Final Environmental Assessment

Salmon Conservation and Research Facility Water Supply and Infrastructure Project

SAN JOAQUIN RIVER
RESTORATION PROGRAM

U.S. Department of the Interior
Bureau of Reclamation

March 2016
16-01-SJRRP

Mission Statements
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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.

List of Acronyms and Abbreviations

APE	area of potential effect
CAAQS	California Ambient Air Quality Standards
cfs	cubic feet per second
EA	Environmental Assessment
FPP	Friant Power Project
GAMAQI	*Guidance for Assessing and Mitigating Air Quality Impacts*
ITA	Indian Trust Assets
MW	megawatts
NAAQS	National Ambient Air Quality Standards
NHPA	National Historic Preservation Act
NO_x	Nitrous oxides
National Register	National Register of Historic Places
O_3	Ozone
OCID	Orange Cove Irrigation District
OCID Powerplant	Orange Cove Irrigation District Fishwater Release Powerplant
PM_{10}	Particulate matter between 2.5 and 10 microns in diameter
$PM_{2.5}$	Particulate matter less than 2.5 microns in diameter
Project	Salmon Conservation and Research Facility Water Supply and Infrastructure
Reclamation	Bureau of Reclamation
ROG	reactive organic gases
ROW	River Outlet Works
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SJH	San Joaquin Hatchery
SJKF	San Joaquin kit fox
SJRRP	San Joaquin River Restoration Program
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compounds

Contents

Section 1 Introduction

This environmental assessment (EA) has been prepared by the Bureau of Reclamation (Reclamation) in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR 1500-1508), and DOI Regulations (43 CFR Part 46). This EA examines the potential direct, indirect, and cumulative impacts to the affected environment associated with implementing the Salmon Conservation and Research Facility Water Supply and Infrastructure Project (Project). The Project is located immediately downstream of Friant Dam, in Fresno County, California (Figure 1).

1.1 Background

1.1.1 San Joaquin River Restoration Program

Reclamation constructed Friant Dam on the San Joaquin River in 1942. In 1945 the Madera Canal was constructed and in 1951, the Friant-Kern Canal (FKC) was constructed. With these canals, Reclamation has diverted water supplies to over 1 million acres of farmland, supporting a $4.5 billion economy in the San Joaquin Valley. Operation of the dam ceased flow in some portions of the river for several months of the year and substantially altered the natural flow regime (Reclamation, 2011). In 1988, a coalition of environmental groups led by the Natural Resources Defense Council (NRDC), filed a lawsuit known as *NRDC,* et al., *v. Kirk Rodgers,* et al. (*NRDC v. Rodgers 2006*), challenging the renewal of long-term water service contracts between the United States and Central Valley Project Friant Division Contractors. In 2006, the Court approved the Settlement Agreement and the terms of authorization and implementation were signed into law in 2009 with the San Joaquin River Restoration Settlement Act (Public Law 111-11). The Settlement Agreement establishes two primary goals:

- Restoration Goal – To restore and maintain fish populations in "good condition" in the main stem San Joaquin River below Friant Dam to the confluence of the Merced River, including naturally reproducing and self-sustaining populations of salmon and other fish.

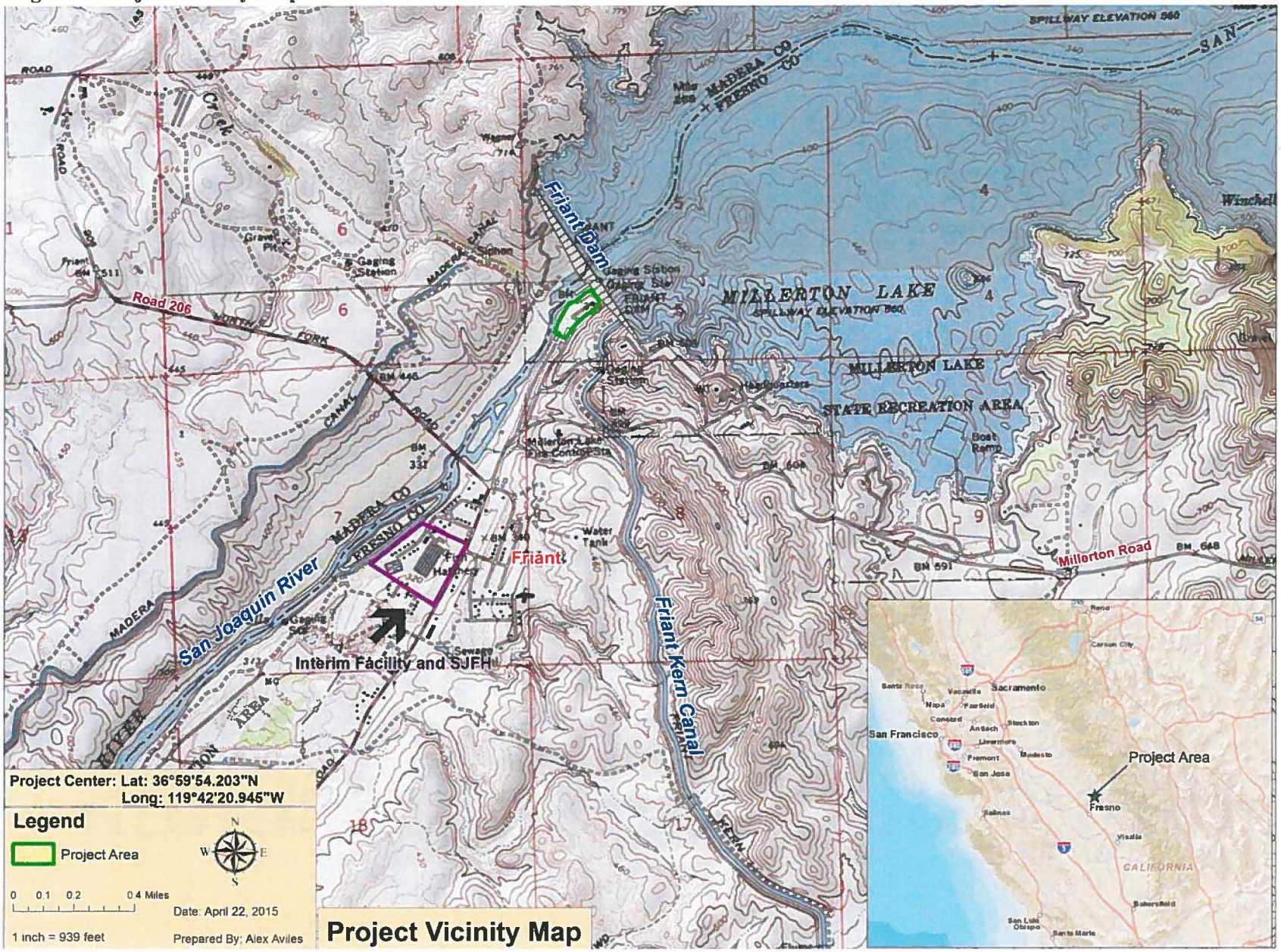
- Water Management Goal – To reduce or avoid adverse water supply impacts on all of the Friant Division long-term contractors that may result from the Interim and Restoration flows provided for in the Settlement.

The Settlement Agreement calls for increased releases from Friant Dam to the confluence of the Merced River (termed Interim and Restoration Flows), a combination of channel and water control structure modifications along the San Joaquin River below Friant Dam, and the reintroduction of Chinook salmon. Restoration Flows are specific volumes of water to be released from Friant Dam during different water year types, according to Exhibit B of the Settlement

Agreement; Interim Flows are experimental flows that began in 2009 and continued until 2014 when full Restoration Flows were initiated with the purpose of collecting relevant data concerning flows, temperatures, fish needs, seepage losses, recirculation, recapture, and reuse. These Interim and Restoration Flows are protected for in-stream and fish and wildlife uses under the California Water Code.

Until the 1940s, the San Joaquin River sustained large populations of Central Valley spring-run and fall-run Chinook salmon, but salmon populations have become extirpated in the project area. To contribute to achieving the Restoration Goal of the Settlement, the SJRRP released Central Valley spring-run Chinook salmon into the San Joaquin River in the spring of 2014 and 2015. Central Valley Spring-run Chinook are likely to be released into the river in spring of 2016, as well as in future years. The SJRRP releases spring-run Chinook downstream of the most downstream fish passage barrier, downstream of SR 165 (pers. comm., E. Meyers 2014). Ancillary spring-run adult broodstock will also be released from the Interim SCARF this year (2016) into Reach 1 for a proposed study. Possible future releases of Central Valley spring-run Chinook salmon may occur upstream of the confluence with the Merced River if connectivity is re-established through actions of the SJRRP in future years. These fish are designated as a non-essential, experimental population in accordance with Section 10j of the ESA.

Figure 1. Project Vicinity Map



1.1.2 San Joaquin Interim Conservation Facility and Salmon Conservation & Research Facility

The Settlement Agreement states in Paragraph 14:

The Secretary, through the USFWS, and in consultation with the Secretary of Commerce, the DFG [CDFW], *and the Restoration Administrator, shall ensure that spring and fall run Chinook salmon are reintroduced at the earliest practical date after commencement of sufficient flows and the issuance of all necessary permits.*

The Implementing Agencies (Reclamation, U.S. Fish and Wildlife Service [USFWS], National Marine Fisheries Service [NMFS], CDFW, and Department of Water Resources) of the Settlement Agreement created a SJRRP Fisheries Management Plan to provide the framework to adaptively manage the reintroduction of Chinook salmon to the San Joaquin River to achieve the Restoration Goal. Accordingly, the SJRRP proposes the development of the future Salmon Conservation and Research Facility (SCARF), to be located at the site of the existing pilot-scale Interim Salmon Conservation and Research Facility (Interim Facility), immediately west of the existing San Joaquin River Fish Hatchery (SJH), below Friant Dam. CDFW is the lead agency in construction of the future SCARF, for which potential impacts were analyzed and disclosed in the 2014 San Joaquin River Restoration Program: Salmon Conservation and Research Facility Environmental Impact Report (EIR).

The USFWS has received permits from NMFS for enhancement of species in accordance with Section 10 of the Endangered Species Act (ESA; 16 USC 1531 et seq.) for broodstock collection and direct translocation of spring-run Chinook salmon. Recognizing the status of spring-run Chinook salmon and the limited availability of donor fish from other populations in the Central Valley, artificial propagation is an essential component of USFWS's approach to establish a population. The Interim Facility and the future SCARF are the primary captive rearing facilities for spring-run Chinook salmon on the San Joaquin River. These facilities are essential for the establishment of a naturally-reproducing and self-sustaining population of spring-run Chinook salmon.

1.1.2.1 San Joaquin Hatchery

The SJH is located approximately one mile downstream of Friant Dam, off of Flemming Avenue in the town of Friant, Fresno County, California (Figure 1). The SJH at any given time contains over a million rainbow trout and Kokanee salmon. CDFW has operated the hatchery since the 1950s to supply trout stock for Sierra foothill and Central Valley lakes, reservoirs, ponds and creeks in twelve California counties. The SJH currently receives approximately 35 cubic feet per second (cfs) from a combination of the Friant Dam River Outlet Works (ROW) and FKC outlet works.

1.1.2.2 Interim Conservation Facility

Nearby the SJH, CDFW operates the Interim Facility to allow meeting Program objectives for spring-run Chinook production, albeit on a reduced scale, until the full-scale SCARF becomes operational. The Interim Facility is located adjacent to the future site of the SCARF and will be incorporated into the final SCARF design. CDFW maintains the Interim Facility as a pilot facility to receive donor eggs and raise fish to maturity in a captive broodstock program. The offspring will be released to the San Joaquin River. In 2011, the SJRRP began culturing fall-run Chinook to provide the SJRRP with experience and training for rearing Chinook salmon through adulthood.

