

RECLAMATION

Managing Water in the West

Final Environmental Assessment

San Andreas and Staten Island Salinity Stations Refurbishments

EA-12-027



**U.S. Department of the Interior
Bureau of Reclamation**

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Mission Statements

The Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

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

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Section 1 Introduction

The Bureau of Reclamation (Reclamation) provided the public with an opportunity to comment on the Draft Finding of No Significant Impact (FONSI) and Draft Environmental Assessment (EA) between December 31, 2015 and January 29, 2016. No comments were received. Changes between this Final EA and the Draft EA, which are not minor editorial changes, are indicated by vertical lines in the left margin of this document.

1.1 Background

In February 1961, the State Water Resources Control Board adopted Water Right Decision 990, which approved water rights for the Central Valley Project (CVP). This led to the development of water quality standards for the Sacramento-San Joaquin Delta (Delta) with the adoption of agricultural salinity standards as terms and conditions of Water Right Decision 1275 in May 1967. Ultimately, these and other Decisions (including Water Rights Decision 1641), led to the development of a series of 24 Compliance Monitoring Sites in the Delta which are jointly operated and maintained by Reclamation and the California Department of Water Resources (Figure 1).

Water Rights Decision 1641, issued by the State Water Resources Control Board on December 29, 1999, and amended March 15, 2000, amended Reclamation's water rights permits to add items and conditions that are intended to protect municipal and industrial, agricultural, and fish and wildlife beneficial uses of the Delta. The CVP and the State Water Project (SWP), operated by the California Department of Water Resources, are operated in coordination to meet the terms in Water Rights Decision 1641 relevant to each project.

Operating these projects to meet specific numerical criteria at specific locations in the Delta is complicated as the Delta is a dynamic environment affected by natural forces such as tides, wind, and floods (California Department of Water Resources 2006). Reservoir releases in the Sacramento River basin to support Delta water quality take one to five days to reach the Delta. Water Rights Decision 1641 contains flow and water quality objectives that must be measured at various compliance monitoring stations located throughout the Delta (Figure 1). Continual monitoring of Delta conditions at these stations and forecasting of future conditions are essential for assuring the daily decisions regarding reservoir releases and amounts pumped from the Delta will meet the water quality objectives of the Delta (California Department of Water Resources 2006).

There are two monitoring stations within the Delta interior that measure salinity, one is San Andreas Salinity Station, originally built in the 1960s, and is located along the San Joaquin River in Sacramento County (Figure 2). The other is Staten Island Salinity Station, originally built in 1985, and is located along the Mokelumne River in San Joaquin County (Figure 2). An inspection of both stations by Reclamation determined they needed to be refurbished.

