North Coast Rivers Alliance, California Sportfishing Protection Alliance, Pacific Coast Federation of Fishermen's Associations, San Francisco Crab Boat Owners Association, Institute for Fisheries Resources and the Winnemem Wintu Tribe, we submit the following comments on the Bureau of Reclamation's ("Reclamation's") Draft Environmental Assessment ("Draft EA") Five-Year Warren Act for Westlands Water District which would enable the Westlands Water District Groundwater Pumping and Conveyance Project, State Clearinghouse Number 2020050434 (the "Project"). Please include these comments in the public record for this matter.

The Project would allow Westlands to introduce up to 30,000 acre-feet per year of low-quality groundwater into the San Luis Canal in years where Westlands' allocation of Central Valley Project ("CVP") water is 20 percent or less than full contract quantities. This low quality water could be delivered to downstream agricultural users, or exchanged for CVP water to be delivered upstream or stored in the San Luis Reservoir. The Project would be a significant expansion of Westlands' existing exchange activities. Reclamation's approval of the Project would allow these activities through 2025, and would *also* include "a combined 25-year authorization for all discharge points (Table 1) involved in the Proposed Action." Draft EA 3.

During its review of the Project under the California Environmental Quality Act, Public Resources Code section 21000 et seq. ("CEQA"), Westlands prepared a Draft Initial Study and

Negative Declaration ("DISND"), that fails to comply with CEQA.[1] Westlands should have prepared an Environmental Impact Report because the Project may have a significant effect on the environment. Westlands ignored the Project's inconsistencies with the beneficial uses designated by the applicable Basin Plan, and failed to address its duties under the Public Trust Doctrine. We attached the June 19, 2020 comment letter submitted by North Coast Rivers Alliance, California Sportfishing Protection Alliance, Pacific Coast Federation of Fishermen's Associations, San Francisco Crab Boat Owners Association, and Institute for Fisheries Resources to Westlands as the letter presents relevant discussion of the Project's environmental impacts.

Just as Westlands failed to comply with CEQA, so too here, Reclamation has failed to adequately address the Project's impacts under the National Environmental Policy Act, 42 U.S.C. section 4321 et seq. ("NEPA"). Reclamation must prepare an Environmental Impact Statement ("EIS") that takes the necessary hard look at all of the Project's environmental impacts. Further, under section 8 of the 1902 Reclamation Act, Reclamation must comply with substantive California water law, which includes the Delta Reform Act (Water Code section 85000 et seq.), the Porter-Cologne Water Quality Control Act (Water Code section 13000 et seq.), and the Public Trust Doctrine.

NEPA REQUIRES AN EIS BECAUSE THE PROJECT MAY HAVE SIGNIFICANT ENVIRONMENTAL IMPACTS

NEPA requires the preparation of an EIS if a proposed major federal action has the potential to significantly affect the quality of the human environment. 42 U.S.C. § 4332. Even if a project's risks of environmental harm are uncertain, if they are potentially significant, an EIS is required. *City of Davis v. Coleman*, 521 F.2d 661, 676 (9th Cir. 1975). Whether an action's effects are significant depends on considerations of "context" and "intensity." 40 C.F.R. § 1508.27.

> NEPA regulations list ten non-exhaustive factors that inform an agency's intensity determination, including '[t]he degree to which the effects on the quality of the human environment are likely to be highly controversial," [40 C.F.R.] § 1508.27(b)(4), "[t]he degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks," *id.* § 1508.27(b)(5), and "[w]hether the action is related to other actions with individually insignificant but cumulatively significant impacts," *id*. § 1508.27(b)(7). The regulations explain that "[s]ignificance exists if it is reasonable to anticipate a cumulatively significant impact on the environment," and "cannot be avoided by . . . breaking [an action] down into small component

[1] Available at https://ceqanet.opr.ca.gov/2020050434/2/Attachment/764QUt (last visited August 20, 2020)

> parts." *Id.* "When substantial questions are raised as to whether a proposed project 'may cause significant degradation of some human environmental factor,' an EIS is required."

Bark v. U.S. Forest Service, 958 F.3d 865, 869–70 (9th Cir. 2020). Contrary to this mandate, Reclamation has failed to prepare an EIS to address the potentially significant impacts of the Project.

The Project would allow Westlands to pump, convey and store "up to 30,000 [acre-feet ("AF") per year]," – up to 150,000 AF over the five-year life of the Project – of local groundwater into the San Luis Canal ("SLC"). Draft EA 1. Reclamation would allow the use of its federal facilities to convey and store this low-quality, non-CVP water during times when Westlands receives less than a 20% allocation of water from the CVP. *Id.* As a practical matter, the groundwater could be used for "direct delivery to agricultural users located throughout the district or exchanged for delivery upstream or as storage within San Luis Reservoir." Draft EA 1. While the first year of the Project could be implemented from August through December, the Project's groundwater conveyance otherwise would occur between April 1 and August 31 of eligible years. Draft EA 3. Reclamation's approval would also include "a combined 25-year authorization for all discharge points . . . involved in the Proposed Action." Draft EA 3. While Reclamation indicates that these discharge points would not be allowed to discharge groundwater into the SLC after 2025 without an additional Warren Act contract, it does not clarify why it would be providing 25-year authorization for these discharge points now.

The Draft EA improperly concludes that the Project will not have environmental impacts, yet the Project's extraction, conveyance and delivery of groundwater are all likely to significantly impact the environment, as detailed below. Therefore Reclamation is required to prepare an EIS to address these impacts.

A. Groundwater Pumping

The Draft EA reveals that the Project would pump, convey and discharge up to 30,000 AF per year into the SLC. This water would be extracted from wells within Westlands' service area. Yet Westlands' service area overlays "the Westside groundwater subbasin . . . identified by [the California Department of Water Resources] as critically overdrafted, with significant, on-going and irreversible subsidence." Draft EA 15. This significant subsidence impact is one that the Project cannot avoid worsening, even if "Westlands has implemented a groundwater management program to reduce the potential for future extreme subsidence . . . ." Draft EA 16. Indeed as the Draft EA acknowledges, between March 2015 and September 2016, the "section of the San Luis Canal/California Aqueduct located in Westlands near the City of Avenal in Kings County dropped **two feet** due to subsidence caused by excessive groundwater pumping." Draft EA 16 (emphasis added). Thus, the continued extraction of and reliance upon groundwater in the Project area threatens to cause additional subsidence, and consequent damage to the integrity of

the critical water infrastructure.

Westlands' DISND indicated that "more restrictive minimum thresholds" would be used for wells that fall within areas with increased rates of subsidence that threaten the San Luis Canal. DISND 15. But the DISND fails to provide sufficient information regarding these thresholds and their enforcement to enable the public and decisionmakers to determine whether such thresholds would be sufficient to prevent subsidence. *Id.* The need for this information is all the more compelling in light of the fact that the DISND concedes that "ground subsidence monitoring" is supposed to be one of four components of the Project. DISND 8. The Draft EA, however, does not even address – let alone require – subsidence monitoring as a component of the Project.

In analyzing the Project's subsidence-based impacts, the Draft EA assumes that the Project's pumping of 30,000 AF per year of groundwater would be consistent with, and not in addition to, groundwater pumping that would otherwise occur in the area. Draft EA 18, 19 (water use "is within the range of historical pumping during the irrigation season, and would be pumped regardless of whether Reclamation allowed its conveyance in federal facilities.") Based on this assumption, the Draft EA finds that the Project's groundwater pumping would have no impact on groundwater resources or subsidence. Draft EA 18, 19.