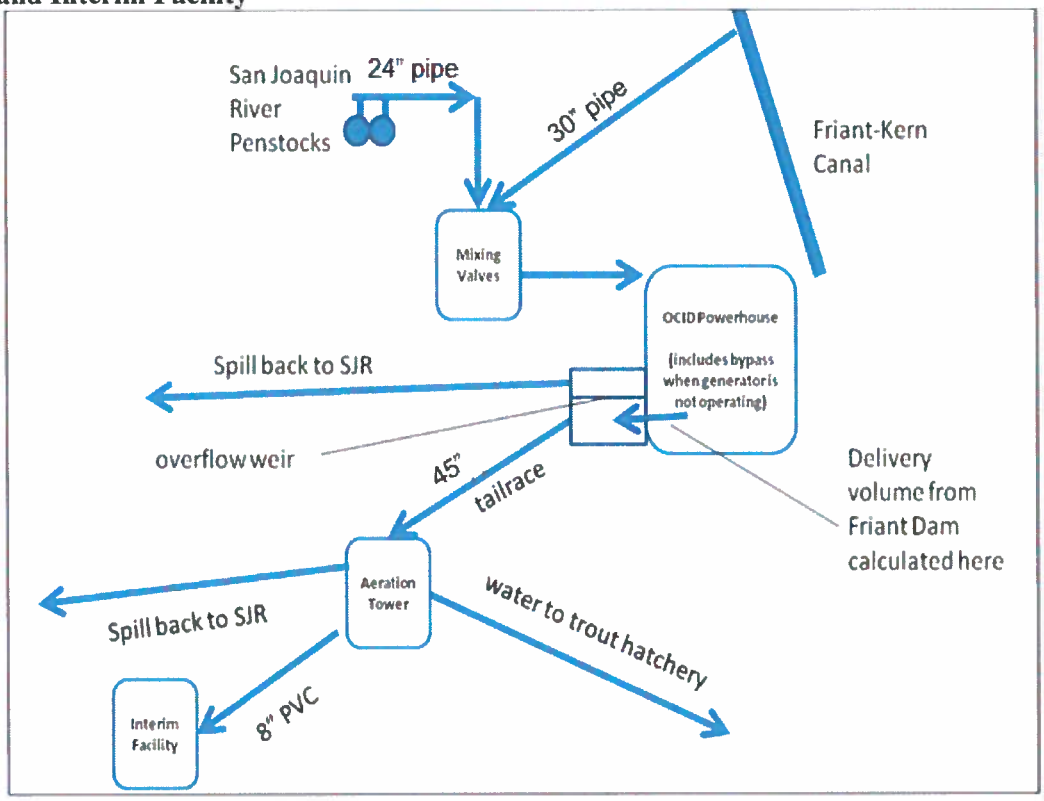
The SJRRP has limited opportunities to capture fall-run Chinook salmon in the San Joaquin River above the Merced River confluence, and no opportunity to capture spring-run Chinook salmon since there is no existing native stock. To restore a population of spring-run Chinook to the San Joaquin River, the SJRRP will collect spring-run Chinook eggs and juveniles from donor streams to rear at the Interim Facility. Direct planting of donor stock in the San Joaquin River would not be successful in reestablishing a population due to issues with stream imprinting and overall survivorship. Collections are currently only from Feather River Fish Hatchery and may expand to other donor streams in the future pending additional permitting. Beginning in 2012, spring-run Chinook salmon have been collected annually from Feather River Fish Hatchery to start a broodstock program. Relatively small numbers of donor fish are currently raised in the Interim Facility, and CDFW will expand production at the SCARF, once in operation. Spring-run Chinook salmon offspring will be released into the San Joaquin River for reintroduction. To date, the Interim Facility has been operating on a water budget of 0.6 cfs taken from the 35 cfs of CVP flow currently delivered to the SJH. The Interim Facility is capable of increasing their production; however, only to a limited extent, due to the restricted existing water supply, and limited space for additional tanks.

1.1.2.3 Existing Water Infrastructure for SJH and Interim Facility

The 35 cfs of CVP water currently delivered to the Orange Cove Irrigation District's (OCID) Fishwater Release Powerplant (OCID Powerplant) and SJH and Interim Facility is released from the Friant Dam ROW, or a combination of the Friant Dam ROW and FKC outlet works. CVP water for the hatcheries delivered through the Friant Dam ROW currently flows through one of two penstocks and a 24-inch diameter pipe, leading to mixing valves at the OCID Powerplant. CVP water delivered through the FKC outlet works currently flows through a 30-inch diameter pipe, leading to the mixing valves at the OCID Powerplant. Water from these two sources is combined at the mixing valves prior to flowing through the OCID Powerplant. After passing through the OCID Powerplant, the water supply is eventually conveyed through a 45-inch diameter pipeline for approximately one mile from the OCID Powerplant to the SJH. On a terrace above the SJH, water flows through an aeration system to the SJH, the Interim Facility, and then spills back into the San Joaquin River after passing through settling ponds which are

also used for an aquatic worm harvesting operation. The existing water supply conveyance system is presented in Figure 2.

Figure 2. Conceptual Design of Existing Water Supply Conveyance System to SJH and Interim Facility



1.1.2.4 Reclamation Operations & Maintenance Funding

CDFW constructed and funded the Operations & Maintenance (O&M) of the Interim Facility through June 30, 2012. In September 2013, Reclamation agreed to provide O&M funding for the Interim Facility from July 1, 2012 to June 30, 2013 and will continue to fund O&M for the Interim Facility subject to the availability of Federal funds until 2022 (Bureau of Reclamation 2013).

1.2 Need for the Proposal

Existing water infrastructure for the Interim Facility is not sufficient for the SCARF once it is constructed. Reclamation needs to construct water supply infrastructure that routes an additional 20 cfs of Central Valley Project (CVP) water to support the SCARF operations, in addition to the 35 cfs that is currently allocated to CDFW for the SJH and Interim Facility. The SCARF will develop a Chinook salmon broodstock and produce salmon for reintroduction to the San

Joaquin River, which is a step towards achieving the SJRRP Restoration Goal. The Interim Facility may also use the additional 20 cfs to increase production until the SCARF is constructed and in operation.

Currently, the pipe from the Friant Dam ROW does not have capacity to move the entire 55 cfs and would need to be replaced with a pipe larger in diameter in order to convey the full capacity needed. Additionally, the OCID Powerplant has an operational limitation of 35 cfs preventing it from passing the full 55 cfs. Reclamation needs to construct and operate infrastructure improvements to convey the full 55 cfs in order for DFW to operate their hatchery and the SCARF.

Section 2 Proposed Action and Alternatives

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would neither allocate an additional 20 cfs of CVP water to CDFW for non-consumptive use nor construct the water infrastructure to deliver it to the Interim Facility and future SCARF. The OCID Powerplant would continue to deliver up to 35 cfs of water to the SJH and Interim Facility, from Millerton Lake. CDFW would need to find a different source for the additional 20 cfs in water supply and financial assistance to construct water infrastructure for increased deliveries to the Interim Facility and for future delivery to the SCARF. This could delay development of spring-run Chinook salmon broodstock and other fisheries actions on the San Joaquin River and would not contribute to the meeting the Restoration Goal of the Settlement.

2.2 Proposed Action

Reclamation proposes to amend an existing water service agreement with CDFW to allocate the additional 20 cfs of CVP water requested for non-consumptive use at the SCARF to be constructed in following years. Reclamation also proposes to construct the water supply infrastructure needed to convey the additional 20 cfs to the future SCARF, in addition to the 35 cfs currently allocated to the existing SJH and Interim Facility. The additional 20 cfs would be taken through the Friant Dam ROW or a combination of the Friant Dam ROW and the FKC outlet works, depending upon water temperature, O&M conditions, and other parameters. The existing FKC outlet works conveyance pipeline to the mixing valves does not require replacement to deliver an additional 20 cfs.

Appendix A provides a proposed design drawing that outlines the existing water infrastructure and indicates where project activities would occur. The notes on that drawing state that all existing features to remain undisturbed are designated with an (E) notation; all new features use a (N) notation; and all features to be replaced or modified use a (M) notation. If the total additional flow of 20 cfs is taken from the Friant Dam ROW, it would be routed through the existing taps in all four penstocks, and through a new 30-inch diameter conveyance pipeline that would replace the existing 24-inch diameter pipeline, leading to the mixing valves at the OCID Powerplant. The new 30-inch pipeline would run to a point near the OCID Powerplant and currently decommissioned valve vault, where it would be bifurcated to the OCID Powerplant and new bypass pipeline. The new bypass pipeline, with a PRV vault constructed along its length, would convey the

additional 20 cfs around the OCID Powerplant during normal operations as the OCID Powerplant is only able to bypass 35 cfs due to operational constraints of OCID's turbine. The bypass pipeline will be designed to bypass up to 55 cfs but will operate in a manner that does not cause backflow into OCID's Powerplant. The new bypass will not exceed 30-inches in diameter. This new pipeline would exit the new PRV vault, and run to the existing OCID Powerplant discharge vault location, at which point the pipeline would exit above-ground, and discharge vertically. The existing mixing valves would operate as they do now, controlling the original 35 cfs.

A new Supervisory Control and Data Acquisition system would be installed to read the flow meter output and operate the pressure regulating valve/flow control valve/to deliver the additional 20 cfs and operate the line as needed. The flows would re-combine in the OCID Powerplant discharge vault, run to a flow meter located in the yard near the Friant Dam administration building, then flow to the SJH and Interim Facility, or future SCARF once constructed, via the existing 45-inch steel pipe.

2.2.1 Construction Activities

Proposed water infrastructure construction involves the following specified activities:

- Replace existing 24-inch diameter conveyance pipeline from Friant Dam ROW to a location near the mixing valves at the OCID Powerplant with a 30-inch diameter pipeline:
    - Install new 30-inch diameter pipeline on four replaced 3-feet by 2-foot by 10-feet concrete piers, across the yard at the toe of Friant Dam, to the new bifurcation point:
        - Place reinforced concrete thrust blocks as needed at bends.
        - For underground portion of pipeline, dig an approximately 10-feet deep trench consisting of a 4-inch uncompacted bedding, native fill material, and compacted earth fill to original grade elevation.
        - Fully compact backfill under roadways or other vehicle use areas.
    - Modify existing manifold where the existing 24-inch diameter pipe from Friant Dam ROW meets the penstocks to include a flow meter.
    - Replace existing angled tee at OCID Powerplant mixing valves with a 30-inch by 30-inch by 24-inch tee.
    - Install tee with control valves at new bifurcation point, near OCID Powerplant mixing valves
- Construct new 24-inch diameter bypass pipeline mostly underground (except for above-ground discharge at downstream end) and in a similar trench to that of the 30-inch diameter pipeline, from the bifurcation point to the OCID Powerplant discharge vault.

    - Fit 24-inch diameter bypass pipeline with flow meter and two PRVs/FCVs.
- Construct one reinforced concrete vault to house the PRVs adjacent to OCID Powerplant and existing discharge and overflow vaults:
    - Vault is located in 10-feet deep trench with 2:1 slopes, similar to the pipe trenches.
    - 1-foot thick concrete walls with top deck of solid metal plate.
    - 10-feet by 20-feet PRV vault
    - Install access ladder and safety ascent system.