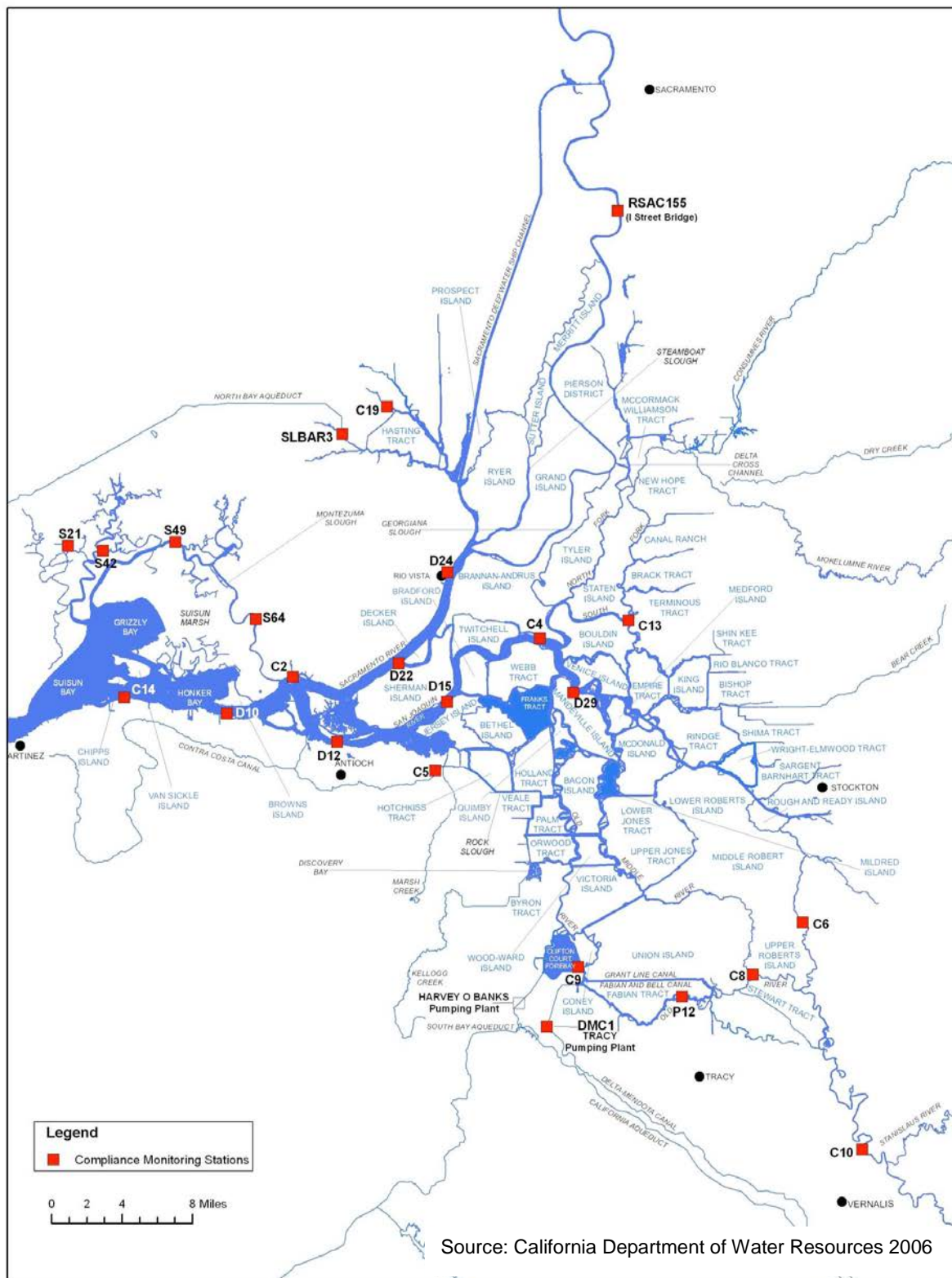


Figure 1 Water Rights Decision 1641 Compliance Monitoring Stations.
C4 is San Andreas and C 13 Staten Island Salinity Stations.

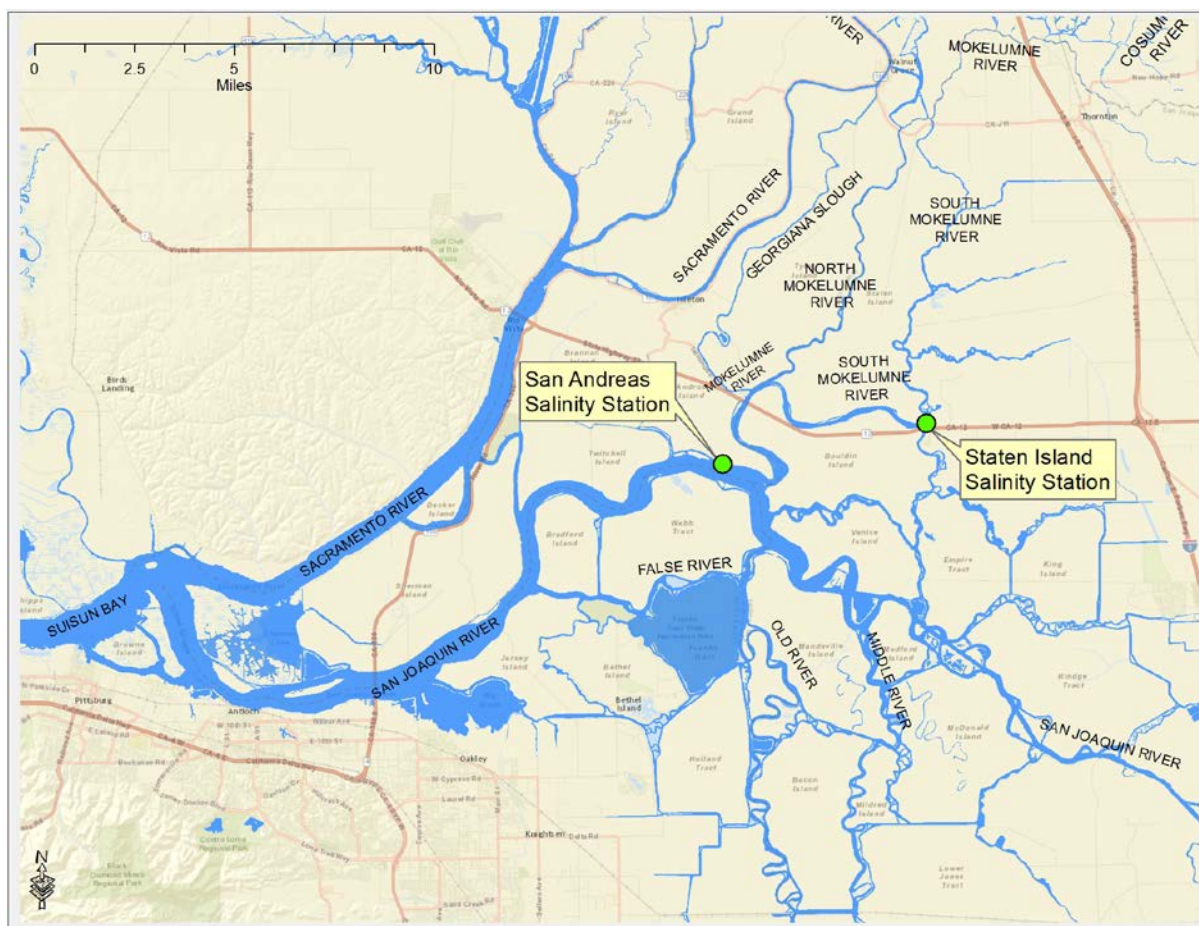


Figure 2 San Andreas and Staten Island Salinity Stations Locations.