But there is no evidence in the Draft EA that the water pumped for the Project would otherwise have been pumped for some other use, and it contains no guarantee that the Project's pumping will not be additional to the existing demand. *Id*. Land subsidence is a major and growing consequence of groundwater pumping in the area, and threatens the California Aqueduct and scores of other infrastructure projects. The Project's potentially significant direct and cumulative contributions to land subsidence require study in an EIS, not an EA.

The Draft EA's conclusions are suspect for two additional reasons, First, the historical pumping levels are unsustainable, and will lead to additional subsidence and infrastructure harms. Westlands' DISND revealed that Westlands' target level of subsidence in the affected areas is 0.1 foot/year, which is intended to "reflect the residual subsidence that would continue regardless of groundwater level recovery." DISND 50. But merely maintaining the existing rate of decline in groundwater storage – 10 vertical feet each century – hardly prevents environmental harm. Instead, it is a blueprint for permanent destruction of the San Joaquin Valley's aquifers. The DISND does not identify rates of pumping or quantities of water that could be safely pumped from these areas while staying within even these generous (and ultimately catastrophic) thresholds. *Id*. And while the DISND indicates that the subsidence rate will be monitored during Project implementation, it provides no clear plan for what happens when monitoring reveals excessive subsidence. *Id.* It implies that Westlands may substitute surface water supplies for groundwater in some circumstances, but fails to adequately discuss the impacts of such alternative actions on water quality, fisheries, and other biological resources. *Id.*

Second, if the pumped water would be used anyway, then there is no reason for the Project. It is only because the Project affords Westlands the opportunity to offload its lower quality groundwater in exchange for higher quality water that Westlands has sought the Project's approval.

B. Groundwater and Surface Water Conveyance in San Luis Canal

The Project would introduce groundwater – and possibly surface water – from Westlands' service area into the San Luis Canal/California Aqueduct system. The Draft EA incorrectly concludes that the water that would be introduced will not impair the San Luis Canal's water quality or otherwise cause significant impacts. Draft EA 10-21 (discussion of environmental consequences). Yet the Project would allow Westlands to exchange low-quality groundwater for much higher quality water elsewhere in the San Luis Canal. This is likely to lead to significant water quality impacts, despite the Draft EA's contrary and baseless conclusion.

Groundwater in Westlands' service area is often laden with salts, boron, arsenic, selenium and sulfates. Yet the Draft EA avoids any discussion of the concentrations of these hazardous components in Project-area groundwater when discussing the Project, except to assume that water would be screened to avoid them. Draft EA 8, 12-13. Selenium is of particular concern, as it mobilizes in the shallow groundwater in Westlands' service area at concentrations that are harmful to fish, birds, and plants. Additionally, high saline levels can be found in both the shallow and deep aquifers underlying Westlands' service area.

In particular, selenium is toxic to biological resources, both avian and aquatic. Selenium bioaccumulates in the food chain, and thereby magnifies its deleterious impacts on fish and wildlife. The Draft EA indicates that Westlands intends to monitor selenium levels, and institute a limit of two micrograms per liter. Draft EA 12, 13. This level is not sufficiently protective for aquatic life, as it does not adequately prevent harmful bioaccumulation, especially in still waters.[2] Yet water introduced to the San Luis Canal as part of the Project is likely to be delivered to both the Mendota Wildlife Area and the Kern Wildlife Refuge. Draft EA 10.

In addition, in some ill-defined circumstances, the Project could introduce water from wells that have high levels of contamination, if that water is "blended" with other water to meet "Title 22" standards. Draft EA 7. The assumption that this will not harm fish and wildlife lacks support both because Title 22 standards are not sufficiently protective for fish and wildlife that depend on this water – allowing unreasonably high selenium exposure, among other hazards – and because of the high potential that blending failures will contaminate the SLC.

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[2]Aquatic Life Ambient Water Quality Criterion for Selenium in Freshwater 2016 – Fact Sheet, available at:
https://www.epa.gov/sites/production/files/2016-06/documents/se_2016_fact_sheet_final.pdf

Thus, despite the Draft EA's contrary conclusion, the Project is likely to harm aquatic and terrestrial life dependent upon these refuges. The Project's potentially significant selenium impacts must be studied in an EIS.

The Project, as discussed in the Draft EA is does not fully limit the Project's exchange water to sources below the Corcoran Clay, which contains less selenium and other harmful constituents. Instead, the Draft EA states that pumping below the Corcoran Clay would be required only "[i]n areas known to be impaired by historic drainage . . . ." Draft EA 8. Yet Westlands' DISND revealed that the Project's pumping would include both aquifers and could include "surface water substitution, if necessary/available to reduce groundwater pumping." DISND 43, 50 (quote). Westlands' DISND conceded that "surface water flows in the western portion of the basin in Kings and Fresno counties tend to be poorer quality due to salinity from marine sediments and naturally occurring trace elements such as selenium and molybdenum." DISND 49. Yet neither the DISND nor the Draft EA has disclosed, let alone analyzed, the potentially significant water-quality impacts of substituting surface water for groundwater for the Project. Instead the Draft EA relies upon water quality testing to prevent the unquantified potential impact.

The Draft EA acknowledges that "[t]he San Luis Canal carries water from CVP, SWP and other sources, for use by contractors located along the San Luis Canal/California Aqueduct. Poor water quality from multiple sources has the potential to cause a cumulative impact on downstream water users." Draft EA 20. Yet it assumes that the Project would not contribute to this cumulatively significant impact, in reliance upon a water quality monitoring program that Westlands is tasked with implementing. *Id.*

The Tulare Lake Basin Plan indicates that "imported surface water supplies contribute nearly half the increase of salts occurring within the Basin." Water Quality Control Plan for the Tulare Lake Basin, Third Edition ("Tulare Basin Plan") 1-2. One of the sources of this imported surface water is the San Luis Canal. *Id*. Westlands' DISND acknowledged that this imported water "significantly increase[s] salinity within the natural watershed, increasing EC measurements by 50 percent in surface waters." DISND 49. Thus, as the Tulare Basin Plan makes clear, water quality monitoring is essential to prevent further degradation of water quality in the basin. Tulare Basin Plan 1-2. Yet the Draft EA, and Appendix A, Water Quality Monitoring Program, fail to address the standards and concerns of the Tulare Basin Plan.

The Draft EA's complete reliance upon water quality screening and use of an insufficiently protective selenium standard have led to its erroneous conclusion that the Project will have no impacts on water quality – or on biological resources that will be harmed by exposure to the Project's water. This conclusion is not only completely unsupported, it is refuted by the overwhelming evidence of likely water quality impairment in this record.

RECLAMATION MUST EXAMINE IMPACTS ON PUBLIC TRUST RESOURCES

The Public Trust Doctrine requires agencies that manage public trust resources avoid or mitigate impacts to public trust resources whenever feasible. *National Audubon Society v. Superior Court* (1983) 33 Cal.3d 419, 426; *Marks v. Whitney* (1971) 6 Cal.3d 251, 259; *San Francisco Baykeeper Inc. v. State Lands Com.* (2018) 29 Cal.App.5th 562, 570-571. By allowing the introduction of pumped groundwater to the SLC, for delivery at downstream wildlife refuges at levels that will harm aquatic life and birds, Reclamation allows a Project with mitigations that are insufficient to protect public trust resources, in violation of the Public Trust Doctrine.