Construction equipment that would be used includes a front end loader (1), excavators (2), bobcat (1), water truck (1), forklift (1), 20-yard tandem axle dump trucks (4), and miscellaneous personal vehicles for crew transport. The Proposed Action is anticipated to be constructed for the duration of four to six months, during winter when temperatures at the FKC outlet works are low. This timeframe was chosen to permit FKC outlet water deliveries to the trout hatchery at temperatures that are within the range limits provided by CDFW. To alleviate the effects of potentially high temperatures, Reclamation will not start construction until a 3-day running average daily maximum temperature in the FKC is below 23° C. Temperatures will be monitored during construction. If they rise above 14.5° C, operators at Friant Dam will install an additional line from the cold water pool in Friant Dam to discharge directly into the OCID mixing vault; where FKC water would mix with the colder water and reduce temperatures to suitable levels. If this measure fails to produce cool enough temperatures for the Interim Facility, then the Central Valley spring-run Chinook salmon will be moved from the Interim Facility in accordance with the evacuation and rescue procedures specified in ESA Section 10(a)(1)(A) permit # 17781. Construction of the Proposed Action is proposed to commence in late fall 2016 and conclude around April 2017.

2.2.2 Environmental Commitments

As part of the Proposed Action, Reclamation will implement the following environmental commitments and Best Management Practices in order to avoid and minimize potential effects to the affected environment:

a) Project-related vehicles will observe a maximum 20 mph speed limit in all Project areas, except on county roads and State and Federal highways. Nighttime activity will be minimized to the extent feasible.
b) There will be no discharges from construction activities to any bodies of water.
c) No construction will occur within wetland or riparian areas adjacent to any Project action area.
d) Straw wattles or similar erosion-catching control will be placed around stockpiles. Once the disturbed areas are stabilized, erosion control materials will be removed from the site. Should there be inclement weather during project activities, work will cease until necessary erosion controls are in place and effective at catching sediment and debris runoff.

e) All equipment working near waters of the U.S. will be inspected daily for fuel, lubrication, and coolant leaks and for leak potentials (e.g. cracked hoses, loose filling caps, stripped drain plugs); and all equipment shall be free of fuel, lubrication, and coolant leaks.
f) Spill prevention kits shall be in close proximity to work areas, and workers shall be trained in their use.
g) The only vegetation removal consists of the temporary removal of stripped material (1 foot depth of lawn and top soil in the nearby maintenance yard) during trenching activities. The stripped material would be stockpiled then used to restore the trench sites.
h) Tracked out material where unpaved surfaces meet paved roads in the Action Area will be swept up to minimize fugitive dust emissions, trackout, and sediment in stormwater runoff.
i) Rescue or evacuation procedures will be implemented as described in ESA Section 10(a)(1)(A) Permit #17781, should FKC water temperatures reach 60°C or become unsuitable for the Central Valley Chinook salmon at the Interim Facility.
j) Construction activities will not start until the 3-day running average daily maximum temperature in the FKC is below 60°F.
k) Excavating activities will implement dust control and palliative measures if wind speeds exceed 25 mph.
l) Vehicles will observe a speed limit of 15 mph on the unpaved surfaces.
m) Disturbed areas will be stabilized for the duration of the construction activity or until construction work resumes on the inactive disturbed area.
n) To prevent inadvertent entrapment of animals during the construction phase, at the end of each workday, all excavated, steep-walled holes or trenches more than 2-feet deep will be covered with plywood or similar materials or provided with escape ramps constructed of earth-fill or wooden planks with a slope of 2:1 or less. Such holes or trenches will be inspected for trapped animals daily and just prior to filling.
o) All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods will be thoroughly inspected for animals before the pipe is subsequently buried, capped, or otherwise used or moved in any way.
p) Migratory bird commitments:
    - The majority of activities will occur outside of the nesting for species protected by the Migratory Bird Treaty Act (MBTA), which is February 15 through September 15 (Reclamation 2012: 2-66).
    - There will be no tree removal.
    - Within 10 days prior to continuing activities that overlap with the migratory bird nesting season, a qualified wildlife biologist will conduct preconstruction nest surveys within 0.5 miles of the project area. If active nest sites are identified for species protected by the MBTA, Relcamation will coordinate with USFWS and CDFW to identify a suitable construction-free buffer around the nest based on, but not limited to, species-specific information, site lines from the

nest to the work-site, and observations of the nesting bird's reaction to Project activities. A qualified biologist will monitor the nest during construction and halt work if signs of disturbance are observed, until the nesting migratory bird has settled. If a bird abandons a monitored nest, Reclamation will coordinate with the USFWS and CDFW to determine further minimization measures, as appropriate.

- Worker awareness training will be conducted to educate workers on the status, ecology, and life history of species protected by the MBTA, and ensure that avoidance measures are implemented.

Section 3 Affected Environment and Environmental Consequences

3.1 Resources Analyzed in Detail

Impacts to the following resources were considered and found to be minor or absent. Brief explanations for their elimination from further consideration are provided below:

- Indian Sacred Sites: The Proposed Action does not have the potential to affect or prohibit access to and ceremonial use of Indian sacred sites.

- Indian Trust Assets (ITA): The Proposed Action does not have the potential to affect ITA.

- Environmental Justice: The construction of water infrastructure to accommodate an additional 20 cfs of CVP water to the Interim Facility, and the allocation of the additional 20 cfs of CVP water are not likely to have effects to any individuals or populations within the action area. Accordingly, the Proposed Action would not have disproportionately negative impacts on low-income or minority populations within the Project area.

3.2 Water Resources

3.2.1Affected Environment

3.2.1.1 Surface Water

The San Joaquin River is the second largest river in California, traversing roughly 300 miles from its headwaters near the crest of Sierra Nevada, flowing west to the San Joaquin Valley floor, then turns continuing to the northwest until draining into the Sacramento-San Joaquin Delta. Its watershed covers about 32,000 square miles and is bound by the Sierra Nevada on the east, the coastal Diablo Range on the west, and a low broad ridge separating it from the Tulare Lake hydrologic region. From upstream to downstream, its major tributaries are the Fresno, Chowchilla, Merced, Tuolumne, Stanislaus, and Calaveras rivers (DWR 2013).

Reach 1 conveys continuous flows from Friant Dam through an incised, gravel-bedded channel to Gravelly Ford, forming part of the boundary between Fresno and Madera counties. Releases are made at Friant Dam to comply with Holding Contract requirements along Reach 1. Streamflow of at least 5 cfs is maintained past the last diversion near Gravelly Ford, with no requirements for streamflow into Reach 2. Reach 1 is subdivided into two sub reaches, 1A and 1B, at SR 99.

The objective release from Friant Dam into Reach 1 is 8,000 cfs. There are no storage facilities in Reach 1. Diversions within this reach, not all of which are active on a regular basis, are listed in Appendix J, "Surface Water Supplies and Facilities Operations" of the SJRRP Programmatic EIS/R (Reclamation 2012:). The additional 20 cfs requested by CDFW for operation of the SCARF is within Reclamation's water rights for diversion at Friant Dam and fish and wildlife preservation and enhancement use. The SCARF is in the existing place of use with the pipeline beginning at the dam. The action to be undertaken at the SCARF is consistent with the wildlife preservation and enhancement use within Reclamation's existing permit and would not require a new State Water Resources Control Board petition.

Since 1949, Reclamation has made average annual releases of approximately 117,000 acre-feet from Friant Dam to the San Joaquin River to comply with Holding Contract requirements upstream from Gravelly Ford. Additional river flows occur during years when releases are made to the San Joaquin River for flood management purposes. Releases made from Friant Dam for water diversions can range from 40 cfs to 250 cfs (McBain and Trush 2002), but are typically below 150 cfs. The SJRRP Settlement Act of 2009 specifies modifications in Friant Dam operations to restore flows to the San Joaquin River to meet the Restoration Goal. Currently, the SJRRP posts a Restoration Flow release schedule based on hydrologic and hydraulic conditions, which lists the scheduled releases by Reclamation from Friant Dam, consistent with the conditions of the Settlement Act. The schedule lists the estimated Restoration Flow releases, estimated Holding Contract Releases (for downstream riparian rights holders), and adds the two to arrive at the total releases from Friant Dam.

3.2.1.2 Groundwater

The San Joaquin Valley Groundwater Basin makes up the southern two-thirds of the 400-mile-long, northwest trending asymmetric trough of the Central Valley regional aquifer system in the southern extent of the Great Valley Geomorphic Province.

Geotechnical Investigations were conducted for the Proposed Project in 2014 (Reclamation 2015). Groundwater was observed about 20 feet below ground; therefore, groundwater is not expected in the proposed excavations.

3.2.1.3 Water Quality

Water quality on the San Joaquin River adjacent to the SCARF site is influenced by releases from Friant Dam ROW and the Interim Facility and SJH, with very slight contributions from agricultural and urban return flows. Water is generally of high quality, and the temperature of the water is dependent on the cold-water volume in Millerton Lake.

Under Clean Water Act (CWA) Section 303(d), states are required to identify "impaired water bodies" (those not meeting established water quality standards), identify the pollutants causing the impairment, establish priority rankings for

waters on the list, and develop a schedule for development of control plans to improve water quality. The pollution control plans triggered by the CWA Section 303(d) list are called Total Maximum Daily Loads (TMDLs). The TMDL is a "pollution budget" designed to restore the health of a polluted body of water and ensure the protection of beneficial uses. The TMDL also contains the target reductions needed to meet water quality standards and allocates those reductions among the pollutant sources in the watershed (point sources, nonpoint sources, and natural sources) (40 CFR 130.2). The current effective U.S. Environmental Protection Agency (USEPA)-approved 303(d) list for water bodies in California is the 2008–2010 list approved on November 12, 2010. Chapter 12 – Hydrology, Geomorphology and Water Quality – of the Salmon Conservation and Research Facility and Related Fisheries Management Actions Project Final Environmental Impact Report (FEIR) further describes the current water quality conditions of the San Joaquin River (CDFW 2014a). Reach 1 of the San Joaquin River, from Friant Dam to Mendota Pool, which contains the Project site has a TMDL Requirement Status for invasive species.

CWA Section 402 regulates point-source discharges to surface waters (other than dredge or fill material) through the National Pollution Discharge Elimination System (NPDES), administered by the USEPA. Direct discharges from aquatic animal production facilities, or hatcheries, are categorized as point-source discharges and require an NPDES permit (USEPA 2014). USEPA's regulatory authority to issue NPDES permits have been delegated to the California State Water Resources Control Board and its nine Regional Water Quality Control Boards (RWQCB). Waste discharge requirements of the Central Valley RWQCB for hatcheries are described in Chapter 12 – Hydrology, Geomorphology and Water Quality – of the Salmon Conservation and Research Facility and Related Fisheries Management Actions Project FEIR (CDFW 2014a).

Under the Porter-Cologne Water Quality Control Act, projects that will affect waters of the State must meet waste discharge requirements (WDR). WDR are typically issued with the water quality certification under Section 401 of the CWA, and which are determined based on water quality control basin plans. Each plan sets forth water quality standards for surface water and groundwater and actions to control point and non-point sources of pollution to achieve those standards. The plan that covers the study area is the Water Quality Control Plan for the Sacramento and San Joaquin River Basins (CVRWQCB 2011). CDFW is responsible for demonstrating compliance with the Porter-Cologne Act for SCARF operations and maintenance, including waste discharges. Chapter 12 – Hydrology, Geomorphology and Water Quality – of the Salmon Conservation and Research Facility and Related Fisheries Management Actions Project FEIR further describes the thresholds for compliance (CDFW 2014a).