1.2 Need for the Proposed Action

San Andreas and Staten Island Salinity Stations need to be replaced due to unsafe and dangerous conditions to employees who service and maintain the stations and risk of losing the stations and the monitoring equipment.

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Section 2 Alternatives Including the Proposed Action

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

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not replace the aging Salinity Stations which could potentially lead to injury to employees, loss of monitoring equipment and or Reclamation's inability to gather real-time water quality data from the Delta.

2.2 Proposed Action

Reclamation proposes to replace the San Andreas and Staten Island Salinity Stations with better quality materials to withstand deterioration. A private construction team hired by Reclamation would be brought in to demolish the current stations and rebuild new stations within the same location. Principal components of the work would include:

- Demolition and disposal of the two existing water quality monitoring stations, including, but not limited to, the following:
 - Existing wood bridges, including bridge decks and all structural components.
 - Existing piles (5 for San Andreas and 8 for Staten Island).
 - Existing monitoring station buildings.
 - Portions of existing conduit.
 - Existing equipment and appurtenances inside of the existing buildings.
- Installation of new water quality monitoring stations, including the following:
 - New weathering steel (Cor-Ten™ steel or equal) bridges, including new bridge decks and all necessary structural components.
 - Connections and structural components required to secure the bridges to the piles.
 - New bridge abutments necessary to support the bridges.
 - New stainless steel pipe guardrails or cable safety rails for the bridges.
 - New (12" diameter) piles with pile caps and bracing (4 for San Andreas and 6 for Staten Island).
 - New monitoring station buildings, including all hardware and structural components.
 - Marine gate installed on bridge for security and restricted access to the building.
 - Connections and structural components required to secure the monitoring station buildings to the piles.

- New building equipment and appurtenances, including doors, door locks, screens, hooded vents, baffles, and associated hardware.
- New electrical components including conduit, conductors, pull boxes, panelboards, power outlets, luminaires, thermostats, fans, switches, breaker switches, marine warning lights, and all hardware required to complete the electrical systems.

Piles for each station would be driven a minimum penetration of 20 feet into the subgrade and until bearing resistance reaches 15 tons. There would be no excavation or other disturbance to the bottom of the channel.

Construction materials that would be required to complete the reconstruction of the stations include steel piles, aluminum walkways, metal salinity building and concrete. Equipment required for each station replacement would include a barge, barge crane, vibratory pile driver, truck crane, haul truck and pick-up trucks. Backfill in excavated areas located outside the waterways would be used to restore the ground elevation to its original grade.

The Proposed Action is anticipated to require up to two weeks for each Salinity Station. All construction activities would take place between August 1 and October 1.

2.2.1 Permitting for the Proposed Action

Reclamation has received the following permits for working within waterways or along the levee:

- Clean Water Act, Section 404 and Rivers and Harbors Act, Section 10 from the U.S. Army Corps of Engineers (Appendix A)
- Encroachment Permit for San Andreas Salinity Station from the Central Valley Flood Protection Board (Appendix B) because the station is on a regulated stream, as per the California Department of Water Resources.

Reclamation is also in the process of receiving a Clean Water Act, Section 401 Water Quality Certification from the Central Valley Water Quality Control Board. Reclamation will not move forward with the project until they are received.

Reclamation and its Contractors(s) shall comply with all terms and conditions of the above permits.

2.2.2 Environmental Commitments

Reclamation and its Contractor(s) shall implement the following environmental protection measures included in Table 1 and in the associated section 7 Endangered Species Act (ESA) compliance documents (see Appendix C and D). Environmental consequences for resource areas assume the measures specified would be fully implemented.

Table 1 Environmental Protection Measures and Commitments.

Resource	Protection Measure
Noise	No explosives of any kind would be used on the jobsite.
Noise	Construction times would be generally Monday through Friday from 7:00am until 4:00pm. Construction activities between 6pm and 7am would be limited.

Resource	Protection Measure
Noise	Use noise barriers and mufflers
Noise	No high-impact noise activities, such as pile driving, drilling, or jack-hammering shall occur at night
Water Resources	Acquire coverage under a Stormwater General Permit to control stormwater discharges from the construction site
Water Resources	Prepare a Stormwater Pollution Prevention Plan in accordance with the stormwater general permit
Water Resources	Employ erosion control methods to control sediment and erosion such as silt fencing and straw wattles

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Section 3 Affected Environment and Environmental Consequences

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

3.1 Resources Eliminated from Further Analysis

Reclamation analyzed the affected environment and determined that the Proposed Action did not have the potential to cause direct, indirect, or cumulative adverse effects to the resources listed in Table 2.

Table 2 Resources Eliminated from Further Analysis.

Resource	Reason Eliminated
Cultural Resources	Reclamation has determined that completely replacing the San Andreas and Staten Island Salinity Monitoring stations with upgraded materials has no potential to cause effects to historic properties pursuant to the Section 106 implementing regulations at 36 CFR Part 800.3(a)(1). See Appendix E for Reclamation's determination.
Environmental Justice	The Proposed Action would not cause dislocation, changes in employment, or increase flood, drought, or disease nor would it disproportionately impact economically disadvantaged or minority populations.
Indian Sacred Sites	The Proposed Action would not limit access to ceremonial use of Indian Sacred Sites on federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites. Therefore, there would be no impacts to Indian Sacred Sites as a result of the Proposed Action.
Indian Trust Assets	The Proposed Action would not impact Indian Trust Assets as there are none in the Proposed Action area. The nearest Indian Trust Assets is Jackson Rancheria approximately 45 miles northeast of the Proposed Action area.
Land Use	There would be no impact to land use as a result of the Proposed Action as replacement of the salinity stations would not change land use designations or land use within the Proposed Action area and work would only occur within the footprint of the existing stations. In addition, work on the stations would be limited to the levee road, the water-side portion of the levee, and the waterway itself.

