

RECLAMATION

Managing Water in the West

Final Environmental Assessment

Santa Clara Conduit Maintenance and Repairs

EA-10-050



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

February 2011

Mission Statements

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

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

Table of Contents

Section 1	Purpose and Need for Action	1
1.1	Background	1
1.2	Purpose and Need	1
1.3	Scope	2
1.4	Potential Issues	2
Section 2	Alternatives Including the Proposed Action	5
2.1	No Action Alternative	5
2.2	Proposed Action	5
Section 3	Affected Environment and Environmental Consequences	19
3.1	Surface Water Resources	19
3.1.1	Affected Environment	19
3.1.2	Environmental Consequences	20
3.1.2.1	No Action	20
3.1.2.2	Proposed Action	20
3.1.2.3	Cumulative Impacts	21
3.2	Groundwater Resources	21
3.2.1	Affected Environment	21
3.2.2	Environmental Consequences	22
3.2.2.1	No Action	22
3.2.2.2	Proposed Action	22
3.2.2.3	Cumulative Effects	22
3.3	Geology	22
3.3.1	Affected Environment	22
3.3.2	Environmental Consequences	24
3.3.2.1	No Action	24
3.3.2.2	Proposed Action	24
3.3.2.3	Cumulative Effects	25
3.4	Land Use	25
3.4.1	Affected Environment	25
3.4.2	Environmental Consequences	25
3.4.2.1	No Action	25
3.4.2.2	Proposed Action	25
3.4.2.3	Cumulative Impacts	25
3.5	Biological Resources	25
3.5.1	Affected Environment	25
	Critical Habitat Designations	30
	Non-federally listed Species	30
3.5.2	Environmental Consequences	30
3.5.2.1	No Action	30
3.5.2.2	Proposed Action	30
3.5.2.3	Cumulative Impacts	32
3.6	Cultural Resources	33
3.6.1	Affected Environment	33
3.6.2	Environmental Consequences	33

3.6.2.1	No Action.....	33
3.6.2.2	Proposed Action.....	33
3.6.2.3	Cumulative Impacts	34
3.7	Indian Trust Assets	34
3.7.1	Affected Environment.....	34
3.7.2	Environmental Consequences	34
3.7.2.1	No Action.....	34
3.7.2.2	Proposed Action.....	34
3.7.2.3	Cumulative Impacts	34
3.8	Environmental Justice.....	35
3.8.1	Affected Environment.....	35
3.8.2	Environmental Consequences	35
3.8.2.1	No Action.....	35
3.8.2.2	Proposed Action.....	35
3.8.2.3	Cumulative Impacts	35
3.9	Socioeconomic Resources	36
3.9.1	Affected Environment.....	36
3.9.2	Environmental Consequences	36
3.9.2.1	No Action.....	36
3.9.2.2	Proposed Action.....	36
3.9.2.3	Cumulative Impacts	37
3.10	Air Quality	37
3.10.1	Affected Environment	38
3.10.2	Environmental Consequences.....	38
3.10.2.1	No Action.....	38
3.10.2.2	Proposed Action.....	38
3.10.2.3	Cumulative Impacts	38
3.11	Global Climate	39
3.11.1	Affected Environment	39
3.11.2	Environmental Consequences.....	40
3.11.2.1	No Action.....	40
3.11.2.2	Proposed Action.....	40
3.11.2.3	Cumulative Impacts	40
Section 4	Public Review Period.....	41
Section 5	Consultation and Coordination	41
5.1	Fish and Wildlife Coordination Act (16 USC § 661 et seq.).....	41
5.2	Endangered Species Act (16 USC § 1531 et seq.).....	41
5.3	National Historic Preservation Act (16 USC § 470 et seq.)	41
5.4	Indian Trust Assets	42
5.5	Executive Order 13007 – Indian Sacred Sites	42
5.6	Migratory Bird Treaty Act (16 USC § 703 et seq.)	43
5.7	Executive Order 11988 – Floodplain Management and Executive Order 11990 – Protection of Wetlands.....	43
5.8	Clean Air Act (42 USC § 7506 (C))	43
5.9	Clean Water Act (16 USC § 703 et seq.).....	44
Section 6	List of Preparers and Reviewers	44