3.2.2 Environmental Consequences

3.2.2.1 No Action

The No Action Alternative would not result in the construction of the SCARF water supply infrastructure or allocate an additional 20 cfs of CVP water for non-consumptive use at the Interim Facility and future SCARF. In addition, there would not be an increase in discharge to the San Joaquin River and no impacts would occur.

3.2.2.2 Proposed Action

3.2.2.2.1 Surface Water

Water deliveries of 35 cfs through the OCID Powerplant and to the SJH and Interim Facility would be maintained during Project construction. The only change in water operations would be temporarily shutting down one out of four ROW at a time during construction. The temporary shutdown of one ROW at a time may cause a temporary, negligible decrease in water releases from the Friant Dam ROW.

Reclamation would amend an existing water service agreement with CDFW to allocate an additional 20 cfs of CVP water for non-consumptive use at the Interim Facility and future SCARF. Since this water would be for non-consumption use, it would be released back into the San Joaquin River. The SJH and Interim Facility are cold-water flow-through systems. Approximately 35 cfs of water is delivered to the SJH, and approximately 0.2 cfs of that water is delivered to the Interim Facility. The daily average flow-through at the SJH is 23.2 million gallons/day, or approximately 36 cfs[1] (CVRWQCB 2004: 2). With the additional 20 cfs of flows through, there would be a negligible change in water returning to the San Joaquin River within two miles of Friant Dam.

There would be no change in operations to deliver 35 cfs of CVP water from Millerton Lake to the SJH and Interim Facility. In order to accommodate the delivery of the additional 20 cfs of CVP water from the FKC outlet works, water would be released from the headworks and would not change the amount of CVP water delivered through the FKC from Millerton Lake.

3.2.2.2.2 Groundwater

Groundwater is not expected to be encountered during construction activities; therefore, there would be no effect on groundwater supply.

3.2.2.2.3 Water Quality

Soil disturbance from construction activities, such as the installation of the underground portions of the new pipeline, and other soil disturbing activities,

[1] $23.2\ million\ gallons\ per\ day\ x\ 3.07\ acre\ feet\ per\ day = 71.224\ acre\ feet\ per\ day$; $71.224\ acre\ feet\ per\ day\ /\ 1.9835\ cfs = 35.908\ cfs$

would expose soils and could result in an increased potential for erosion, sediment transport, and turbidity from runoff during precipitation events. The use of construction equipment such as those described in Section 2 could result in the release of pollutants into soils and the San Joaquin River by an accidental spill. However, as required by the NPDES General Construction Permit, a Storm Water Pollution Prevention Plan (SWPPP) will be prepared and implemented that identifies best management practices to prevent or minimize the introduction of contaminants into surface waters from construction activities. Construction-related impacts would be temporary, and implementation of the Environmental Commitments (as described in Section 2.2) would avoid and minimize the potential for construction-related impacts to water quality to the extent feasible. In addition, groundwater is not expected to be encountered during construction activities. Therefore, temporary construction effects on surface water and groundwater quality would be negligible.

As previously discussed, the 20 cfs of additional water supply would feed into the Interim Facility, until the SCARF is constructed and ready to be operated, and be discharged back into the San Joaquin River. Downstream water quality can be degraded as a result of discharge from aquaculture facilities. These impacts may include:

- increased water temperature;
- decreased dissolved oxygen;
- changes in water chemistry (pH and salinity);
- increased nutrient inputs; and
- increased suspended solids.

Water discharged from the Interim Facility and SCARF may contain food, waste, soluble metabolites, algae, parasites and disease microorganisms, drugs, and other chemicals, all of which have the potential to alter instream water quality. Many changes in water quality parameters associated with these inputs have the potential to degrade aquatic habitat quality for salmonids and other taxa that are sensitive to water quality impairments, such as macroinvertebrates.

Water discharged from the Interim Facility and SCARF would enter the associated effluent treatment systems and would be subject to compliance with NPDES requirements, the Water Quality Control Plan for the Sacramento and San Joaquin River Basins, and regular monitoring of water quality within the SCARF for fish health. These measures are protective of beneficial uses of the San Joaquin River, including cold and warm water fisheries. The future SCARF will comply with these plans as described in the CDFW Mitigation Monitoring and Reporting Plan for the Salmon Conservation and Research Facility and Related Fisheries Management Actions Project FEIR (CDFW 2014b); therefore, surface water quality effects associated with discharges from the SCARF are considered to be negligible.

3.3 Power

3.3.1 Affected Environment

Hydropower is generated by the Friant Power Authority at the Friant Power Project (FPP) through releases from Friant Dam to the FKC, Madera Canal, and San Joaquin River. The FPP currently consists of two powerplants located on the downstream side of Friant Dam: Friant-Kern and Madera powerplants. These powerplants generate electricity from water released to the irrigation canals, but are not associated with the CVP. The Friant Power Authority began construction of the new Quinten Luallen Powerplant adjacent to the Friant Dam ROW in 2015, and it is proposed to be complete in 2016.

The OCID Powerplant, not part of the CVP, generates electricity from water released from the Friant Dam ROW to the San Joaquin River. The OCID Powerplant operates at a normal maximum head of 273 feet, and has a rated operating capacity of 2.4 megawatts. Water flowing through the OCID Powerplant is then supplied to the SJH and Interim Facility, after which the water is eventually discharged back to the San Joaquin River.

3.3.2 Environmental Consequences

3.3.2.1 No Action

Under the No Action Alternative, Reclamation would not construct the SCARF water supply infrastructure nor allocate an additional 20 cfs of CVP water for non-consumptive use at the Interim Facility and future SCARF. There would be no change to power production or power consumption.

3.3.2.2 Proposed Action

The Proposed Action would not alter water released to the Friant-Kern and Madera canals, and would have no effect on either the Friant-Kern or Madera powerplants.

Construction effects will be temporary, sequentially taking one (at a time) out of four ROW offline during construction. This outage is anticipated to take no more than two days per ROW. However, the SJH and Interim Facility are dependent on the 35 cfs flows delivered through the OCID Powerplant for full operation. Water supplied to the SJH and Interim Facility will continue uninterrupted during construction in order to meet SJH and Interim Facility demands.

Water delivery from the OCID Powerplant to the SJH and Interim Facility is through gravity flow. There is no pumping required to convey water through the raceways, although with the recent addition of water recirculation equipment to allow chilling the water supply, pumps are necessary at the Interim Facility. Power consumption at the SJH and Interim Facility is generally associated with appurtenant structures such as on-site residences, maintenance activities, and visitor areas. Operation of the new water infrastructure to deliver the additional 20 cfs to the Interim Facility and future SCARF would not change hydropower

production as the OCID Powerplant FERC permit limits power output to 2.4 megawatts.

3.4 Air Quality

3.4.1 Affected Environment

Section 176(c) of the Clean Air Act (42 U.S.C. 7506(c)) requires that any entity of the federal government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable State Implementation Plan (SIP) required under Section 110(a) of the Clean Air Act (42 U.S.C. 7401(a)) before the action is otherwise approved. In this context, conformity means that such federal actions must be consistent with a SIP's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards (NAAQS) for criteria air pollutants and achieving expeditious attainment of those standards. Each federal agency must determine that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements will, in fact, conform to the applicable SIP before the action is taken.

The Proposed Action lies within the San Joaquin Valley Air Basin (SJVAB), the second largest air basin in the State. Air basins share a common "air shed", the boundaries of which are defined by surrounding topography and meteorology. Although mixing between adjacent air basins inevitably occurs, air quality conditions are relatively uniform within a given air basin. The SJVAB experiences episodes of poor atmospheric mixing caused by inversion layers formed when temperature increases with elevation above ground, or when a mass of warm, dry air settles over a mass of cooler air near the ground.

The SJVAB lies within the management area of the San Joaquin Valley Air Pollution Control District (SJVAPCD) responsible for developing a local plan with control measures to meet or maintain the NAAQS/California Ambient Air Quality Standards (CAAQS). Despite years of improvements, the SJVAB does not meet all State and Federal health-based air quality standards. NAAQS and CAAQS have been established for the following criteria pollutants, below which the air is considered healthy to breathe: carbon monoxide, ozone (O_3), sulfur dioxide, nitrogen dioxide, inhalable particulate matter between 2.5 and 10 microns in diameter (PM_{10}), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), and lead.

The SJVAB has reached NAAQS and CAAQS attainment status for all criteria pollutants except for O_3, PM_{10} (CAAQS only), and $PM_{2.5}$. As a result, the emissions of most concern are O_3 (which includes precursors such as volatile organic compounds [VOC] and nitrogen oxides ([NO_x]), PM_{10} and $PM_{2.5}$. Table 1 below shows the attainment status, *de minimis* threshold for federal general conformity, and SJVAPCD-recommended thresholds of significant impact for the

criteria pollutants of most concern. The *de minimis* threshold is the minimum threshold for which a conformity determination must be performed, for various criteria pollutants in various areas. All federal actions that occur in designated nonattainment or maintenance areas are subject to the General Conformity Regulations except for those that are covered by the transportation conformity rule, associated with emissions below *de minimis* levels, and are either exempt or presumed to conform.

The SJVAPCD developed a Small Project Analysis Level (SPAL) category in its *Guidance for Assessing and Mitigating Air Quality Impacts* (GAMAQI) to screen projects that are anticipated to have a less than significant impact on air quality and would be excluded from quantifying criteria pollutant emissions. This category uses pre-quantified emissions based on project type and size and determined a size below which it is reasonable to conclude that a project would not exceed applicable thresholds of significance for criteria air pollutants (SJVAPCD 2012). Since the SJVAPCD-recommended thresholds are the same or lower than the *de minimis* thresholds, the GAMAQI will be used to determine whether the Project emissions would be below the *de minimis* thresholds and if a federal general conformity report is required or not.

Table 1. SJVAB Attainment Status, *De Minimis* Thresholds for Federal Conformity Determinations, and SJVAPCD Thresholds of Significance

Pollutant	Attainment Status[a]	*De Minimis* Threshold (tons/year)	SJVAPCD Recommended Threshold of Significant Impact (tons/year)[d]
VOC (as ozone precursor)	Nonattainment – Extreme	10[b]	10
NO_x (as ozone precursor)	Nonattainment – Extreme	10[b]	10
PM_{10}	Nonattainment - (CAAQS)	15[c]	15
$PM_{2.5}$	Nonattainment	100[b]	15

[a] Source: http://www.arb.ca.gov/desig/adm/adm.htm
[b] 40 CFR 93.153 [c] SJVAPCD Threshold: http://www.valleyair.org/transportation/ceqaanalysislevels.htm
[d] http://www.valleyair.org/transportation/ceqaanalysislevels.htm#thresholds

Construction emissions would vary from day to day and by activity, depending on the timing and intensity of construction, and wind speed and direction. Generally, air quality impacts from the Proposed Action would be localized in nature and decrease with distance. Ground disturbing activities would result in the temporary emissions of fugitive dust and vehicle combustion pollutants during earthwork activities and construction equipment and haul truck engine emissions. All construction work will occur within the existing paved roads and walkways,

unpaved stockyard, and lawn areas of the Friant Dam office and maintenance facilities.

Eligibility for a project to be covered by the SPAL is determined by looking at the thresholds based on vehicle trips/day, as seen in Table 2, or project type and size.

Table 2. SPAL by Vehicle Type (SJVAPCD 2012)

Land Use Category	Project Size
Residential Housing	1,453 trips/day
Commercial	1,673 trips/day
Office	1,682 trips/day
Institutional	1,707 trips/day
Industrial	1,506 trips/day

3.4.2 Environmental Consequences

3.4.2.1 No Action

Under the No Action Alternative Reclamation would not construct the SCARF water supply infrastructure nor allocate an additional 20 cfs of CVP water for non-consumptive use at the Interim Facility and future SCARF. As a result, there would be no increase in criteria air pollutant emissions to the SJVAB.