3.2 Air Quality

Section 176 (C) of the Clean Air Act (42 U.S.C. 7506 (C)) requires 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 required under Section 110 (a) of the Federal 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 State Implementation Plan's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards

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 would, in fact conform to the applicable State Implementation Plan before the action is taken.

On November 30, 1993, the Environmental Protection Agency (EPA) promulgated final general conformity regulations at 40 CFR 93 Subpart B for all federal activities except those covered under transportation conformity. The general conformity regulations apply to a proposed federal action in a non-attainment or maintenance area if the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutant caused by the Proposed Action equal or exceed certain *de minimis* amounts thus requiring the federal agency to make a determination of general conformity.

3.2.1 Affected Environment

The Proposed Action area lies within the Sacramento Valley Air Basin and the San Joaquin Valley Air Basin under the jurisdiction of the Sacramento Metropolitan Air Quality Management District and the San Joaquin Valley Air Pollution Control District, respectively. The pollutants of greatest concern in both air basins are carbon monoxide, ozone, ozone precursors such as reactive organic gases (ROG) or volatile organic compounds (VOC), inhalable particulate matter between 2.5 and 10 microns in diameter (PM₁₀) and particulate matter less than 2.5 microns in diameter (PM_{2.5}).

The Sacramento Valley Air Basin and the San Joaquin Valley Air Basin have both reached Federal and State attainment status for carbon monoxide, nitrogen dioxide, and sulfur dioxide, and neither are in attainment for ozone or PM_{2.5}, as shown in Table 3. Also, both air basins have reached Federal attainment status for PM₁₀ but not for the State standards. There are no established standards for nitrogen oxides (NO_x); however, they do contribute to nitrogen dioxide standards and ozone precursors (San Joaquin Valley Air Pollution Control District 2015a). For a list of current established air pollution thresholds for the Sacramento Valley Air Basin and the San Joaquin Valley Air Basin, please see Table 4.

Table 3 Air Quality Attainment Status.

Air Pollutant	Sacramento Metropolitan ¹ State Status	Sacramento Metropolitan ¹ National Status	San Joaquin Valley ² State Status	San Joaquin Valley ² National Status
Ozone	Nonattainment	Nonattainment	Nonattainment	Nonattainment
carbon monoxide	Attainment	Attainment	Attainment	Attainment
nitrogen dioxide	Attainment	Attainment	Attainment	Attainment
sulfur dioxide	Attainment	Attainment	Attainment	Attainment
PM ₁₀	Nonattainment	Attainment	Nonattainment	Attainment
PM _{2.5}	Nonattainment	Nonattainment	Nonattainment	Nonattainment

Source: San Joaquin Valley Air Pollution Control District 2015a, Sacramento Metropolitan Air Quality Management District 2015a, EPA 2015.

1 Sacramento Metropolitan = Sacramento Metropolitan Air Quality Management District

2 San Joaquin Valley = San Joaquin Valley Air Pollution Control District

Table 4 Criteria Air Pollutant Construction Threshold.

Air Pollutant	Sacramento Metropolitan ¹	San Joaquin Valley ²
Reactive Organic Gases (ROG)	none	10 tons/year
Nitrogen Oxide (NO _x)	15.5 tons/year	10 tons/year
Particulate Matter - 10 microns (PM ₁₀)	14.6 tons/year	15 tons/year
PM _{2.5}	15 tons/year	15 tons/year

Source: San Joaquin Valley Air Pollution Control District 2015b, Sacramento Metropolitan Air Quality Management District 2015b

1 Sacramento Metropolitan = Sacramento Metropolitan Air Quality Management District

2 San Joaquin Valley = San Joaquin Valley Air Pollution Control District

3.2.2 Environmental Consequences

No Action

There would be no impact to air quality as conditions would remain the same as existing conditions because no construction would occur.

Proposed Action

The Proposed Action involves temporary earthmoving and minor appurtenance improvements in the Sacramento Valley and San Joaquin Valley area. The air quality impacts of the Proposed Action would be primarily construction-related emissions that are temporary and short-term in nature.

The Sacramento Valley Air Basin and the San Joaquin Valley Air Basin have established screening thresholds to determine whether a proposed project has a potential to exceed their air quality standards (Table 4). Emissions due to construction activities were estimated using average off-road mobile source emission factors (SCAQMD 2008) and are included in Table 5 below. Calculations were based on an 8 hour work day for 5 days per week over the 3 month construction window. Construction under the Proposed Action would result in the temporary generation of ROG, NO_x, PM_{10/2.5}, and carbon monoxide emissions. Estimated construction emissions would be below established thresholds of significance (Table 5).

Table 5 Potential Criteria Air Pollutant Emissions Associated with Construction Activities.