RECLAMATION MUST EXAMINE THE PROJECT'S COMPLIANCE WITH ALL PERTINENT COMPONENTS OF CALIFORNIA'S SUBSTANTIVE WATER LAW

Further, as noted above, under section 8 of the 1902 Reclamation Act, Reclamation must comply with substantive California water law. That law includes the Delta Reform Act (Water Code section 85000 et seq.), and the Porter-Cologne Water Quality Control Act (Water Code section 13000 et seq.), as well as the Public Trust Doctrine. Yet the Draft EA makes no mention of the requirements of these laws, let alone how the Project might conflict with them.

CONCLUSION

For the reasons stated above, Reclamation must prepare a comprehensive EIS that takes a hard look at the Project's impacts, and presents a reasonable range of alternatives and mitigation measures designed to lessen them, before determining whether to move forward with this ill-considered and highly impactful Project.

Please include these comments in the public record on this matter.

Thank you for your consideration.

Respectfully submitted,

Stephan C. Volker
Attorney for North Coast Rivers Alliance, California Sportfishing Protection Alliance, Pacific Coast Federation of Fishermen's Associations, San Francisco Crab Boat Owners Association, Institute for Fisheries Resources, and Winnemem Wintu Tribe

Attachment: June 19, 2020 Letter from NCRA, et al. to Westlands Water District
cc: Westlands Water District via email to *dvang@wwd.ca.gov*

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11.241.01

June 19, 2020

VIA EMAIL
dvang@wwd.ca.gov
David Vang
Resources Engineer
Westlands Water District
3130 N. Fresno Street
Fresno, California 93703-6056

Re: Comments on the Draft Initial Study and Negative Declaration, Westlands Water District Groundwater Pumping and Conveyance Project
SCN 2020050434

Dear Mr. Vang:

INTRODUCTION

On behalf of North Coast Rivers Alliance, California Sportfishing Protection Alliance, Pacific Coast Federation of Fishermen's Associations, San Francisco Crab Boat Owners Association and Institute for Fisheries Resources we submit the following comments on the Draft Initial Study and Negative Declaration ("DISND") for the Westlands Water District Groundwater Pumping and Conveyance Project, State Clearinghouse Number 2020050434 (the "Project"). Please include these comments in the public record for this matter.

In preparing the DISND, Westlands Water District ("Westlands" or the "District") failed to comply with the California Environmental Quality Act, Public Resources Code section 21000 et seq. ("CEQA"). Westlands must prepare an Environmental Impact Report ("EIR") because the Project may have a significant effect on the environment. Westlands ignored the Project's inconsistencies with the beneficial uses designated by the applicable Basin Plan, and failed to address its duties under the Public Trust Doctrine. For these reasons, as detailed below, Westlands cannot certify the proposed Negative Declaration or approve the Project.

CEQA REQUIRES AN EIR BECAUSE THE PROJECT MAY HAVE SIGNIFICANT ENVIRONMENTAL IMPACTS

"All lead agencies shall prepare . . . an [EIR] on any project which they propose to carry out or approve that *may* have a significant effect on the environment." Pub. Res. Code, § 21100(a) (emphasis added). An EIR must be prepared if an agency is presented with substantial evidence of a fair argument that a Project may have significant effect "even though it may also be presented with other substantial evidence that the project will not have a significant effect." *Pocket Protectors v. City of Sacramento* (2004) 124 Cal.App.4th 903, 926-928; 14 C.C.R. § 15064(f)(1) (same). Contrary to this mandate, Westlands failed to identify and examine the potential impacts of the Project, which clearly present substantial evidence supporting a fair argument that the Project may have a significant effect on the environment.

The Project would allow Westlands to pump up to "up to 30,000 [acre-feet ("AF") per year], or up to 150,000 AF over the five-year life of the Project" of local groundwater into the San Luis Canal ("SLC") to be conveyed "for withdrawal and use on other land within the District" during times when Westlands receives less than a 20% allocation of water from the Central Valley Project. DISND 8. As a practical matter, the groundwater could "be directly delivered to agricultural users located downstream of discharge points, or operationally exchanged with [the United States Bureau of Reclamation] for an in-kind amount, minus conveyance losses, of the District's available water supplies in the San Luis Reservoir." DISND 9. While the first year of the Project could be implemented from July through December, the Project's groundwater conveyance otherwise would occur between April 1 and August 31 of eligible years. DISND 8.

The DISND improperly concludes that the Project will not have environmental impacts, yet the Project's extraction, conveyance and delivery of groundwater are all likely to significantly impact the environment, as detailed below. Therefore Westlands is required to prepare an EIR to address these impacts.

A. Groundwater Pumping

The DISND reveals that the Project would introduce up to 30,000 AF per year to the San Luis Canal. This water would be extracted from wells within Westlands' service area. Yet Westlands' service area overlays groundwater basins that have experienced overdraft and subsidence, impacts that the Project could easily trigger again. DISND 4, 13, 15, 46-49. The DISND indicates that "more restrictive minimum thresholds" would be used for wells that fall within areas with increased rates of subsidence that threaten the San Luis Canal. DISND 15. But the DISND fails to provide sufficient information regarding these thresholds and their enforcement to enable the public and decisionmakers to determine whether such thresholds would be sufficient to prevent subsidence. *Id.* The need for this information is all the more compelling in light of the fact that the DISND concedes that "ground subsidence monitoring" is

supposed to be one of four components of the Project. DISND 8.

In analyzing the Project's subsidence-based impacts, the DISND assumed that the Project's pumping of 30,000 AF per year of groundwater would be consistent with, and not in addition to, groundwater pumping that would otherwise occur in the area. DISND 53. But there is no evidence in the DISND that the water pumped for the Project would otherwise have been pumped for some other use, and the DISND contains no guarantee that the Project's pumping will not be additional to the existing demand. *Id.* Land subsidence is a major and growing consequence of groundwater pumping in the area, and threatens the California Aqueduct and scores of other infrastructure projects. The Project's potentially significant direct and cumulative contributions to land subsidence require study in an EIR, not a negative declaration.

Instead of examining this significant impact and determining the appropriate mitigation, the DISND defers this essential review, stating that the groundwater extraction limitations "would be identified as part of detailed groundwater modeling conducted as part of [Groundwater Sustainability Plan] implementation and subject to final approval by the District." DISND 15. The DISND reveals that the target level of subsidence in the affected areas is 0.1 foot/year, which is intended to "reflect the residual subsidence that would continue regardless of groundwater level recovery." *Id.* at 50. But merely maintaining the existing rate of decline in groundwater storage–10 vertical feet each century–hardly prevents environmental harm. Instead, it is a blueprint for permanent destruction of the San Joaquin Valley's aquifers. Further, the DISND does not identify rates of pumping or quantities of water that could be safely pumped from these areas while staying within even these generous (and ultimately catastrophic) thresholds. *Id.* And while the DISND indicates that the subsidence rate will be monitored during Project implementation, it provides no clear plan for what happens when monitoring reveals excessive subsidence. *Id.* It implies that Westlands may substitute surface water supplies for groundwater in some circumstances, but fails to adequately discuss the impacts of such alternative actions on water quality, fisheries, and other biological resources. *Id.*

CEQA requires more than vague assurances that a future plan will mitigate potentially significant impacts. *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 306 ("adopt[ion of] mitigation measures [to be] recommended in a future study is in direct conflict with the guidelines implementing CEQA"); *Endangered Habitats League v. County of Orange* (2005) 131 Cal.App.4th 777, 793-794 (mitigation measures that merely "require a report be prepared and followed," without establishing specific performance standards, violate CEQA); *Golden Door Properties, LLC v. County of San Diego* (2020) __Cal.App.5th __ (D075328) 2020 WL 3119041, at *25 (the approving agency abuses its discretion by failing to proceed as required by law when it improperly defers mitigation). Westlands must examine the impacts and adopt binding, enforceable mitigation measures as part of its CEQA process instead of deferring mitigation to a future process divorced from this Project approval.