3.4.2.2 Proposed Action

The County of Fresno General Plan's land use designation for the area of the Project site is Recreational (Navarro 2015). According to Table 2, SPAL by Vehicle Type, a threshold in vehicle trips/day for the Recreational Land Use Category is not provided. Although Recreational is not a Land Use Type considered in the SPAL, the nature and length of Project construction, approximately 5 months, is minimal and would require less than 50 vehicle trips per day. It is also unlikely that the operation of the Project would require any additional vehicle trips as the Reclamation administrative building is located on the same property, 300 feet from the Project site, and would not require driving a vehicle. The 50 vehicle trips/day during construction of the Project is far below the lowest threshold, or worst case SPAL vehicle trips/day threshold, in Table 2, which is 1,435 vehicle trips/day for the Residential Housing Land Use Category.

Considering that the Project will result in vehicle trips well below that of the associated GAMAQI categories, Project emissions would be below the *de minimis* thresholds; therefore, a Federal general conformity analysis report is not required. Notwithstanding this observation, the Proposed Action would comply with the SJVAPCD's Regulation VIII (SJVAPCD 2004) control measures for construction emissions of PM_{10}, such as the measures described in Section 2.1.2, Environmental Commitments.

3.5 Biological Resources

3.5.1 Affected Environment

The Action Area is the footprint of the water infrastructure construction, equipment staging, and a 200-foot buffer around those activities in which noise impacts may be experienced and fugitive dust could occur. The present land use and environment within the Action Area consists of a portion of the San Joaquin River immediately downstream of Friant Dam, the toe of Friant Dam, existing ROW and water infrastructure for the downstream powerplants and fish hatcheries, the OCID Powerplant, asphalt roads, 1.4 acres of grass lawns, a 0.75 acre dirt stockyard, and a Reclamation government office building.

Reclamation requested an official species list of federally-listed species that may be affected by the Proposed Action from the USFWS on December 2, 2015 via the Sacramento field office's species list website: http://ecos.fws.gov/ipac/ (Consultation code 08ESMF00-2016-SLI-0387). The California Department of Fish and Wildlife's California Natural Diversity Database (CNDDB) was also queried for records of federally-listed species within 10 miles of the Action Area (CNDDB, 2015). The information collected above, in addition to information within scientific literature and Reclamation's files, was combined to determine what listed species may occur within dispersal distance of the Action Area. Table 4 includes a list of federally-protected species considered, a brief description of each species' habitat and status, a determination of effects, and a summary of the rationale supporting the determination.

Table 4: Federally-Protected Species Identified as Potentially Occurring within 10 Miles of the Action Area

Scientific Name	Common Name	Federal Status	Effects	Potential habitat utilized by species in Action Area
INVERTEBRATES				
Branchinecta conservation	conservancy fairy shrimp	E, X	NE	**Absent.** Vernal pool habitat is not present within the Action Area. There is no designated Critical Habitat for this species within the Action Area.
Branchinecta lynchi	vernal pool fairy shrimp	T, X	NE	**Absent**. Vernal pool habitat is not present within the Action Area. There is no designated Critical Habitat for this species within the Action Area.
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	T	NE	**Absent.** The project does not occur within the range of the species. In September 2014, USFWS issued a Withdrawal of the Proposed Rule To Remove the Valley Elderberry Longhorn Beetle From the Federal List of Endangered and Threatened Wildlife (70 FR 55874), Following the notice in the federal register, USFWS released, via their Environmental Conservation Online System, a new range map for the species.
FISH				
Hypomesus transpacificus	delta smelt	T	NE	**Absent**. This species is limited primarily to the Primary and Secondary Delta, and they do not occur in the Action Area.

Scientific Name	Common Name	Federal Status	Effects	Potential habitat utilized by species in Action Area
Oncorhynchus mykiss	Central Valley steelhead	T, NMFS	NE	**Absent.** Although small populations persist in the lower San Joaquin River tributaries, this species is considered to be extirpated in the mainstem San Joaquin River and the Action Area is located in Reach 1.
Oncorhynchus tshawytscha	spring-run Chinook salmon	NEP, NMFS	NLAA	**Present.** In accordance with the Restoration Goal of the SJRRP, Reclamation reintroduced approximately 54,000 juvenile spring-run Chinook salmon into Reach 5 of the Restoration Area in 2014 and in 2015, and approximately 105,000 in March 2016 Until fish passage is established throughout the San Joaquin River, the SJRRP will trap any adult spring-run chinook salmon returning to Reach 5 of the Restoration Area and transport them up to Reach 1 near Friant Dam. Additional analysis in following subsection.
AMPHIBIANS				
Ambystoma californiense	California tiger salamander, Central CA DPS	T	NE	**Absent.** The Action Area consists of the downstream face of Friant Dam, existing water infrastructure connected to Friant Dam surrounded by paved roads and walkways, grass landscaping, buildings and a dirt stockyard. Suitable habitat for this species is not present within the Action Area.
Rana draytonii	California red-legged frog	T	NE	**Absent.** The California red-legged frog was extirpated from the floor of the Central Valley over 50 years ago, and does not occur within the Action Area (USFWS 2002).
MAMMALS				
Dipodomys nitratoides exilis	Fresno kangaroo rat	E	NE	**Absent.** The Proposed Action is outside of the current range of this species and there is no suitable habitat in the Action Area (USFWS 2010).
Vulpes macrotis mutica	San Joaquin kit fox	E	NLAA	**Absent.** There is one CNDDB record from 1990 of an individual SJKF just east of Friant Road, within one mile southwest of the Action Area. However, no signs of SJKF presence have been observed in the vicinity of the Action Area since 1990 and during subsequent surveys conducted in the general Action Area (Millerton and Friant area) in 1997, 2002, and 2003,. Additional analysis included in following subsection.
REPTILES				
Gambelia sila	Blunt-nosed leopard lizard	E	NE	**Absent.** There are blunt-nosed leopard lizard records in Fresno County; however, there are no CNDDB records of this species within 10 miles of the Action Area. The Proposed Action is outside of the current range of this species and there is no suitable habitat in the Action Area.
Thamnophis gigas	giant garter snake	T	NE	**Absent.** The Action Area is adjacent to the San Joaquin River, is not within dispersal distance of the nearest known populations, and does not contain suitable habitat.
PLANTS				
Pseudobahia californiense	hartweg's golden sunburst	E	NE	**Absent.** There are several CNDDB records of Hartweg's golden sunburst within two miles of the Action Area; however, there is no suitable habitat in the Action Area.
Castilleja campestris ssp. succulenta	succulent owl's clover	T	NE	**Absent.** There are several CNDDB records of succulent owl's clover within seven miles of the Action Area; however, there is no suitable habitat in the Action Area.

Scientific Name	Common Name	Federal Status	Effects	Potential habitat utilized by species in Action Area
Orcuttia inaequalis	San Joaquin Orcutt grass	T	NE	**Absent.** There are several CNDDB records of San Joaquin Orcutt grass within seven miles of the Action Area; however, there is no suitable habitat in the Action Area.
Orcuttia pilosa	hairy Orcutt grass	E	NE	**Absent.** There are several CNDDB records of hairy Orcutt grass within seven miles of the Action Area; however, there is no suitable habitat in the Action Area.
BIRDS				
Coccyzus americanus occidentalis	western yellow-billed cuckoo	T, MBTA	NE	**Absent.** There is one CNDDB record of this species 8.5 miles from the Action Area. This record indicates that the species is extirpated at this location, and there is no suitable nesting habitat in the Action Area.
Buteo swainsonii	Swainson's hawk	MBTA	NT	**Potential Nesting Habitat.** There are CNDDB records of Swainson's hawks nesting within six miles of the Action Area. There are suitable trees along the San Joaquin River within the Action Area, for Swainson's hawk to nest in. Additional analysis included in following subsection.
Eremophila alpestris actia	California horned lark	MBTA	NT	**Absent.** There is one occurrence record of this species within 9 miles of the Action Area. California horned lark microhabitat in the San Joaquin Valley consists of short-grass prairie, fallow grain fields, and alkali flats. The Action Area consists of paved surfaces and maintained landscaping; therefore, there is no suitable habitat.
Athene cunicularia	burrowing owl	MBTA	NT	**Absent.** There are two CNDDB records within 8 miles of the Action Area. Burrowing owl habitat consists of open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation, and are subterranean nesters that are dependent upon mammal burrows, most notably by California ground squirrel. The Action Area consists of paved surfaces and maintained landscaping; therefore, there is no suitable habitat.
Falco mexicanus	prairie falcon	MBTA	NT	**Absent.** Prairie falcon inhabits dry, open terrain and breeds in sites on cliffs. This species is also known to forage far afield, even to marshlands and open shores. A nest was observed from 1975 to 1985 in the rock bluffs east of the San Joaquin, 10 miles north of the Action Area. However, the Action Area does not contain breeding habitat, and is unlikely to contain suitable foraging habitat considering it consists of paved surfaces and maintained landscaping, and is surrounded by more suitable foraging habitat of open fields and croplands.
Agelaius tricolor	tricolored blackbird	MBTA	NT	**Absent.** Tricolored blackbird typically inhabit freshwater marshes or wetlands and requires nearby open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony. There are two occurrences of this species within 10 miles and as close as five miles of the Action Area; however, the Action Area does not contain freshwater marshes or wetlands. There is no suitable habitat.

Key:

(MBTA) Migratory Bird Treaty Act – It is unlawful "by any means or manner to pursue, hunt, take, capture or kill" any migratory bird, except as permitted by regulations issued by the USFWS.
(E) Endangered– Listed in the Federal Register as being in danger of extinction

(T) Threatened – Listed as likely to become endangered within the foreseeable future
(X) Critical Habitat – Critical Habitat has been designated for this species.
(NE) No Effect – Proposed Action will have no effect on the species
(NLAA) Not Likely to Adversely Affect – Proposed Action may affect the species, but is not likely to adversely affect.
(NT) No Take of migratory birds would occur from the Proposed Action.
(NEP) Federal Non-Essential Experimental Population

Spring-Run Chinook Salmon

The Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*) runs of the main stem of the San Joaquin River were extirpated after 1947, a few years after completion of Friant Dam. In the Central Valley, spring-run Chinook salmon historically migrated upstream to the headwaters of the larger tributaries to the Sacramento and San Joaquin rivers, where they hold for several months in deep cold pools (Moyle 2002). Historic runs were reported in the McCloud, Pit, Little Sacramento, Feather, Yuba, and American rivers, and in the San Joaquin, Stanislaus, Tuolumne, and Merced rivers (Moyle 2002). Today, Central Valley spring-run Chinook salmon persist in only a few systems within the Sacramento River watershed.

NMFS has designated the reintroduced spring-run Chinook salmon in the San Joaquin River as a non-essential experimental population (NEP) in accordance with Section 10(j) of the Endangered Species Act. Spring-run Chinook salmon are being reintroduced to the San Joaquin River by the SJRRP in accordance with the Settlement. Approximately 54,000 hatchery-produced juvenile spring-run Chinook salmon were released into Reach 5 of the Restoration Area in both 2014 and 2015. While very low numbers of returning spring-run Chinook salmon are anticipated in the initial years of reintroduction, it is possible that some of the fish released in 2014 could return to Reach 5 of the Restoration Area in the spring of 2016. Ancillary spring-run adult broodstock were released from the Interim SCARF this year (March 2016) into Reach 5 for a proposed fish/habitat study. As previously described, there are currently a number of fish passage barriers on the San Joaquin River. The SJRRP is implementing a program to trap any spring-run Chinook salmon returning to Reach 5 of the Restoration Area and transport them up to Reach 1 of the Restoration Area near Friant Dam until fish passage is provided throughout the Restoration Area, which is not anticipated until at least 2020 (Reclamation 2015).