Equipment Type	ROG lb/hr ¹	CO lb/hr	NO _x lb/hr	PM _{10/2.5} lb/hr	CO ₂ lb/hr
1 Pile driver	0.128	0.455	1.107	0.047	128.635
1 Barge with crane	0.128	0.455	1.107	0.047	128.635
1 Truck with crane	0.128	0.455	1.107	0.047	128.635
2 Haul truck	0.407	1.230	3.336	0.116	520.127
4 Pick-up truck	0.813	2.459	6.672	0.232	1040.255
Maximum pounds per hour	1.603	5.055	13.327	0.487	1946.288
Maximum pounds per day	12.823	40.438	106.620	3.897	15570.302
Maximum pounds per year	1025.822	3235.037	8529.590	311.789	1245624.172
Maximum tons/year	0.513	1.618	4.265	0.156	623.000
San Joaquin Valley Air Basin <i>de minimis</i> threshold (tons/year)	10	None	10	15	None

Source: SCAQMD 2008 was used to generate air emissions data.

1 lb/hr = pounds per hour

The Proposed Action would not impact the air district's plans to achieve or maintain attainment for various air quality pollutants. As such, there would be no adverse air quality impacts associated with this Proposed Action and a conformity analysis pursuant to the Clean Air Act is not required.

Cumulative Impacts

The Proposed Action would not contribute to an exceedance of applicable air quality standards and thresholds via emissions. The emissions would be temporary and would not substantially contribute to a cumulative impact within the Sacramento Valley Air Basin and the San Joaquin Valley Air Basin.

3.3 Biological Resources

3.3.1 Affected Environment

Special-status wildlife species with the potential to occur in the study area were identified through review of existing information, including queries of the California Department of Fish and Wildlife's California Natural Diversity Database (CNDDDB) and U.S. Fish and Wildlife Service (USFWS) databases (CNDDDB 2015, USFWS 2015). This information was compiled, in addition to information within Reclamation's files, to determine the likelihood for the occurrence of protected species within the study area (Table 6).

Table 6 Special-status species considered within or near the Proposed Action Area.

Species	Status¹	Effects²	Occurrence in the Study Area³
Fish			
Central Valley spring-run chinook salmon (<i>Oncorhynchus tshawytscha</i>)	T, X (NMFS)	NLAA	Present. Species migrates up the river systems of the Sacramento-San Joaquin Delta from March through July to upper reaches of the river to spawn in Aug-Oct. Seaward migration Nov-May. Critical habitat outside the study area. Construction activities may affect, but is not likely to adversely affect this species, due to the small area of low-quality habitat that would be impacted, and the measures incorporated into the Proposed Action.
Central Valley steelhead Distinct Population Segment (<i>Oncorhynchus mykiss</i>)	T, X (NMFS)	NLAA	Present. Begins upstream migration from Aug-Nov to spawn in small streams and tributaries directly downstream from dams in Dec-April. Migratory corridors include the Delta, Sacramento River, and San Joaquin River. Seaward migration is from spring through early summer. Critical habitat present in the study area. Construction activities may affect, but is not likely to adversely affect this species, due to the small area of low-quality habitat that would be impacted, and the measures incorporated into the Proposed Action.
Delta smelt (<i>Hypomesus transpacificus</i>)	T, X	NLAA	Present. Species migrates from San Francisco estuary to spawn in shallow freshwater from April-June. Critical habitat is present in the study area. Construction activities may affect, but is not likely to adversely affect this species, due to the small area impacted, and the measures incorporated into the Proposed Action.

Species	Status ¹	Effects ²	Occurrence in the Study Area ³
Green sturgeon, Southern Distinct Population Segment of North American (<i>Acipenser medirostris</i>)	T, X (NMFS)	NLAA	Present. Migrates up Delta to freshwater river systems in March-July to spawn. The study area may provide rearing habitat for juveniles and some adults. Critical habitat present in the study area. Construction activities may affect, but is not likely to adversely affect this species, due to the small area of low-quality habitat that would be impacted, and the measures incorporated into the Proposed Action.
Winter-run chinook salmon, Sacramento River (<i>Oncorhynchus tshawytscha</i>)	E, X (NMFS)	NLAA	Present. Occurs in mainstem Sacramento River. Migrates through the river system Dec-July. Seaward migration Nov-April. Critical habitat in the study area. Construction activities may affect, but is not likely to adversely affect this species, due to the small area of low-quality habitat that would be impacted, and the measures incorporated into the Proposed Action.
Mammals			
Riparian brush rabbit (<i>Sylvilagus bachmani riparius</i>)	E	NE	Absent. No individuals or habitat in area of effect.
Plants			
Antioch Dunes evening-primrose (<i>Oenothera deltoidea</i> ssp. <i>howellii</i>)	E	NE	Absent. No individuals or habitat in area of effect.
Reptiles			
Giant garter snake (<i>Thamnophis gigas</i>)	T	NLAA	Possible. There are records within 5-miles of both Salinity Stations, and marginal upland habitat is present in the action area. Construction activities may affect, but is not likely to adversely affect this species, due to the small area of low-quality habitat that would be impacted, and the measures incorporated into the Proposed Action.