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B. Groundwater and Surface Water Conveyance in San Luis Canal

The Project would introduce groundwater – and possibly surface water – from Westlands' service area into the San Luis Canal/California Aqueduct system. The DISND incorrectly claims that the water that would be introduced will not cause significant impacts. Yet the Project would allow Westlands to exchange low-quality groundwater for much higher quality water elsewhere in the SLC. DISND 9, 50. This is likely to lead to significant water quality impacts, despite the DISND's contrary, and baseless, claim.

Groundwater in Westlands' service area is often laden with salts, boron, arsenic, selenium and sulfates. DISND 45. Selenium is of particular concern, as it mobilizes in the shallow groundwater in Westlands' service area at concentrations that are harmful to fish, birds, and plants. Additionally, high saline levels can be found in both the shallow and deep aquifers underlying Westlands' service area. DISND 15. The DISND does not limit the Project's groundwater pumping to sources below the Corcoran Clay, which contains less selenium and other harmful constituents. Instead, the DISND reveals that "[w]ells in the Westside Subbasin draw from both the Upper and Lower Aquifers." DISND 43. And the DISND contemplates "surface water substitution, if necessary/available to reduce groundwater pumping." DISND 50. At the same time the DISND concedes that "surface water flows in the western portion of the basin in Kings and Fresno counties tend to be poorer quality due to salinity from marine sediments and naturally occurring trace elements such as selenium and molybdenum." DISND 49. Yet the DISND does not even acknowledge, let alone analyze, the potentially significant water-quality impacts of substituting surface water for groundwater for the Project.

In particular, selenium is toxic to biological resources, both avian and aquatic. Selenium bioaccumulates in the food chain, and thereby magnifies its deleterious impacts on fish and wildlife. The DISND indicates that Westlands intends to monitor selenium levels, and institute a limit of two micrograms per liter. DISND 32. This level is not sufficiently protective for aquatic life, as it does not adequately prevent harmful bioaccumulation, especially in still waters.[1] Yet water introduced to the San Luis Canal as part of the Project is likely to be delivered to both the Mendota Wildlife Area and the Kern Wildlife Refuge. DISND 32. Thus, despite the DISND's contrary conclusion, the Project is likely to harm aquatic and terrestrial life dependent upon these refuges.

The Tulare Lake Basin Plan indicates that "imported surface water supplies contribute nearly half the increase of salts occurring within the Basin." Water Quality Control Plan for the Tulare Lake Basin, Third Edition ("Tulare Basin Plan") 1-2. One of the sources of this imported

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[1]Aquatic Life Ambient Water Quality Criterion for Selenium in Freshwater 2016 – Fact Sheet, available at:
https://www.epa.gov/sites/production/files/2016-06/documents/se_2016_fact_sheet_final.pdf

surface water is the San Luis Canal. *Id.* The DISND acknowledges that this imported water "significantly increase[s] salinity within the natural watershed, increasing EC measurements by 50 percent in surface waters." DISND 49. Thus, as the Tulare Basin Plan makes clear, water quality monitoring is essential to prevent further degradation of water quality in the basin. Tulare Basin Plan 1-2.

As with its deferred examination of the Project's impacts on subsidence, Westlands has improperly deferred formulation of any water quality monitoring standards or program that would address the Project's potential to impair water quality in the San Luis Canal. DISND 50-51. Instead, the DISND states that the monitoring and reporting program is "being developed." DISND 50. Indeed, the list of potentially applicable water quality standards included in Appendix A to the DISND makes plain that the standards are not final and are subject to change. DISND A-5/ By unlawfully deferring formulation of the monitoring and reporting program for the Project until after Project approval, Westlands is violating CEQA. The DISND's conclusion that the Project will have no impacts on water quality – or on biological resources that will be harmed by exposure to the Project's water – is not only completely unsupported, it is refuted by the overwhelming evidence of likely water quality impairment in this record.

CONCLUSION

For the reasons stated above, the DISND contravenes applicable law. Westlands' incomplete environmental analysis violates CEQA's most fundamental tenets requiring full examination of a project's potentially significant impacts before, rather than after, project approval. Westlands must prepare a comprehensive EIR that details both the Project's impacts, and a reasonable range of alternatives and mitigation measures designed to lessen them, before determining whether to move forward with this ill-considered and highly impactful Project.

Please include these comments in the public record on this matter.

Thank you for your consideration.

Respectfully submitted,

Stephan C. Volker
Attorney for North Coast Rivers Alliance, California Sportfishing Protection Alliance, Pacific Coast Federation of Fishermen's Associations, San Francisco Crab Boat Owners Association and Institute for Fisheries Resources

Appendix B: San Luis Canal Non-Project Water Pump-in Program 2020 Water Quality Monitoring Plan

RECLAMATION

Managing Water in the West

San Luis Canal
Non-Project Water Pump-in Program
2020 Water Quality Monitoring Plan

U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region
South-Central California Area Office

Revised: September 2020

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation’s natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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List of Abbreviations and Acronyms

Check 13	San Luis Canal Milepost 66.74, O'Neill Forebay
Check 21	San Luis Canal Milepost 172.44, near Kettleman City
CVP	Central Valley Project
DWR	California Department of Water Resources
EC	Electrical conductivity, µS/cm
Lateral 7	Westlands Water District facility connected to the San Luis Canal at Milepost 115.43L
mg/L	milligrams per liter, equivalent to parts per million
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
San Luis Canal	The federal portion of the California Aqueduct
TDS	Total dissolved solids, mg/L
Title 22	California Drinking Water Standards
µg/L	micrograms per liter, equivalent to parts per billion
µS/cm	microSiemens per cm, salinity in water
Westlands/District	Westlands Water District

Definitions

Non-Project Water means surface or ground water:

1) Pumped, diverted, and/or stored based upon the exercise of water rights which have not been appropriated or acquired by, or apportioned to, the United States or others, or which have not been decreed, permitted, certificated, licensed, or otherwise granted to the United States or others, for a Reclamation project, or
2) Water not reserved or withdrawn from appropriation by the United States for, nor allocated by the United States to, a Reclamation project.

Excess Capacity means diversion, storage, conveyance, or pumping capacity in project facilities which is excess to that needed to achieve a Reclamation project's authorized purposes.

Max Depth to Groundwater (Max DTGW) represents the maximum depth to groundwater measurement collected from an individual well.

Fall/Winter Median Groundwater Level represents the average historical recovery level for each well. Determined by using groundwater level data recorded in the Fall/Winter after the well has had time to recover from irrigation season. The timeframe for median groundwater levels may vary depending on individual farm usage. Reclamation reserves the right to re-evaluate these data, if needed, as new data becomes available.