Section 7	References.....	45
------------------	------------------------	-----------

Appendices

Appendix A	Summary of SCVWD BMPs and Mitigation Measures
Appendix B	Dewatering Table
Appendix C	National Marine Fisheries Concurrence Memo
Appendix D	U.S. Fish and Wildlife Service Biological Opinion
Appendix E	Reclamation Documentation

List of Tables and Figures

Figure 1-1	Location Map	3
Figure 2-1	Pipeline Draining	7
Table 2-1	Staging.....	13
Table 3-1	Federally Listed Species and Critical Habitat	26
Table 3-2	Emission Estimates.....	40

List of Acronyms and Abbreviations

APE	Area of Potential Effect
BAAQMD	San Francisco Bay Area Air Quality Management District
BMPs	Best Management Practices
CAA	Clean Air Act
cfs	cubic feet per second
CFR	Code of Federal Regulations
CO ₂	Carbon dioxide
CVP	Central Valley Project
CWA	Clean Water Act
DPS	Distinct Population Segment
EA	Environmental Assessment
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
FWCA	Fish and Wildlife Coordination Act
GHG	greenhouse gases
ITA	Indian Trust Assets
MBUAPCD	Monterey Bay Unified Air Pollution Control District
National Register	National Register of Historic Places
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
O ₃	ozone
OPAU	District Operations Planning and Analysis Unit
PM _{2.5}	particulate matter under 2.5 microns in diameter
PM ₁₀	particulate matter under 10 microns in diameter
PMP	Pipeline Maintenance Program
PMP EA	<i>Pipeline Maintenance Program for the Pacheco and Santa Clara Conduits and Tunnels, Santa Clara Valley Water District, Draft EA-06-110</i>
PMP EIR	<i>Santa Clara Valley Water District Pipeline Maintenance Program Environmental Impact Report (#2005101047)</i>
Reclamation	Bureau of Reclamation
SBA	South Bay Aqueduct
SCVWD	Santa Clara Valley Water District
Service	U.S. Fish and Wildlife Service
SIP	State Implementation Plan

Section 1 Purpose and Need for Action

1.1 Background

In 2006, Santa Clara Valley Water District (SCVWD) proposed to adopt and implement a Pipeline Maintenance Program (PMP) which defined activities associated with the maintenance and repair of federal and non-federal water supply conveyance systems throughout their jurisdiction. In compliance with the California Environmental Quality Act, SCVWD prepared the *Santa Clara Valley Water District Pipeline Maintenance Program Environmental Impact Report* (SCH#2005101047) [PMP EIR] to analyze the potential environmental impacts of implementing the PMP (SCVWD 2007). A notice of determination was issued by SCVWD on November 13, 2007.

The Bureau of Reclamation (Reclamation) prepared an Environmental Assessment (EA) and Biological Assessment for the *Pipeline Maintenance Program for the Pacheco and Santa Clara Conduits and Tunnels, Santa Clara Valley Water District*, Draft EA-06-110 (PMP EA) to address actions of the PMP related to the Pacheco and Santa Clara Conduits which are owned by Reclamation and maintained by SCVWD (Reclamation 2006). The Draft PMP EA was posted for a 30-day public comment period which closed November 9, 2007. No comments were received. Finalization of the PMP EA is pending a Biological Opinion from U.S. Fish and Wildlife Service (Service).

In 2008, Reclamation prepared EA-08-78, *Santa Clara Conduit Shutdown, Inspection, and Repair Santa Clara Valley Water District*, to address maintenance of a portion of the Santa Clara Conduit during 2009 (Reclamation 2008). A detailed description of the Santa Clara Conduit facilities was described in the EA-08-78, which is incorporated by reference, and not repeated here. A separate Biological Assessment was submitted to Service for EA-08-78 and a Biological Opinion was received January 28, 2009 (Service 2009).