1 Status= Listing of Federally special status species

E: Listed as Endangered

T: Listed as Threatened

X: Critical Habitat designated for this species

NMFS: species under the jurisdiction of the National Marine Fisheries Service

2 Effects = Effect determination

NE: No Effect

NLAA: May affect, not likely to adversely affect

3 Definition of Occurrence Indicators

Present: Species recorded in area and suitable habitat present

Possible: Species recorded in vicinity of project area but habitat marginal

Absent: Species not recorded in study area and/or habitat requirements not met

Federally listed fish species and their critical habitat, under National Marine Fisheries Service (NMFS) jurisdiction, are known or have potential to occur in the Proposed Action area and includes Central Valley spring-run Chinook salmon, Central Valley steelhead, green sturgeon, and winter-run Chinook salmon. However, because of their migratory nature, these anadromous fish may only spend a portion of their lives in the project area.

Delta smelt spends a large part of their annual life span associated with the freshwater edge of the mixing zone (zone of mixing or entrapment at the saltwater-freshwater interface) (Bennett 2005). Adult delta smelt migrate from brackish-water habitat associated with the mixing zone, to

spawn in freshwater from April to June (Swanson et al. 2000, Bennett 2005). They spawn in shallow, fresh, or slightly brackish water upstream of the mixing zone, mostly in tidally influenced backwater sloughs and channel edgewaters, typically in the upper Delta (USFWS 1995).

Aquatic habitat conditions vary spatially and temporally in the Delta. Environmental conditions such as water temperature, flow, salinity, and the presence of food, can affect fish species movements, and in turn, their distribution (Stevens and Miller 1983, Kjelson and Brandes 1989, Brown and Bauer 2010). Threats to the species are from water diversions, entrainment losses, reduction of freshwater outflow, changes in abundance and composition of food organisms, environmental contaminants, and competition and predation from exotic invasive aquatic species. In addition, dams have limited supplies of instream gravel, habitat suitability, and spawning habitat.

The giant garter snake are endemic to the Sacramento valley wetland habitats; and include freshwater marshes, low-gradient streams, as well as man-made waterways, slough habitats, and adjacent uplands (USFWS 1993). These waterways typically contain cattails and other aquatic vegetation for cover or foraging. However, giant garter snakes are typically absent from larger rivers because of lack of suitable habitat. Also, large rivers, like the interior Delta (including the San Joaquin and Mokelumne Rivers) support populations of large, predatory fish. Their active season is between May 1st to October 1st, so during this period is the best time to modify their habitat and will cause the least impact to them.

Habitat along the riverside levee is largely devoid of vegetation. There is no overhanging vegetation and submerged vegetation is largely absent. The riverbank has riprap and vegetation is actively managed. However, giant garter snake may move across this landscape during their active season.

3.3.2 Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not replace San Andreas Salinity Station and Staten Island Salinity Station. The two Salinity Stations would continue to deteriorate and may confound data collection, as required by State Water Resources Control Board. This could potentially impact daily decision making regarding reservoir releases and pumping in the Delta designed to protect fish and wildlife.

Proposed Action

Project construction would occur primarily in or over the waterway, with limited work occurring on land. Consequently, listed aquatic species, and particularly listed fish species, have the greatest potential to occur in the Proposed Action area.

Reclamation submitted a request to USFWS to concur with its determination that the Proposed Action may affect, but is not likely to adversely affect the delta smelt and giant garter snake. Given the incorporation of avoidance and minimization measures into the Proposed Action, the USFWS concurred with this determination on December 8, 2016 (See Appendix C).

Pile Removing The primary effects from removing piles is the temporary increase of sediment suspension, which may result in increased turbidity in the water column. Vibratory pile removal tends to cause the sediments to slough off at the mudline, resulting in relatively low levels of suspended sediments. However, Reclamation would remove the piles slowly to allow sediment to slough off at, or near, the mudline. Also, because 12" diameter piles occupy a small area of substrate that is often rearranged by river currents, any increase in turbidity would be small and short-term. Reclamation has determined that sediment suspension are likely low enough in concentration and short enough in duration to avoid effects on fish health, foraging, or migration. Therefore, the Proposed Action is not likely to adversely affect the Central Valley spring-run Chinook salmon, Central Valley steelhead, green sturgeon, winter-run Chinook salmon, delta smelt, and their designated habitat since pile removal impacts are expected to be discountable.

Pile Driving Each Station would require installation of no more than six steel piles. Installation of the steel piles would require in-water pile driving that could produce high-intensity sound and has the potential to harm or harass fish. Fish detect and respond to sound as cues to hunt for prey, avoid predators, and for social interaction. At high-intensity sound levels, the hearing capabilities of fish can become damaged or even cause death (Caltrans 2001), but further studies are needed (reviewed in Hastings and Popper 2005).

Environmental protective measures have been incorporated into the Proposed Action to avoid and or minimize potential impacts to special-status fish species and their habitat (See Table 1). The construction work window of August through October is designed to allow a reasonable construction period while avoiding and or minimizing impacts to peak migrations of listed anadromous fish and access to their designated critical habitat. Installation of steel piles would take less than an hour at each station and would occur during the dry and warmer months, when most species have already migrated up to their spawning grounds. Also, the piles would be installed using a vibratory pile diver which reduces generated underwater noise levels. Predicted noise levels (would follow NMFS's established thresholds 2012) from vibratory pile driving so as not to directly injure fish, but may temporarily disruption behavior (i.e. avoidance). For the reasons listed above, pile driving activities are not likely to adversely affect Central Valley spring-run Chinook salmon, Central Valley steelhead, green sturgeon, winter-run Chinook salmon, delta smelt, and their designated habitat based on discountable sound disturbances.