Introduction

This document has been prepared by the U.S. Department of the Interior, Bureau of Reclamation (Reclamation), in cooperation with the California Department of Water Resources (DWR) and the State Water Contractors.

Under the Warren Act of 1911, Reclamation may execute temporary contracts to convey non-project water in excess capacity in federal irrigation canals.

Reclamation proposes to enter into a 5-year Warren Act contract with Westlands. Under the terms of the contract, Westlands would introduce up to 30,000 acre-feet per year of non-Central Valley Project (CVP) water into the San Luis Canal (SLC) in years in which Westlands' CVP allocation is 20 percent or less. The period of introduction would be between April 1 and August 31 of a given year. However, as it was not possible to begin conveyance by April 1, 2020, the conveyance period for this year would be shifted by six months, to between October 5 and December 31. All subsequent years would use the April 1 to August 31 window.

The source of the non-CVP water would be pumped from groundwater wells within Westlands' district boundaries as well as other sources of non-CVP water by way of the Mendota Pool Inlet Canal. The amount of water from each source would vary, but the

total quantity introduced under the Proposed Action would not exceed a combined volume of 30,000 acre-feet in a given year.

This document describes the plan for measuring the changes in the quality of water in the SLC caused by the conveyance of this non-project water, in addition to changes in groundwater elevation to estimate subsidence.

San Luis Canal Non-Project Water Monitoring Program fundamental assumptions:

1) All sources of non-project water discharged into the SLC must comply with California Drinking Water standards (Title 22)[1]. No in-canal dilution is allowed.

2) Each source of non-project water must be tested regularly to confirm that it is consistent, predictable, and acceptable in quality.

3) Staff from DWR will use real-time monitoring of salinity and turbidity in water in the SLC to identify any problems caused by the addition of the non-project water.

There are two main sources of non-project water:

1) Groundwater pumped from wells adjacent to the SLC (Canal Integration Program);

2) Groundwater from wells that pump into the Lateral 7 inlet canal.

Monitoring Mission and Goals

The mission of this monitoring program is to produce physical measurements that will determine the changes in the quality of water in SLC caused by the conveyance of non-project water. Data will be used to administer the terms of Warren Act Contracts and other exchange agreements, and to ensure that the quality of CVP water is suitable for downstream water users. The monitoring program will also measure changes to groundwater resources to prevent subsidence problems to local facilities.

The general goals of this monitoring plan are:

1) Evaluate the quality of water in each source of non-project water;

[1] 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. http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dwregulations-2017-04-10.pdf

2) Confirm that non-project water entering the SLC is suitable for all downstream users;

3) Provide reliable data for administration of the contracts and agreements; and

4) Provide measurements of depth to groundwater to prevent subsidence.

Study Area

The Study Area (**Figure 1**) encompasses the SLC from the O'Neill Forebay (Check 13) to Kettleman City (Check 21), which is the federal portion of the California Aqueduct. **Figure 2** depicts the wells in Westlands along the SLC.

The study area also includes Westlands Lateral 7. For this program, Lateral 7 will be treated as one point of discharge. Water quality in Lateral 7 will be measured at the Adams Avenue pumping plant.