The environmental factors most likely to affect the abundance and distribution of the Central Valley spring-run Chinook salmon ESU include: 1) an altered natural flow regime of the Central Valley streams from reservoir operations; 2) water temperature; and 3) altered pathways for adult and juvenile migration through the Sacramento-San Joaquin River Delta.

San Joaquin Kit Fox

SJKF once occurred throughout much of the San Joaquin Valley, but the overall population and range of kit fox has been greatly reduced because of extensive human disturbance and conversion of native habitats. Kit fox are an arid-land-

adapted species and typically occur in desert-like habitats in North America. Such areas have been characterized by sparse or absent shrub cover, sparse ground cover, and short vegetative structure. The subspecies historically ranged in alkali scrub/shrub and arid grasslands throughout the level terrain of the San Joaquin Valley floor from southern Kern County north to Tracy in San Joaquin County, and up into more gradual slopes of the surrounding foothills and adjoining valleys of the interior Coast Range. Within this range, the SJKF has been associated with areas having open, level, sandy ground that is relatively stone-free to depths of about 3 – 4.5 feet. The nearest known confined populations of SJKF proximal to the Action Area are roughly 45 mi to the northwest in Merced County, 45 mi to the north/northwest in western Madera County, and 50 mi to the southeast in Tulare County (Lewis 2015).

There is one record of SJKF within a 10-mile radius of the Action Area, which is from a sighting in 1990, recorded from just east of Friant Road, less than one mile southwest of the Action Area (Bell *et al.* 1994, CNDDB 2015), west of the Friant-Kern Canal. From November 2001 through October 2003, biologists from the Endangered Species Recovery Program conducted quarterly surveys for kit fox along the entire length of the FKC, including to Friant Dam. No sign or observations of kit fox were recorded during these daytime surveys. The Action Area is bounded on the north by the dam, the west by the San Joaquin River, the east by the Friant Kern Canal, and on the south by Millerton Road and the community of Friant. Millerton Road (named Friant Road further west) is the main access road to Millerton State Recreation Area, several large housing subdivisions, and a busy gaming casino. The Action Area is within the boundary of the maintenance yard, operations center, and administrative offices for Reclamation's Friant Division. Operations at and near the site for the Proposed Action occur on a daily basis and occur at all hours of the day or night. Immediately adjacent to the footprint of the Project are the San Joaquin River, Friant Dam, paved areas, a compacted-gravel equipment yard, maintained lawns, and landscaped areas. There have not been reports of any SJKF sightings in the vicinity of the Action Area before or since 1990, which suggests that the individual sighted in 1990 was likely a transient. Therefore, SJKF are not anticipated to be present in the Action Area.

Migratory Birds

The western yellow-billed cuckoo, California horned lark, burrowing owl, prairie falcon, and tricolored blackbird and other native nesting bird species are protected under the MBTA, which states that it is unlawful "by any means or manner to pursue, hunt, take, capture or kill" (16 U.S.C. 703-711) any migratory bird, except as permitted by regulations issued by the USFWS. These species may occur within 10 miles of the Action Area and use the Action Area as nesting habitat.

The Swainson's hawk is protected by the MBTA. Swainson's hawk nesting habitat consists of shrub-steppe areas with scattered trees, large shrubs and riparian areas. The nesting season for Swainson's hawk occurs between February

15 and September 15 (Reclamation 2012: 2-66). Foraging habitat tends to consist of agricultural areas particularly with alfalfa and grass hay (their preferred habitat), or non-agricultural areas with low or moderate height vegetated areas (NatureServe 2015). While breeding, this species feeds primarily on mammals such as rodents and reptiles, but insects such as grasshoppers when not breeding. There are several CNDDB occurrence records of Swainson's hawks nesting within six miles of the Action Area. The Action Area contains the east bank of the San Joaquin River immediately below Friant Dam, which is lined with numerous riparian trees suitable for Swainson's hawk nesting.

3.5.2 Environmental Consequences

3.5.2.1 No Action

Under the No Action Alternative Reclamation would not construct the SCARF water supply infrastructure nor allocate an additional 20 cfs of CVP water for non-consumptive use at the Interim Facility and future SCARF. There would be no effects to federally-listed species from construction activities. However, unless CDFW identifies a different source of additional water, neither the Interim Facility nor the future SCARF would be able to increase Spring-run Chinook salmon broodstock production for reintroduction to the San Joaquin River.

3.5.2.2 Proposed Action

Spring-Run Chinook Salmon

The purpose of the Project is to provide water supply to increase the broodstock and production of spring-run Chinook salmon at the Interim Facility and future SCARF to be reintroduced to the San Joaquin River. All activities under the Proposed Action will occur outside of waters of the U.S. and each individual ROW will be temporarily shut off while being worked on. Section 2.1.2 Environmental Commitments includes a list of measures that will be implemented to avoid any incidental discharges of sediment or pollutants into the San Joaquin River, such as placing straw wattles around stockpiles and checking equipment daily for leak potential. Section 2.1.2 also includes environmental commitments that would avoid and minimize the potential for adverse effects to spring-run Chinook salmon at the Interim Facility, in the event that water temperatures in the FKC were above the temperatures required for spring-run Chinook salmon at the Interim Facility during construction of the proposed action.

As previously discussed, the 20 cfs of additional CVP water supply would feed into the Interim Facility, or the SCARF once it is constructed, and be discharged back into the San Joaquin River. However, water discharged from the Interim Facility and SCARF would enter the associated effluent treatment system and would be subject to compliance with NPDES requirements, the Water Quality Control Plan for the Sacramento and San Joaquin River Basins, and regular monitoring of water quality within the SCARF for fish health. These measures are protective of beneficial uses of the San Joaquin River, including cold and warm water fisheries. The Proposed Action would comply with these plans as described in the CDFW MMRP and therefore, impacts to water quality and to spring-run

Chinook salmon associated with discharges from the SCARF are considered to be negligible.

Considering that the purpose of the Project is to provide water supply to increase the broodstock and production of Chinook salmon at the Interim Facility and future SCARF to be reintroduced to the San Joaquin River, the Proposed Action is anticipated to have a long-term beneficial effect on spring-run Chinook salmon. Reclamation has completed informal conference with NMFS in accordance with Section 7(a)(4) of the ESA on the potential effects of the proposed action on the NEP of spring-run Chinook salmon. NMFS concurred with Reclamation's determination that the proposed action would not jeopardize the NEP (Appendix B).

Migratory Birds

The western yellow-billed cuckoo, California horned lark, burrowing owl, prairie falcon, and tricolored blackbird may occur within 10 miles of the Action Area; however, the Action Area does not contain suitable nesting habitat. In regards to other native nesting species protected under MBTA, the majority of the Proposed Action would occur outside of the migratory bird nesting season. The Proposed Action also does not anticipate removing vegetation other than strips of lawn where excavation will occur, which will be replaced post-excavation.

The Action Area is within dispersal distance of known Swainson's hawk nesting sites, and contains suitable nesting trees along the eastern bank of the San Joaquin River. Noise disturbance from construction vehicles and activities involved with the Proposed Action has the potential to affect Swainson's hawks that may nest in the Action Area. Noise disturbance may cause nesting individuals to abandon their nest of young that have not yet fledged, causing young mortality. The majority of the Proposed Action is scheduled to occur outside of the Swainson's hawk nesting season. Implementation of the avoidance and minimization measures, as listed in the Environmental Commitments section of this EA would avoid the potential take of migratory birds.

3.6 Cultural Resources

"Cultural resources" is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. Title 54 U.S.C. 300101 *et seq.*, formerly and commonly known as the National Historic Preservation Act (NHPA) is the primary legislation for Federal historic preservation. Section 106 of the NHPA (54 U.S.C. 306108) requires Federal agencies to take into consideration the effects of their undertakings on historic properties and to afford the Advisory Council on Historic Preservation an opportunity to comment. Historic properties are those cultural resources that are listed on or eligible for inclusion in the National Register of Historic Places (National Register). The Section 106 implementing regulations at 36 CFR Part 800 outline

the process the Federal agency takes to identify historic properties within the area of potential effects (APE) and to assess the effects the proposed undertaking will have on those historic properties. The Section 106 process consultations involve the State Historic Preservation Officer, Indian tribes, and other identified consulting and interested parties.

3.6.1 Affected Environment

The APE for the current undertaking consists of the downstream toe of Friant Dam, Friant Dam ROW, 1.4 acres of grass lawns, a 0.75-acre dirt stockyard, and a modern period Reclamation administrative building.

In an effort to identify historic properties in the APE, a Reclamation cultural resource specialist conducted an internal records search and a pedestrian survey of the APE on September 10, 2014. Friant Dam was identified as a cultural resource within the APE for the Proposed Action. No prehistoric sites or isolates were documented during the survey.

For the purposes of this Project, Reclamation is treating Friant Dam as eligible for inclusion in the National Register. Reclamation considers it eligible under Criterion A as a contributing feature of the CVP, a water project that has profoundly influenced California's economic, geographic, and political landscapes; and under Criterion C because of significant technical innovations in its engineering and construction methods. The system as a whole has retained integrity of location, setting, feeling, and association. The system still functions for the original purpose for which it was constructed. The physical features of Friant Dam convey the property's historic character.

3.6.2 Environmental Consequences

3.6.2.1 No Action Alternative

Under the no action alternative, Reclamation would not proceed with the construction of the SCARF water infrastructure. There would be no change in operations. Conditions related to cultural resources would remain the same as existing conditions.

3.6.2.2 Proposed Action

Reclamation applied the criteria of adverse effect [36 CFR § 800.5(a)] and found that the Proposed Action would result in no significant alterations to the historic characteristics that make Friant Dam eligible for the National Register as a contributing element to the CVP. The proposed actions of installing a new pipeline, bypass pipeline, and retrofitting existing underground pipelines by sleeving will not substantially alter any physical characteristics of the dam. The Proposed Action is the type of activity that has the potential to affect historic properties. A records search, a cultural resources survey, and Tribal consultation identified historic properties within the APE. Reclamation determined that there would be no adverse effect to historic properties pursuant to 36 CFR § 800.5(b); therefore, there would be no impacts to cultural resources as a result of

implementing the Proposed Action. Reclamation entered into consultation with the California State Historic Preservation Officer (SHPO) on February 18, 2016, and received concurrence with its findings on March 16, 2016 (Appendix C).

3.7 Cumulative Impacts

According to the CEQ regulations for implementing the procedural provisions of NEPA, a cumulative impact is defined as *the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time* (40 CFR 1508.7).

The cumulative effects analysis in the SJRRP Programmatic EIS/R applies to all action alternatives, as well as both project- and program-level implementation of the SJRRP, including the construction of a new hatchery for spring-run Chinook salmon. Cumulative impacts analysis is included in the following chapters of the SJRRP Programmatic EIS/R, which are incorporated by reference (Reclamation, 2012):

- Chapter 26.6.9 – Hydrology – Surface Water Supplies and Facilities Operations
- Chapter 26.6.9 – Hydrology – Surface Water Quality
- Chapter 26.6.15 – Power and Energy
- Chapter 26.6.1 – Air Quality
- Chapter 7 – Climate Change
- Chapter 26.6.3 – Biological Resources – Vegetation and Wildlife

Cumulative impacts of the Proposed Action and other past, present and reasonably foreseeable future actions to restore habitat along the San Joaquin River, including implementation of other SJRRP projects contributing to achieving the Restoration Goal would have a beneficial effect on aquatic resources, including spring-run Chinook salmon populations to be reintroduced in the San Joaquin River.