1.2 Purpose and Need

The Biological Opinion is still pending for the PMP EA and portions of the Santa Clara Conduit still need to be inspected for routine and preventative maintenance. Delay in inspections pending the finalization of the PMP EA could lead to system failure in areas where repairs need to be made. This maintenance is needed to meet the SCVWD's obligations of reliable water service and delivery.

The following are the objectives of the Proposed Action:

- Drain the Santa Clara Conduit
- Provide visual and electromagnetic inspection to determine the current condition and stability of the pipeline.
- Determine if other, more significant internal repairs or pipeline replacements are needed.

- Replace seals, bolts, nuts, gaskets, blow-off valves, replace air release valves, and associated piping.

1.3 Scope

Because SCVWD has prepared the PMP EIR which covers the maintenance of all facilities (federal and non-federal) that supply water to and within the SCVWD, this EA is limited to the environmental analysis of maintenance actions related to the Santa Clara Conduit for 2011 only.

The Proposed Action covers a length of approximately 10.6 miles (not including the most southerly dewatering point in San Benito County). The Santa Clara Conduit spans the Gilroy, Gilroy Hot Springs, Chittenden, and San Felipe topographic quadrangles (Figure 1-1).

1.4 Potential Issues

This EA will analyze the affected environment of the Proposed Action and No Action Alternative in order to determine the potential impacts and cumulative effects to the following resources:

- Surface Water Resources
- Groundwater Resources
- Geology
- Land Use
- Biological Resources
- Cultural Resources
- Indian Trusts Assets (ITA)
- Environmental Justice
- Socioeconomic Resources
- Air Quality
- Global Climate