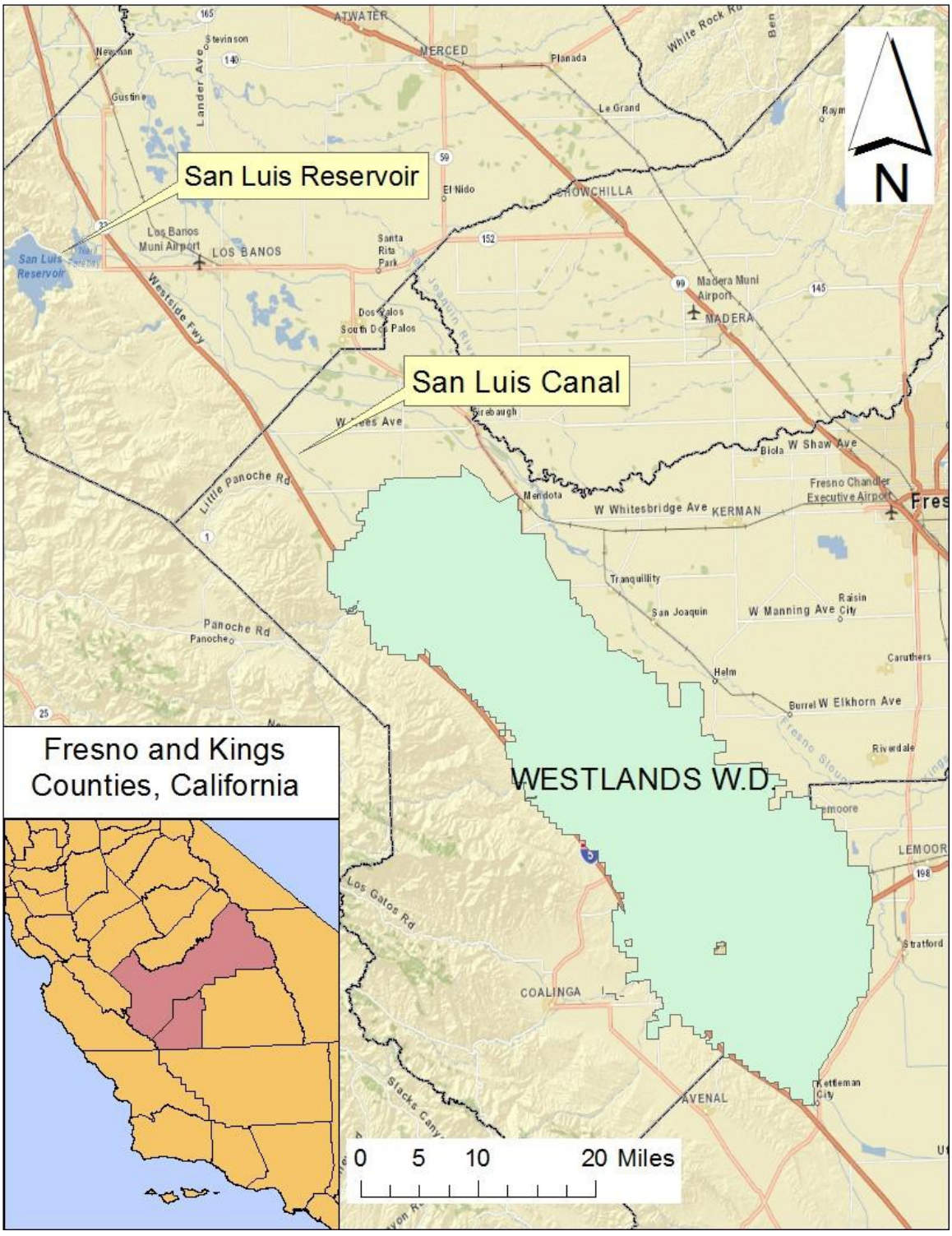

Figure 1. Project vicinity map

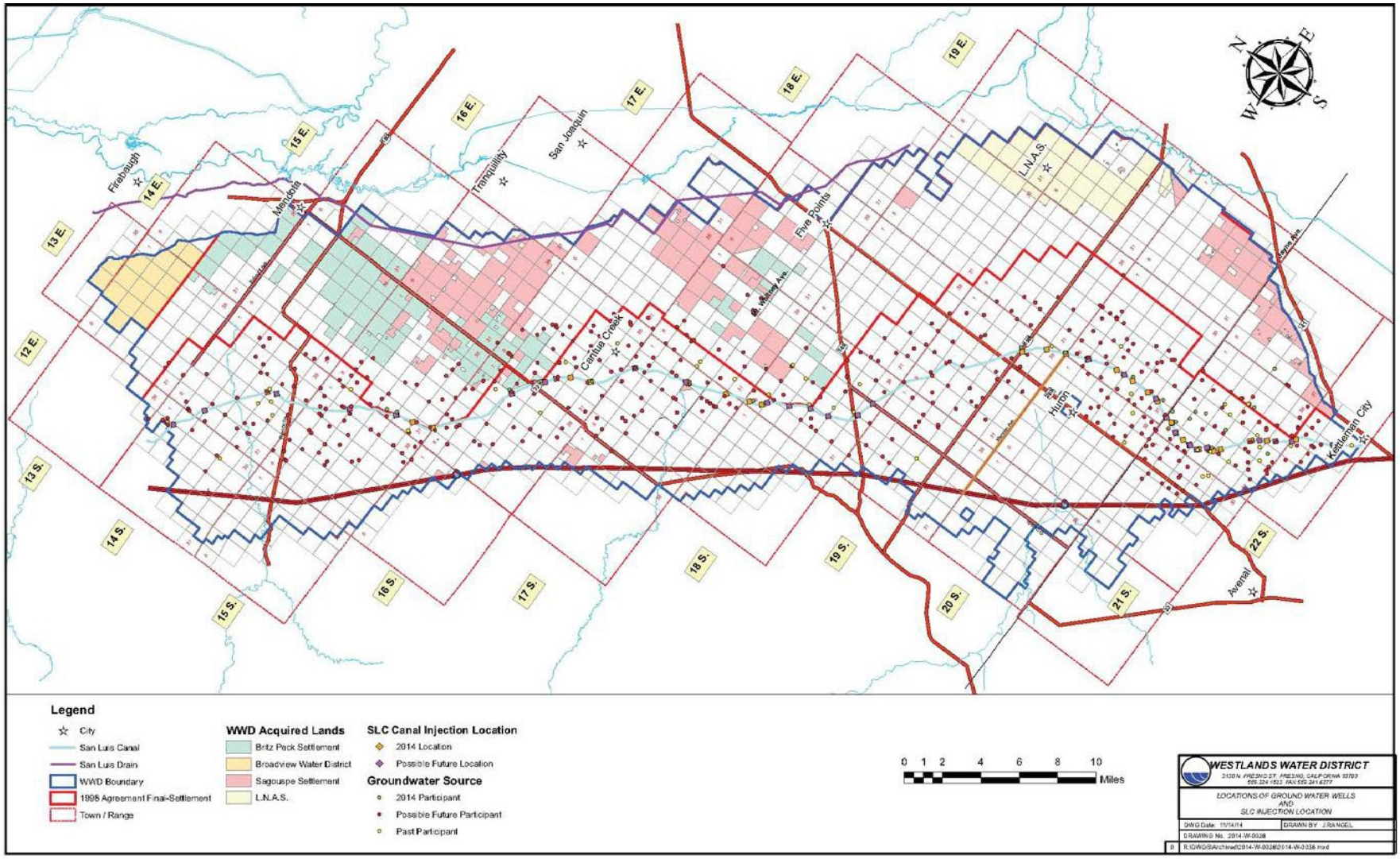

Figure 2. Location of Groundwater Wells within Westlands

Water Quality Monitoring Plan

All non-project water must meet the standards listed in **Tables 5 and 6** prior to entering the SLC. No dilution in the SLC will be allowed. Manifolded wells may discharge if the blend meets the standards listed in **Tables 5 and 6**.

All water quality analyses must be conducted by a laboratory listed in **Table 7**. All water samples must be sampled and preserved according to established protocols in correct containers. The costs of sampling and analysis of all non-project water will be borne by the well operators.

Sampling

Baseline Sampling of Individual Wells

Table 5 is a short list of constituents of concern to be measured in each well each year before pumping into the SLC to screen out non-compliant wells[2]. There will be a one-time screening for the presence of Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) and if detected, Reclamation and DWR will work with Westlands on conducting additional sampling. Reference **Table 5** for new PFOA and PFOS sampling. Wells that do not meet this short list may not participate in the program.

Each well must be tested every three years for all constituents listed in **Table 6** before pumping in the SLC. Each report must clearly identify the location of each source of non-project water.

Reclamation, in coordination with DWR and the State Water Contractors, may allow minor exceedances of certain secondary Title 22 constituents if all primary standards are met.

All new wells proposed to participate in the program must be approved by Reclamation prior to discharging any groundwater into the SLC or Lateral 7.

Routine Sampling of Individual Wells

Each well must be tested weekly during the first four weeks of pumping for the short list of constituents (**Table 5**), then monthly while actively pumping into the SLC to confirm that the water quality is consistent, predictable, and reliable.
The short list may be modified, in consultation with DWR, to add constituents of concern or drop non-detected constituents.

[2] Reclamation will provide instructions for sampling groundwater.

Reclamation will allow the introduction of water from two or more wells through one discharge point if the blended water meets the Title 22 standards. Special monitoring may be required for these situations.

The following information must be submitted to Reclamation prior to pumping groundwater into the SLC:

- the location of each well, pumping rate, and point of discharge into the SLC;
- complete Title 22 water quality analyses for each well
- the depth to groundwater in each well before pumping into the SLC commences

When the Project is operating, Westlands will provide DWR and Reclamation with weekly schedules which identify the flow from the active wells.

Westlands will provide weekly updates identifying the current and anticipated water quality changes within the SLC by using the daily model. The goal is to provide Reclamation and the State Water Project Facilitation Group with a day-to-day prediction of downstream water quality using real-time pump-ins, real-time upstream background flows, and current background water quality data.

Lateral 7 Sampling

Non-project water will only enter Lateral 7 when water is being pumped into the SLC, not when flow is entering the Mendota Pool.

In addition to non-project well sampling, Westlands must collect samples from Lateral 7 at the Adams Avenue pump station. Lateral 7 water must be tested for the full suite of Title 22 (**Table 6**) every year. **Table 5** constituents will be sampled weekly for the first four weeks, then monthly for the duration of pumping at the locations listed in **Table 3**. There will be a one-time screening for the presence of Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) from Lateral 7 at Adams Avenue pump station and if detected, Reclamation and DWR will work with Westlands on conducting additional sampling. Reference **Table 5** for new PFOA and PFOS sampling.

Westlands must take weekly field measures for EC and turbidity at locations listed in **Table 3**.

Depth to Groundwater

Well owners will measure the initial depth to groundwater in each well before pumping into the SLC, and monthly from October through December and every other month outside of that range while the 2020 Pump-in Program is in effect. Measurements must be made using industry approved methods.

An individual well will be shutoff when its Depth to Groundwater reaches 75% of the difference between the Fall/Winter Median Groundwater Level and the Max DTGW using the following equation:

Shutoff Trigger= 0.75(Max DTGW-Fall/Winter Median) + Fall/Winter Median*

If an individual well is shutoff due to groundwater levels reaching the shutoff trigger, it will not be allowed to resume pumping until it reaches 70% of the difference between the Fall/Winter Median Groundwater Level and the Max DTGW using the following equation:

Well Resumption= 0.70 (Max DTGW-Fall/Winter Median) + Fall/Winter Median*

Groundwater level measurements will follow a strict schedule. If a well is shutoff it will not be measured again until the next scheduled measurement date. The participants must notify Reclamation in writing when a well is shutoff or resuming. See Definitions section for explanation for Max DTGW and Fall/Winter Median.