Reclamation submitted a request to NMFS to concur with its determination that the Proposed Action may affect, but is not likely to adversely affect listed salmonids, green sturgeon, and their respective critical habitat. Given the incorporation of avoidance and minimization measures into the Proposed Action, NMFS concurred with our determination on March 24, 2016 (See Appendix D).

Cumulative Impacts

Numerous activities continue to impact habitat for listed and proposed threatened and endangered species in the Delta. Habitat loss and degradation affecting both animals and plants continue as a result of urbanization, road and utility right-of-way management, flood control projects, climate change, grazing by livestock, and agricultural practices. Listed and proposed animal species are also affected by poisoning, increased predation associated with human development, and reduction of food sources. These ongoing impacts are expected to continue in the future. However, as a result of the small footprint and short construction period, the poor

quality of habitat at those locations, and the measure that would be implemented to protect special-status species, the Proposed Action will have very little cumulative contribution toward impacts to biological resources.

3.4 Global Climate Change

3.4.1 Affected Environment

Climate change refers to significant change in measures of climate (e.g., temperature, precipitation, or wind) lasting for decades or longer. Many environmental changes can contribute to climate change [changes in sun's intensity, changes in ocean circulation, deforestation, urbanization, burning fossil fuels, etc.] (EPA 2014a).

Gases that trap heat in the atmosphere are often called greenhouse gases. Some greenhouse gases, such as carbon dioxide (CO₂), occur naturally and are emitted to the atmosphere through natural processes and human activities. Other greenhouse gases (e.g., fluorinated gases) are created and emitted solely through human activities. The principal greenhouse gases that enter the atmosphere because of human activities are: CO₂, methane (CH₄), nitrous oxide, and fluorinated gasses (EPA 2014a).

During the past century humans have substantially added to the amount of greenhouse gases in the atmosphere by burning fossil fuels such as coal, natural gas, oil and gasoline to power our cars, factories, utilities and appliances. The added gases, primarily CO₂ and CH₄, are enhancing the natural greenhouse effect, and likely contributing to an increase in global average temperature and related climate changes. At present, there are uncertainties associated with the science of climate change (EPA 2014b).

Climate change has only recently been widely recognized as an imminent threat to the global climate, economy, and population. As a result, the national, state, and local climate change regulatory setting is complex and evolving.

In 2006, the State of California issued the California Global Warming Solutions Act of 2006, widely known as Assembly Bill 32, which requires California Air Resources Board (CARB) to develop and enforce regulations for the reporting and verification of statewide greenhouse gases emissions. CARB is further directed to set a greenhouse gases emission limit, based on 1990 levels, to be achieved by 2020.

In addition, the EPA has issued regulatory actions under the Clean Air Act as well as other statutory authorities to address climate change issues (EPA 2014c). In 2009, the EPA issued a rule (40 CFR Part 98) for mandatory reporting of greenhouse gases by large source emitters and suppliers that emit 25,000 metric tons or more of greenhouse gases [as CO₂ equivalents (CO_{2e}) per year] (EPA 2009). The rule is intended to collect accurate and timely emissions data to guide future policy decisions on climate change and has undergone and is still undergoing revisions (EPA 2014c).

3.4.2 Environmental Consequences

No Action

Under the No Action Alternative, greenhouse gases emission trends would be unaffected.

Proposed Action

Greenhouse gas emissions would be temporary and occur during construction. As shown in Table 6, annual construction and operational emissions of CO_{2e} are estimated to be 623 metric tons per year. Emissions would be temporary and occur only during construction. There are no reporting requirements for greenhouse gas emissions during construction.

Cumulative Impacts

Greenhouse gases emissions generated by the Proposed Action are expected to be extremely small. While any increase in greenhouse gases emissions would add to the global inventory of gases that would contribute to global climate change, the Proposed Action would result in potentially minimal to no increases in greenhouse gases emissions and a net increase in greenhouse gases emissions among the pool of greenhouse gases would not be detectable.

3.5 Water Resources

3.5.1 Affected Environment

The Delta is located at the confluence of the Sacramento and San Joaquin Rivers and covers approximately 750,000 acres through a series of islands interlocked with hundreds of miles of waterway. The Delta and its waterways are within the boundaries of Solano, Contra Costa, Sacramento, San Joaquin, Alameda and Yolo Counties and eventually converge and flow west into the San Francisco Bay and out to the Pacific Ocean (Figure 1). The Delta's waterways eventually converge and flow west into the San Francisco Bay and out to the Pacific Ocean. Many of the waterways follow natural courses while others have been constructed for specific purposes such as navigation, circulation, or to obtain materials for levee construction (California Department of Water Resources 2006). The Delta is the hub of the State's water distribution system. About two-thirds of all Californians and millions of acres of irrigated farmland rely on the Delta for water from the CVP and SWP.

As a water distribution system, the Delta not only serves the State and federal projects but also many agricultural and municipal water diverters surrounding and within the Delta itself. Delta water serves both urban and agricultural areas in the Bay area, the Silicon Valley, the San Joaquin Valley, the Central Coast, and Southern California.