Section 4 Consultation and Coordination

4.1 Coordination

Reclamation coordinated with the following entities in preparation of this EA: USFWS, NMFS, SHPO, DFW, Orange Cove Irrigation District, Big Sandy Rancheria, Cold Springs Rancheria of Mono Indians, Table Mountain Rancheria,

North Fork Rancheria, Picayune Rancheria of Chukchansi, Dumna/Wo-Wah Tribal Government, Dunlap Band of Mono Indians, North Fork Mono Tribe, Santa Rosa Rancheria Tachi Yokut Tribe, Wuksachi Indian Tribe.

A draft of this EA was made available for public review for 30 days. One comment letter was received from Wonderful Orchards (Appendix A), containing two comments. The commenter requested confirmation that the water supply for the proposed action would be appropriated under existing permits, and that nothing in the proposed action would affect Wonderful Orchards' status under the ESA or the designation of the NEP; both of which Reclamation has confirmed. No changes were made to the text of this EA in response to the comments received.

4.2 Endangered Species Act (16 USC Section 1531 et seq.)

As described in Section 3.5, Central Valley spring-run Chinook salmon is the only species listed under the ESA potentially occurring in the project vicinity. However, the Central Valley spring-run Chinook salmon that could occur in the project vicinity have been designated as a NEP, in accordance with Section 10(j) of the ESA, and therefore should be considered as a species proposed for listing under the ESA. As described in Section 3.5, Reclamation has completed informal conference with NMFS in accordance with Section 7(a)(4) of the ESA on the potential effects of the proposed action on the NEP of spring-run Chinook salmon. NMFS concurred with Reclamation's determination that the proposed action would not jeopardize the NEP.

4.3 National Historic Preservation Act

Title 54 U.S.C. § 306108, commonly known as Section 106 of the National Historic Preservation Act (formerly 16 U.S.C. 470 et seq.), requires Federal agencies to consider the effects of their undertakings on historic properties and to afford the Advisory Council on Historic Preservation an opportunity to comment. Compliance with Section 106 follows a series of steps, identified in its implementing regulations found at 36 CFR Part 800, that include consultations with the SHPO, Indian tribes and other consulting parties, identifying historic properties within the APE, and assessing effects on any identified historic properties. Reclamation initiated Section 106 consultation with the California SHPO on February 18 2016, and made a finding of "no adverse effect to historic properties" for the proposed undertaking pursuant to 36 CFR §800.5(b). The SHPO concurred with this finding on March 16, 2016.

4.4 State Permits

SJRRP's Program Environmental Impact Statement/Report and the execution of the associated Record of Decision describes how the "State Lead Agency" would comply with State law, and the ROD includes parallel language to the CEQA documentation developed by CDFW, the CEQA lead agency. As Reclamation began implementing the SJRRP, state funding restrictions have resulted in projects that have no state lead agency or in a state lead agency that only has a regulatory role and no funding or construction role. Reclamation is clarifying here that as the Salmon Conservation and Research Facility Water Supply and Infrastructure Project is a solely federal project, the SJRRP will only be pursuing permits required of a federal agency.

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Appendix A
Public Comments

Wonderfulorchards

February 29, 2016

SENT VIA E-MAIL

Adam Nickels
Bureau of Reclamation,
2800 Cottage Way, MP-170
Sacramento, CA 95825
anickels@usbr.gov

Re: Comments on the Draft Environmental Assessment for the Salmon Conservation and Research Facility Water Supply Infrastructure Project

Dear Mr. Nickels:

Wonderful Orchards, on behalf of Wonderful Nut Orchards, submits the following comments on the San Joaquin River Restoration Program (SJRRP) Draft Environmental Assessment for the Salmon Conservation and Research Facility Water Supply Infrastructure Project (Draft EA).

Wonderful Nut Orchards owns New Columbia Ranch, located on the east side of Reach 2B of the San Joaquin River, upstream of the Mendota Pool and also holds rights to the water of the San Joaquin River and its sloughs and exercises those rights to divert flows. Wonderful will be directly affected by the SJRRP in a number of ways and appreciates the opportunity to submit the following comments on the Draft EA.

The proposed Water Supply Infrastructure Project is part of the Salmon Conservation and Research Facility & Related Fisheries Management Actions Project that was approved by the California Department of Fish and Wildlife (CDFW) in June 2014. In response to a comment submitted by Wonderful (formerly known as Paramount Farming Company), CDFW confirmed that water supply for the proposed facility would be appropriated under License 1986 (Application 23) or Permits 11885, 11886 and 11887 (Applications 234, 1465 and 5638) and would be subject to the conditions of those water rights as amended on October 21, 2013. (*See* San Joaquin River Restoration Program: Salmon Conservation and Research Facility and Related Fisheries Management Actions Project Final Environmental Impact Report (April 2014), at 2-27.) Wonderful requests that Reclamation please also confirm that this is correct as it relates to the Proposed Water Supply Infrastructure Project or clarify the source of the right to the water supply for the Proposed Water Supply Infrastructure Project and ensure that the supply will not injure other legal users of water from the San Joaquin River below Friant Dam. 1-1

Furthermore, to the extent that operation of the Salmon Conservation and Research Facility and the Proposed Water Supply Infrastructure Project contributes to a nonessential experimental population of Central Valley spring-run Chinook salmon in the San Joaquin River, Wonderful maintains that any diversions it makes from the River are exempt from direct take prohibitions under the amendments to 50 C.F.R. § 223.301 published at 78 Fed. Reg. 79622, 79632. Indeed, Section 10011 of the San Joaquin River Restoration Settlement Act, Pub. L. 111-11, 123 Stat 1349 (2009), requires that reintroduction of salmon in the San Joaquin River will not impose more than a "de minimus" impact on third parties. Nothing in the Proposed Water Supply Infrastructure Project will affect Wonderful's status under the Endangered Species Act or the proposed experimental population designation. 1-2

Thank you for considering the above comments. Should you have questions, please contact me at any time.

Sincerely,

Kimberly M. Brown
Senior Director, Water Resources

Appendix B
Endangered Species Act Coordination

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
650 Capitol Mall, Suite 5-100
Sacramento, California 95814-4700

MAR 2 1 2016

Refer to NMFS No: WCR-2016-4336

Mario Manzo
Acting Program Manager
Bureau of Reclamation
2800 Cottage Way
Sacramento, CA 95825

Re: Endangered Species Act Section 7(a)(2) Concurrence Letter and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response and Fish and Wildlife Coordination Act Recommendations for the Salmon Conservation and Research Facility Water Supply Infrastructure.

Dear Mr. Manzo:

On February, 22nd 2016, NOAA's National Marine Fisheries Service (NMFS) received your request for a written concurrence that The Bureau of Reclamation's (Reclamation) Salmon Conservation and Research Facility (SCARF) Water Supply Infrastructure project authorized under the San Joaquin River Restoration Program (SJRRP) is not likely to adversely affect (NLAA) species listed as threatened or endangered or critical habitats designated under the Endangered Species Act (ESA). This response to your request was prepared by NMFS pursuant to section 7(a)(2) of the ESA, implementing regulations at 50 CFR 402, and agency guidance for preparation of letters of concurrence.
NMFS also reviewed the proposed action for potential effects on Pacific Coast Salmon essential fish habitat (EFH) designated under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), including conservation measures and any determination you made regarding the potential effects of the action. This review was pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation. In this case, NMFS concluded the action would not adversely affect EFH as defined in the Pacific Coast Salmon Fishery Management Plan. Thus, consultation under the MSA is not required for this action.

This letter underwent pre-dissemination review using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The concurrence letter will be available through NMFS' Public Consultation Tracking System https://pcts.nmfs.noaa.gov. A complete record of this consultation is on file at California Central Valley Area Office of NMFS.

Proposed Action and Action Area

The action area is at the foot of the Friant Dam in Friant, California extending from the Dam to the Orange Cove Irrigation District (OCID) Powerplant. Reclamation is proposing to amend a water service agreement with the California Department of Fish and Wildlife to allocate an additional 20 cfs for the proposed SCARF. However, the current infrastructure cannot accommodate the increase in cfs. The existing pipelines and facilities can only convey the 35 cfs that is presently allocated for the current San Joaquin River Fish Hatchery (SJH) and Interim Facility (iSCARF) that currently houses Central Valley (CV) spring-run Chinook salmon broodstock. The existing 35 cfs runs through the OCID Powerplant and that facility cannot operate at higher flows. Therefore, Reclamation is proposing to construct a new water supply infrastructure to convey the additional 20 cfs and a bypass around the OCID Powerplant. After the bypass, the current 35 cfs and additional 20 cfs will both flow into the existing mixing valve. Then the entire 55 cfs will be transferred to the SJH and SCARF through existing pipelines that do not need alteration. After entering the discharge vault, the full 55 cfs would then be conveyed to the current SJH and iSCARF, and future SCARF, via an existing 45-inch pipeline. Ultimately, water will be filtered and then discharged back into the San Joaquin River from the hatchery. During construction, the water supply for the SJH and iSCARF will be provided from the Friant Kern Canal (FKC) with an existing 30-inch pipeline Interrelated or interdependent activates associated with this project include construction of the SCARF and function of the iSCARF and SJH during construction.

Construction Activities:

To replace the 24-inch pipeline with the new 30-inch pipeline, four 3-feet by 2-foot by 10-feet concrete piers must be replaced for the above ground portion of the pipeline. For the underground portion of the pipeline, a trench approximately 10-feet deep will be dug and filled to the original grade elevation with native fill material and compacted earth.

The new 24-inch pipeline bypass around the OCID Powerplant will be mostly underground, except for the exit to the aboveground discharge vault where the existing mixing valves would function as they do now. A trench similar to the one used for the 30-inch pipeline will be used from the bifurcation point to the discharge vault.

Lastly, one reinforced concrete vault to house the PRV will be constructed adjacent to the OCID Powerplant. The vault will be located in a 10-foot deep trench with 2:1 slopes, similar to the pipe trenches. The vault will be 10-feet by 20-feet and have 1-foot concrete walls with a solid metal plate top deck. A ladder and safety ascent system will also be installed.

An existing 30-inch pipeline connected to the FKC will deliver 35 cfs through the OCID Powerplant to deliver water to the SJH and iSCARF during construction. The construction is anticipated to start in late fall and last 4-6 months, when temperatures at the Friant Kern Canal (FKC) outlet works are anticipated to be lowest. This timeframe was chosen to permit FKC outlet water deliveries to the iSCARF and SJH at temperatures that are suitable for salmon. To alleviate the effects of potentially high temperatures, Reclamation will not start construction until a 3-day running average daily maximum temperature in the FKC is below 23° C. Temperatures

will be monitored during construction. If they rise above 14.5° C, mitigation measures will begin. Firstly, operators at Friant Dam will install an additional line from the cold water pool in Friant Dam to discharge directly into the OCID mixing vault; where KFC water would mix with the colder water and reduce temperatures to suitable levels. If this measure fails to produce cool enough temperatures for the iSCARF facility then the CV spring-run Chinook salmon will be moved in accordance with the evacuation and rescue procedures specified in sec 10(a)(1)(A) permit # 17781. Construction of the proposed action is projected to commence in late fall 2016 and conclude before May 2017.

Conservation and Best Management Practices will be implemented to help control potential contaminates and erosion:

1) There will be no discharges from construction activities to any bodies of water.