Monitoring and Reporting

San Luis Canal Monitoring

Mean daily salinity and turbidity will be measured with the DWR sensors that report real-time data to CDEC (**Table 1**). Westlands will download daily average data for SLC Checks 13 and 21 to measure changes in the canal between these checks that may be attributable to the addition of the non-project water.

Westlands will use a mass balance model to estimate the contribution of salinity to the SLC from the actively pumping wells and Lateral 7 and compare this with the real-time data.

If the addition of the non-project water is increasing the salinity of water in the SLC more than 100 uS/cm between Check 13 and Check 21, Reclamation will work with Westlands and the well operators to turn off high salinity wells.

The addition of non-project water must not raise the salinity in the SLC at Check 21 above 700 uS/cm, equivalent to 450 mg/L Total Dissolved Solids.

If the salinity of water passing Check 13 is greater than 700 uS/cm, Reclamation and Westlands will coordinate with DWR to modify or restrict non-project pumping.

If the addition of the non-project water from Lateral 7 is increasing the turbidity of water in the SLC more than 10 NTU, Reclamation will work with Westlands to reduce discharge from the lateral. Changes in turbidity are measured by collecting samples upstream of and downstream of Lateral 7 (**Table 3**).

Westlands will run model simulations, as needed, to quantify anticipated improvements in conductivity with the termination of pumping from specific wells. The participating wells with the highest salinity will be targeted first, continuing to the wells with the lowest concentrations until canal water quality stabilizes or improves. As salinity at Check 21 improves, wells will be brought on-line to commence pumping.

DWR collects monthly grab samples at Checks 13 (KA007089) and 21 (KA017226) to measure trace metals and other minerals in the canal water. The data will be posted here:

San Luis Canal Check 13:
http://wdl.water.ca.gov/waterdatalibrary/waterquality/station_county/select_station.cfm?URLStation=KA007089&source=map

San Luis Canal Check 21:
http://wdl.water.ca.gov/waterdatalibrary/waterquality/station_county/select_station.cfm?URLStation=KA017226&source=map

DWR and Westlands will review these results to identify water quality changes in the SLC and will determine if they are caused by the addition of the non-project water.

Data Compilation and Review

All flow and water quality data collected by Westlands will be presented each month to Reclamation and DWR via e-mail. Reclamation will review the data to identify changes in the quality of water in the SLC and in individual wells, and potential changes in the local aquifer that could lead to overdraft or subsidence. Reclamation, in consultation with DWR, will direct Westlands on the continuation of pumping of groundwater into the SLC.

Access

Participating well owners must allow Reclamation and DWR staff permission to access the wells, if requested.

DWR Monitoring of Wells

DWR may collect samples for water quality testing for any constituents of concern from any Westlands source well or at any point of water entry into the Aqueduct for testing. DWR will use Bryte Chemical Laboratory or TestAmerica Labs for all DWR well sample analyses and the data will be available to Westlands for review. If any well tested by DWR is found to exceed the identified MCL’s, Reclamation will direct Westlands to stop pumping immediately. The discharge must not resume unless it is demonstrated that adjustments have been made to the well or cluster of wells that allows it to discharge water that meets the required objectives.

Westlands will coordinate with well operators to provide access for DWR personnel to conduct any of the following activities on private property within Westlands' service area during the term of this Proposal:

- Verification of metering calibration standards and requirements for flow meters located at the point of entry into the Aqueduct and at the point of delivery out of the Aqueduct,

- Collection of water samples from source wells and at the point of pump-in to the Aqueduct for testing of water quality,

- Any other activities deemed necessary by DWR to comply with the terms of this Proposal.

Revision

Reclamation reserves the right to modify this monitoring program at any time.

Revised: 23 September 2020

Table 1. Real-Time Monitoring Stations

Location	Operating Agency	Parameters	Frequency	Remarks
San Luis Canal Check 13 O'Neill Forebay	DWR	Electrical conductivity, turbidity	Real-time	CDEC Site: C13
San Luis Canal Check 21 Kettleman City				CDEC Site: C21

Key: CDEC: California Data Exchange Center
DWR: California Department of Water Resources

Location	Agency	Parameters	Frequency	Remarks
San Luis Canal Check 13 O'Neill Forebay	DWR	Minerals, trace metals, nutrients, pesticides	Monthly	Grab sample
San Luis Canal Check 21 Kettleman City				Grab sample

Source: DWR Water Data Library

Location	Agency	Parameters	Frequency	Remarks
San Luis Canal Milepost 113.82 Lincoln Ave (upstream site)	Westlands	EC, turbidity short list	Weekly Weekly x 4, Monthly[3]	Field measurements grab sample
Westlands Lateral 7 at Adams Avenue	Westlands	EC, turbidity short list	Weekly Weekly x 4, Monthly[3]	Field measurements grab sample
San Luis Canal Milepost 117.47 Manning Ave (downstream site)	Westlands	EC, turbidity short list	Weekly Weekly x 4, Monthly[3]	Field measurements grab sample

[3] This water will also be tested for the short list of constituents weekly for the four weeks and monthly for the duration while water is being pumped into the canal.

Table 4. Maximum allowable changes in the San Luis Canal caused by the addition of non-project groundwater

Constituent	Monitoring Location	Maximum concentration in the San Luis Canal
Electrical conductivity	Between San Luis Canal Checks 13 and 21	Less than 100 uS/cm increase between the checks
Turbidity	Between the Lateral 7 upstream site and downstream site	Less than 10 NTU
Electrical conductivity	In the San Luis Canal at Check 21	Not to exceed 700 uS/cm
Total dissolved solids		Not to exceed 450 mg/L
Concentration of selenium		Not to exceed 2 ug/L
Concentration of any Title 22 constituent		Less than half of a Title 22 MCL

If the maximum concentrations are exceeded in the canal, Reclamation will direct the District to reduce or terminate pumping of non-project water into the San Luis Canal. The District may provide a forecast from its water balance model to identify which wells to reduce or terminate, and whether to reduce or terminate pumping form Lateral 7.