The Proposed Action Area includes San Andreas and Staten Island Salinity Stations. The San Andreas Salinity Station is located along the San Joaquin River in Sacramento County, while the Staten Island Salinity Station is located along the Mokelumne River in San Joaquin County (Figure 2). Current data collected from both salinity stations includes temperature and electrical conductivity, and are transmitted on a real-time basis and posted on the CDEC website (<http://cdec.water.ca.gov>).

3.5.2 Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not reconstruct Staten Island and San Andreas Salinity Stations. Reclamation could lose a vital source of information for Delta decision making and compliance determination. Lack of data could lead to violations of Water Rights Decision 1641 water quality standards in the south Delta. A need to make otherwise unnecessary releases from New Melones to the detriment of CVP water contractor's supplies or requirements for more salt loading reductions by upstream dischargers. These potential effects are costly both in terms of dollars and in terms of water use.

Proposed Action

The majority of construction associated with the Proposed Action would be over water, and would include removing wooden piles and driving in new steel piles into the sediment. Erosion and debris associated with demolition and construction may enter the water. Sediment and debris entering the rivers systems could temporarily increase the turbidity of the water.

The Proposed Action would not result in significant impacts to water resources because Reclamation and the contractor would conduct the work in a manner to best avoid disturbances to soils or sediment by implementing best management practices (Table 1). Also, Reclamation and the contractor would comply with all terms and conditions associated with the permits listed in Section 2.2.1. No obstructions for navigation would occur because the construction activities allow room for vessels to pass.

Cumulative Impacts

The Proposed Action activities has the potential to cause increased turbidity temporarily, however best management practices and other conservation measures have been incorporated into the Proposed Action to protect water resources. In addition, repairing the salinity stations would allow Reclamation to continue to safely monitor water quality in the Delta. Therefore, the Proposed Action would not contribute to cumulative impacts to water resources.

Section 4 Consultation and Coordination

4.1 Public Review Period

Reclamation provides the public with an opportunity to comment on the Draft FONSI and Draft EA during a 30-day public review period. No comments were received.

4.2 List of Agencies and Persons Consulted

Reclamation has consulted with the following agencies regarding the Proposed Action:

- Central Valley Flood Protection Board
- Central Valley Regional Water Quality Control Board
- National Marine Fisheries Service
- United States Fish and Wildlife Service
- U.S. Army Corps of Engineers

Reclamation has also coordinated with Reclamation District 38 and Brannan-Andrus Levee Maintenance District.

4.3 Clean Water Act (33 U.S.C. § 1251 et seq.)

Section 301 of the Clean Water Act (33 U.S.C. § 1311) prohibits the discharge of any pollutants into waters of the United States, except as allowed by permit issued pursuant to various sections of the Clean Water Act.

Section 401

Section 401 of the Clean Water Act (33 U.S.C. § 1341) requires any applicant for an individual U.S. Army Corps of Engineers dredge and fill discharge permit (see Section 404, below) to first obtain certification from the state that the activity associated with dredging or filling will comply with applicable state effluent and water quality standards. This certification must be approved or waived prior to the issuance of a permit for dredging and filling.

Reclamation is currently applying for a Section 401 Water Quality Certification from the California Regional Water Quality Control Board. Reclamation's approval of the Proposed Action is dependent on our receiving the 401 certification.

Section 404

Section 404 of the Clean Water Act (33 U.S.C. § 1344) authorizes the U.S. Army Corps of Engineers to issue permits to regulate the discharge of “dredged or fill materials into waters of the United States”.

The Proposed Action involves vibratory pile driving activities in navigable waters of the United States, therefore, Reclamation requested authorization for a Nationwide Permit Number 3, Maintenance. On December 14, 2016, the U.S. Army Corps of Engineers issued Reclamation a Section 404 Permit authorizing the Proposed Action.

4.4 Endangered Species Act (16 U.S.C. § 1531 et seq.)

Section 7 of the ESA requires Federal agencies, in consultation with the Secretary of the Interior and/or Commerce, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species.

Reclamation consulted with the USFWS on the Proposed Action and received concurrence on December 8, 2016 (Appendix C). Also, Reclamation consulted with NMFS for potential impacts to listed anadromous species and received concurrence on March 24, 2016. The approval of replacing the San Andreas and Staten Island Salinity Stations would be subject to the terms and conditions as specified in both USFWS’ and NMFS’ concurrence letters.

4.5 Rivers and Harbors Act of 1899 (33 U.S.C. § 403), as Amended

Section 10

Under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403), the U.S. Army Corps of Engineers regulates work in, over, or under, excavation of material from, or deposition of material into, navigable waters. Navigable waters of the United States are defined as those waters subject to the ebb and flow of the tide shoreward to the mean high-water mark, and those that are currently used, have been used in the past, or may be susceptible to use, to transport interstate or foreign commerce.

The Proposed Action of removing and replacing the pilings below the Mean High Tide Line of a navigable waterway is an activity requiring a Section 10 permit, therefore Reclamation requested authorization from the U.S. Army Corps of Engineers. On December 14, 2016, the U.S. Army Corps of Engineers issued Reclamation a Section 10 Permit authorizing the Proposed Action.

Section 5 Preparers and Reviewers

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