2) No construction will occur within wetland or riparian areas adjacent to any Project action area.

3) Straw wattles or similar erosion-catching control will be placed around stockpiles. Once the disturbed areas are stabilized, erosion control materials will be removed from the site. Should there be inclement weather during project activities, work will cease until necessary erosion controls are in place and effective at catching sediment and debris runoff.

4) All equipment working near water will be inspected daily for fuel, lubrication, and coolant leaks and for leak potentials (e.g. cracked hoses, loose filling caps, stripped drain plugs); and all equipment shall be free of fuel, lubrication, and coolant leaks.

5) Spill prevention kits will be in close proximity to work areas, and workers will be trained in their use.

6) The only vegetation removal consists of the temporary removal of stripped material (1 foot depth of lawn and top soil in the nearby maintenance yard) during trenching activities. The stripped material would be stockpiled then used to restore the trench sites.

7) Tracked out material where unpaved surfaces meet paved roads in the action area will be swept to minimize fugitive dust emissions, trackout, and sediment in stormwater runoff.

8) Rescue or evacuation procedures will be implemented as described under Sec 10(a)(1)(A) Permit # 17781 should FKC temperatures reach 20° C (or become unsuitable).

9) Start of construction will be delayed until a 3-day running average daily maximum temperature in the FKC is below 23° C.

Action Agency's Effects Determination

Reclamation has determined that the proposed action is not likely to adversely affect ESA-listed species and their critical habitat under the jurisdiction of NMFS, based on the absence of the listed species within the action area during construction and because of conservation measures to protect the CV spring-run Chinook salmon at the iSCARF. The long term effects of the proposed action will be beneficial to the species because of the improvement in production from the SCARF facility due to the increased water flow.

Status of the Species and Critical Habitat in the Action Area

Species	ESU or DPS	Original Final FR Listing	Listing Status Reaffirmed	Critical Habitat Designated	Nonessential Experimental Population Designation
Chinook salmon (*Oncorhynchus tshawytscha*)	Central Valley spring-run ESU	9/16/1999 64 FR 50394 Threatened	6/28/2005 70 FR 37160 Threatened	9/2/2005 70 FR 52488	12/31/2013 78 FR 79622

Consultation History

February 22, 2016 NMFS received a letter and associated biological assessment (BA) for the project, from Reclamation requesting consultation.

February 26, 2016 NMFS requested additional information via email from Reclamation regarding the temperature of the water being delivered to the iSCARF during construction.

March 2, 2016 NMFS received the requested information, determined the consultation package was sufficiently complete, and initiated consultation.

ENDANGERED SPECIES ACT

Effects of the Action

Under the ESA, "effects of the action" means the direct and indirect effects of an action on the listed species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action (50 CFR 402.02). The applicable standard to find that a proposed action is not likely to adversely affect listed species or critical habitat is that all of the effects of the action are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or critical habitat. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur.

The potential effects of the propose action include impacts to listed CV spring-run Chinook salmon (*Oncorhynchus tshawytscha*). Potential effects of the proposed action are reasonably likely to include: injury or death due to construction work; mobilized sediment and increases of turbidity; and high temperatures of the FKC affecting the temporary water supply during construction. Listed species potentially in the action area during the time of construction (late fall through April) include adult and juvenile CV spring-run Chinook salmon and the broodstock population of CV spring-run Chinook salmon at the iSCARF

Presence of Listed Fish- CV spring-run Chinook salmon cannot reach the area volitionally and the only potential for their presence in the area is through trap and haul efforts or broodstock that has been released into Reach 1. Although there is potential for CV spring-run Chinook salmon to be in the area there are no anticipated in-water construction activities. Therefor the effects to listed fish in river will be discountable.

Mobilized Sediment and Increases of Turbidity- There is a possibility for indirect effects from mobilized sediments due to runoff from precipitation events. Turbidity and suspended sediment levels may negatively impact fish populations through reduced availability of food, reduced feeding efficiency, and exposure to toxic sediment released into the water column. Measures 1-7 explained above will minimize the potential instream effects to listed fish to an insignificant level.

Temperature of FKC – There is a possibility that temperatures in the FKC could exceed the lethal threshold for CV spring-run Chinook salmon. Temperatures above 23° C would likely be prove to be too high for the chillers at the current iSCARF to effectively cool, resulting in the mortality of CV spring-run Chinook salmon broodstock at the facility. Measures 8 and 9 explained above will minimize the potential for FKC water temperature to effect CV spring-run Chinook salmon. Therefor these effects should be discountable.

Conclusion

Based on this analysis, NMFS concurs with Reclamation that the proposed action is not likely to adversely affect CV spring-run Chinook salmon and designated critical habitats.

Reinitiation of Consultation

Reinitiation of consultation is required and shall be requested by Reclamation or by NMFS, where discretionary Federal involvement or control over the action has been retained or is authorized by law and (1) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (2) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this concurrence letter; or if (3) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16). This concludes the ESA portion of this consultation.

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of threatened and endangered species. Reclamation also has the same responsibilities, and informal consultation offers action agencies an opportunity to address their conservation responsibilities under section 7(a)(1).

Please direct questions regarding this letter to Hilary Glenn, California Central Valley Office, at (916) 930-3720 or via email at hilary.glenn@noaa.gov.

Sincerely,

William W. Stelle, Jr.
Regional Administrator

cc: CHRON File: ARN 151422-WCR2016-SA00220

Appendix C
National Historic Preservation Act Consultation

CULTURAL RESOURCES COMPLIANCE
Division of Environmental Affairs
Cultural Resources Branch (MP-153)

MP-153 Tracking Number: 13-SCAO-215

Project Name: Salmon Conservation and Research Facility (SCARF) Water Infrastructure Project, Friant Dam, Fresno County, California 13-SCAO-215

NEPA Contact: Alex Aviles, Natural Resource Specialist

MP 153 Cultural Resources Reviewer: Lex Palmer, Historian

Date: March 22, 2016

Reclamation proposes to approve the construction of water supply infrastructure to provide Central Valley Project (CVP) water from Millerton Lake to the proposed SCARF facility, for the production and reintroduction of salmon to the San Joaquin River. This action constitutes an undertaking with the potential to cause effects to historic properties, assuming such properties are present, requiring compliance with Section 106 of the National Historic Preservation Act (NHPA) as amended.

Based on historic properties identification efforts conducted Reclamation, and in-house background research, Reclamation consulted with, and received concurrence from, the State Historic Preservation Officer (SHPO) on a finding of no historic properties affected pursuant to 36 CFR §800.4(d)(1). Consultation correspondence between Reclamation and the SHPO has been provided with this cultural resources compliance document for inclusion in the administrative record for this action.

This document serves as notification that Section 106 compliance has been completed for this undertaking. Please note that if project activities subsequently change, additional NHPA Section 106 review, including further consultation with the SHPO, may be required.

Attachment:

Letter: SHPO to Reclamation dated March 16, 2016

MP153 ENV 3.00
AJB
3-22-16

STATE OF CALIFORNIA – THE NATURAL RESOURCES AGENCY
EDMUND G. BROWN, JR., *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
1725 23rd Street, Suite 100
SACRAMENTO, CA 95816-7100
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March 16, 2016

Reply in Reference To: BUR_2016_0218_002

Anastasia T. Leigh
Regional Environmental Officer
United States Department of the Interior
Bureau of Reclamation
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, CA 95825-1898

Re: National Historic Preservation Act (NHPA) Section 106 Consultation for the Salmon Conservation and Research Facility (SCARF) Water Infrastructure Project, Friant Dam, Fresno County, California (Project #13-SCAO-215)

Dear Ms. Leigh:

The Office of Historic Preservation received your letter on February 18, 2016 requesting to initiate consultation for the above-referenced undertaking. The Bureau of Reclamation (Reclamation) is consulting pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations found at 36CFR Part 800 (as amended). Along with the consultation letter, the following documentation was provided:

- Salmon Conservation and Research Facility Water infrastructure Project, Friant Dam, Finding of Effect, Fresno County – Project Tracking No: 13-SCAO-215 by K. Palmer (January 2016)
- Reclamation: MP-153 Cultural Resources Post Field Summary Record (J. Fogarty, September 09, 2014)

Based on provisions in the San Joaquin River Restoration Program, Reclamation proposes to construct water supply infrastructure to provide Central Valley Project (CVP) water from Millerton Lake to a planned Salmon Conservation and Research Facility (SCARF) to provide Salmon to reintroduce to the San Joaquin River. The goal is a naturally-reproducing and self-sustaining population of Chinook Salmon.

To establish the proposed SCARF, two of four existing Friant Dam penstocks need to have new valves installed. As part of this work, the water pipe that runs from the valves will need to be excavated out and replaced with a slightly larger one to handle the increased flow. As part of the improved system two additional pipelines of 18 and 24 inch diameters will be replaced with a 30-inch diameter pipe about 45 feet long and a new bypass pipe will be undergrounded. Along with the new pipes, reinforced concrete pipe cradle columns will be constructed to support the exposed sections of pipes to be located at the base of the Friant Dam.

Reclamation describes the area of potential effects (APE) for this undertaking as a horizontal APE of 60 feet long and 25 feet wide and the vertical APE as ten-feet-deep for the pipe

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excavation and new pipe installation. The horizontal APE includes the proposed concrete cradle column locations and all additional piping. All staging and vehicle traffic will occur on an existing concrete staging area (Figure 2: Palmer 2016, page 7).

Reclamation's efforts to identify historic properties included referencing an internal cultural resources file search and conducting a pedestrian archaeological inventory at the proposed APE. Friant Dam is National Register eligible as part of the multiple property Central Valley Project nomination (2007) and is the only historic property located within the APE. The pedestrian survey confirmed that the project area has been completely modified from initial dam construction and is not likely to contain any buried deposits. It is commented that although the new pipeline and supports will be exposed at the base of the dam, they are in amongst other existing structural elements and given the scale of the overall dam and spillways, they do not unduly add a significant visual intrusion, are of similar materials as existing and the small modification of original construction is minimal.

Further, pursuant to regulations at 36 CFR §800.3(f)(2) and 36 CFR §800.4(a)(4) Reclamation identified eleven Indian tribes who might attach religious and cultural significance to historic properties in the APE and invited them to consult by letter. The tribes are the Big Sandy Rancheria, Cold Springs Rancheria of Mono Indians, Table Mountain Rancheria, North Fork Rancheria, Picayune Rancheria of Chukchansi, Dumna/Wo-Wah Tribal Government, Dunlap Band of Mono Indians, North Fork Mono Tribe, Santa Rosa Rancheria Tachi Yokut Tribe and Wuksachi Indian Tribe. It does not appear that concerns currently exist; however Reclamation will take appropriate steps to address any future concerns that might arise.

Reclamation is requesting review and comment on the delineation of the APE, efforts to identify historic properties, and is seeking concurrence with the effect finding for this undertaking. Following staff review of the documentation, I have the following comments:

- Pursuant to 36 CFR 800.4(a)(1), I have no objections to the APE as defined
- Pursuant to 36 CFR 800.4(b), I find that Reclamation has made a reasonable and good faith effort to identify historic properties within the area of potential effects.
- Reclamation has determined that the proposed undertaking would result in no adverse effect to historic properties. Pursuant to 36 CFR 800.5(b), **I concur**.

Please be advised that under certain circumstances, such as unanticipated discovery or a change in project description, Reclamation may have additional future responsibilities for this undertaking under 36 CFR Part 800 (as amended). Should you require further information, please contact Jeanette Schulz at Jeanette.Schulz@parks.ca.gov or (916) 445-7031.

Respectfully,

Julianne Polanco
State Historic Preservation Officer