San Luis Canal
Non-Project Water Pump-in Program
Water Quality Monitoring Plan

Table 5. Water Quality Standards, Short List

Constituent	Units	Maximum Contaminant Level		Detection Limit for Reporting		CAS Registry Number	Recommended Analytical Method
Arsenic	mg/L	0.010	(1)	0.002	(2)	7440-38-2	EPA 200.8
Boron	mg/L	2.0	(13)			7440-42-8	EPA 200.7
Bromide	mg/L		(14)				
Chloride	mg/L	250	(7)			16887-00-6	EPA 300.1
Chromium, total	mg/L	0.05	(1)	0.01	(2)	7440-47-3	EPA 200.7
Hexavalent chromium	mg/L	0.010	(1)	0.001	(2)	18540-29-9	EPA 200.8
Manganese	mg/L	0.05	(7)			7439-96-5	EPA 200.7
Nitrate (as nitrogen)	mg/L	10	(1)	0.4	(2)	7727-37-9	EPA 300.1
Selenium	mg/L	0.002	(10)	0.001		7782-49-2	EPA 200.8
Sodium	mg/L	100	(12)			7440-23-5	EPA 200.7
Specific Conductance	µS/cm	1,600	(7)				SM 2510B
Sulfate	mg/L	500	(7)			14808-79-8	EPA 300.1
Total Dissolved Solids	mg/L	1,000	(7)				SM 2540C
Total Organic Carbon	mg/L		(14)				EPA 415.3
Gross alpha*	pCi/L	15	(3)	3	(3)		SM 7110C
1,2,3-Trichloropropane	mg/L	0.000005	(4)	0.000005	(5)	96-18-4	SRL 524M

One-Time Screening					
Perfluorooctanic acid (PFOA)**	ng/L	N/A	0.82	(15)	EPA 537.1
Perfluorooctanesulfonic acid (PFOS)**	ng/L	N/A	2.7	(15)	EPA 537.1

Short list to be measured before pumping occurs, then weekly for four consecutive weeks, and monthly for the duration of pumping into the San Luis Canal.
*Monthly testing only
**One-time screening conducted prior to pumping individual wells and from Lateral 7 at the Adams Avenue pump station. Although there are no MCLs developed yet, there are notification levels and response levels. The notification levels are 5.1 PPT (PFOA) and 6.5 PPT (PFOS). The response levels are 10 PPT (PFOA) and 40 PPT (PFOS) based on a running four quarter average. The lowest concentration minimum reporting levels (LCMRL) are 0.82 ng/L (PFOA) and 2.7 ng/L (PFOS).

Revised: 23 September 2020

Table 6. Title 22 Water Quality Standards

Constituent	Units	Maximum Contaminant Level		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	(8)	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	(8)	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
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	69	(12)			7440-23-5	EPA 200.7

Radioactivity							
Gross Alpha	pCi/L	15	(3)	3	(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
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	ug/L	0.015	(11)			2921-88-2	EPA 8141A
Diazinon	ug/L	0.10	(11)			333-41-5	EPA 8141A

Sources:
Recommended Analytical Methods: https://www.nemi.gov/home/
Maximum Contaminant Levels:
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

http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dwregulations-2015-07-16.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

http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr.pdf

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/

Revised: 23 September 2020

RECLAMATION
Managing Water in the West

Table 7. Approved Laboratory List for the Mid-Pacific Region Quality Assurance and Data Management Branch (MP-156) Environmental Monitoring and Hazardous Materials Branch (MP-157)

Alpha Analytical Laboratories, Inc.	**Address**	208 Mason Street, Ukiah, CA 95482
	Contact	Adam Angulo
	P/F	916-686-5190
	Email	adam@alpha-labs.com
	Methods	*Inorganics in Water, Organics in Water*

APPL Laboratory	**Address**	908 North Temperance Avenue, Clovis, CA 93611
	Contact	Chue Moua, Project Manager
	P/F	(559) 275-2175 / (559) 275-4422
	Email	cmoua@applinc.com; danderson@applinc.com;
	Methods	*Approved for inorganic and organic parameters in water and soil*

Basic Laboratory	**Address**	2218 Railroad Avenue Redding, CA 96001
	Contact	Josh Kirkpatrick, Nathan Hawley, Melissa Hawley
	P/F	(530) 243-7234 / (530) 243-7494
	Email	jkirkpatrick@basiclab.com (QAO and PM); nhawley@basiclab.com, mhawley@basiclab.com (invoices); poilar@basiclab.com (sample custody), khawley@basiclab.com (sample custody)
	Methods	*Approved for inorganic/organic parameters*

Brooks Applied Labs	**Address**	18804 North Creek Parkway Bothell, WA 98011
	Contact	Jeremy Maute
	P/F	(206) 632-6206
	Email	Jeremy@brooksapplied.com
	Methods	*Approved for selenium speciation and mercury speciation in water, solids, and tissue*

California Laboratory Services	**Address**	3249 Fitzgerald Road Rancho Cordova, CA 95742
	Contact	Scott Furnas
	P/F	(916) 638-7301 / (916) 638-4510
	Email	janetm@californialab.com (QA); scottf@californialab.com (PM)
	Methods	*Approved for inorganic, organic, and microbiological parameters*

Calscience Environmental Laboratories	**Address**	7440 Lincoln Way; Garden Grove, CA 92841
	Contact	Don Burley
	P/F	714-895-5494 (ext. 203)/714-894-7501
	Email	DBurley@calscience.com
	Methods	*Approved for inorganic and organic parameters in water, sediment, and soil.*

Eurofins Eaton Analytical, Inc. (formerly MWH Laboratories)	**Address**	750 Royal Oaks Drive Ste. 100 Monrovia, CA 91016 USA
	Contact	Linda Geddes
	P/F	(626) 386-1100, Linda - (626) 386-1163, Rick - (626) 386-1157
	Email	LindaGeddes@eurofinsus.com
	Methods	*Approved for all inorganic, organic, radiochemistry, total coliform, & E. Coli parameters in water*

Fruit Growers Laboratory	**Address**	853 Corporation Street Santa Paula, CA 93060 USA
	Contact	David Terz, QA Director
	P/F	(805) 392-2024 / (805) 525-4172
	Email	davidt@fglinc.com
	Methods	*Approved for the analysis of inorganic parameters in water and soil*

Moore Twining Associates, Inc.	**Address**	2527 Fresno St., Fresno, CA 93721 USA
	Contact	Juli Adams (Lab Director), Maria Manuel (QA Manager)
	P/F	(559) 268-7021
	Email	julia@mooretwining.com, mariam@mooretwining.com
	Methods	*BOD*

Oilfield Environmental & Compliance	**Address**	307 Roemer Way Ste 300, Santa Maria, CA 93454
	Contact	Will update when assigned a PM
	P/F	805-922-4772
	Email	info@oecusa.com
	Methods	*(Approval Pending) Hazardous Waste in Water/Soil*

Pacific EcoRisk	**Address**	2250 Codelia Road, Fairfield, CA 94534 USA
	Contact	Stephen L. Clark
	P/F	(707) 207-7760 / (707) 207-7916
	Email	slclark@pacificecorisk.com
	Methods	*Approved for acute and chronic toxicity.*

Physis	**Address**	1904 East Wright Circle, Anaheim, CA 92806
	Contact	Will update when assigned a PM
	P/F	1-714-602-5320 ext 204
	Email	markbaker@physislabs.com
	Methods	*(Approval Pending) Inorganics in Soil*

South Dakota Agricultural Laboratories	**Address**	Brookings Biospace, 1006 32nd Avenue, Suites 103,105, Brookings, SD 57006-4728
	Contact	Regina Wixon, Nancy Anderson, Jessie Davis (sample custodian)
	P/F	(605) 692-7325/(605) 692-7326
	Email	regina.wixon@sdaglabs.com, Nancy.Anderson@sdaglabs.com, jessica.davis@sdaglabs.com
	Methods	*Approved for selenium analysis*

Western Environmental Testing Laboratories	475 East Greg Street # 119 Sparks, NV 89431 USA
	Scott Thompson (Client Services), Andy Smith (Lab Drctr)
	(775) 355-0202 / (775) 355-0817
	scottt@wetlaboratory.com, andy@wetlaboratory.com
	Approved for inorganic parameters (metals, general chemistry) and coliforms.

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