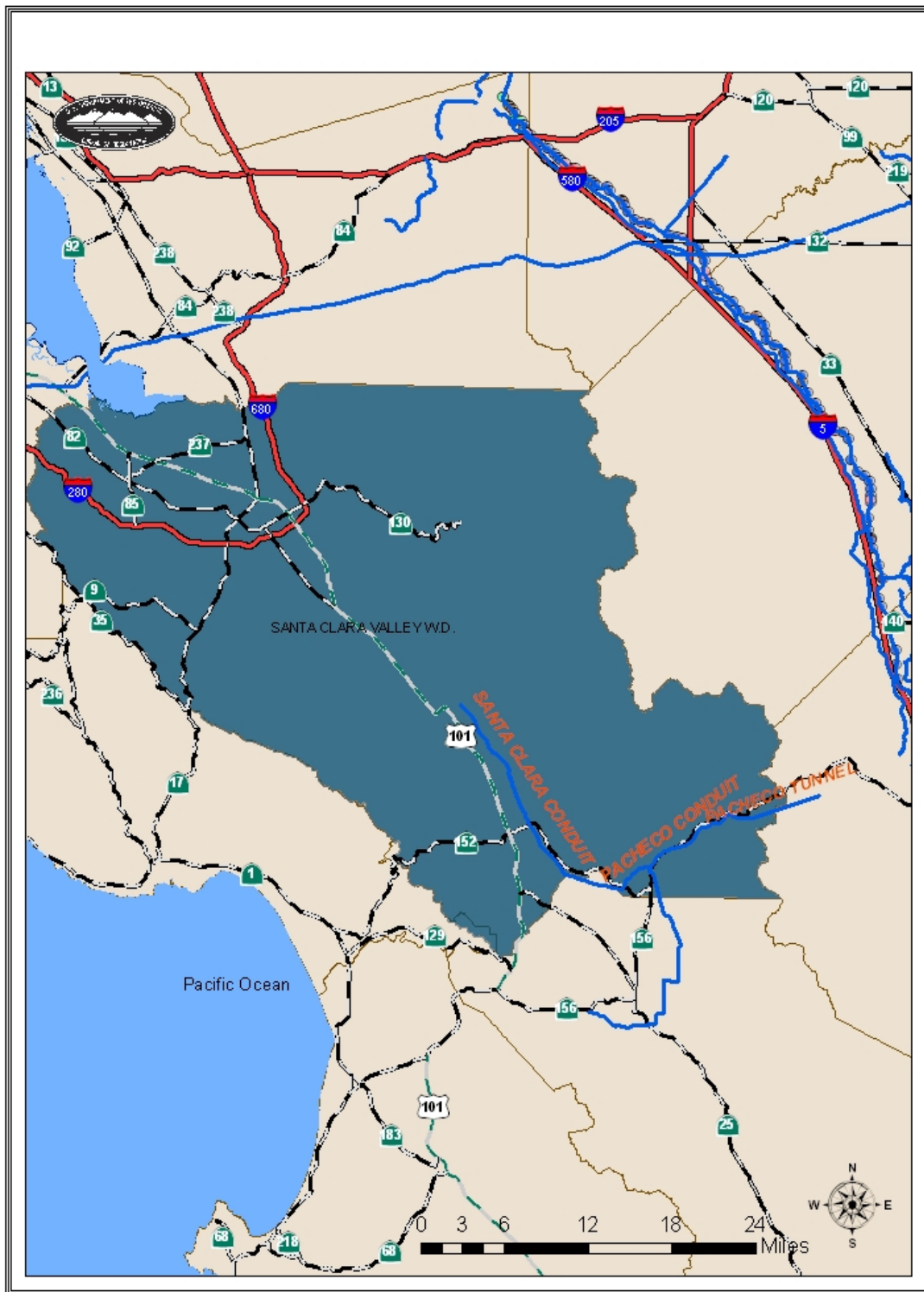


Figure 1-1 Location Map

THIS PAGE LEFT INTENTIONALLY BLANK

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

Reclamation would not approve of the draining, inspection, repair and refilling of the Santa Clara Conduit. The No Action Alternative would result in the delay in the draining, inspecting, and repair of the Santa Clara Conduit until the PMP is approved. There is a potential that the Santa Clara Conduit could degrade and the system would be compromised.

2.2 Proposed Action

SCVWD, on behalf of Reclamation, proposes to drain, inspect, repair, and refill approximately 10.6 miles of the Santa Clara Conduit, a Reclamation-owned facility, in February 2011. Best management practices (BMPs) from the PMP EIR and Draft PMP EA-06-110 are included as part of the Proposed Action (see Appendix A).

The Proposed Action includes:

- Closing valves at the Bifurcation Structure and at the Coyote Pump Station to isolate the pipeline.
- Draining the water in the pipeline at the turnouts, blowoffs, and pump-out facilities. Internal pump outs would also be required to remove water from low points in the pipeline.
- Conducting repair and maintenance work on pipeline appurtenances, including vacuum breakers, air/vacuum release valves, blow-off valves, blind flanges, turnout valves, and bypass valves on the sectionalizing valves.
- Inspecting the pipeline and determining the areas in need of repair.
- Performing minor internal pipeline repairs as needed. Any major internal pipeline repairs would be completed at a later time.
- Verifying completion of the Repair and Maintenance Work.
- Refilling the pipeline.
- Restoring minor damage to landscaping, property fixtures (i.e., fences) and roads.

The initial pipeline draining (see Figure 2-1) of the Santa Clara Conduit would commence in early 2011, after the Department of Water Resources completes a flowmeter installation on the South Bay Aqueduct (SBA). The sequencing of these two projects is important, as the SBA represents the other means by which delta water is imported in to the county.

Draining would take approximately three weeks followed by five weeks of maintenance and inspection. Another three days are planned for refilling.

Initial Pipeline Isolation

Before any pipeline maintenance or inspection can begin, the Santa Clara Conduit would be isolated and raw water deliveries halted. To isolate the pipeline, SCVWD staff would close the Santa Clara Conduit Line Valve at the Bifurcation Structure. Thus, this isolates the pipeline from the San Luis Reservoir water supply. The San Luis Reservoir would continue to remain active and deliver water to San Benito County. Shutting the line valve at the Coyote Pump Station would isolate the other end of the pipeline.

There would be no interruptions in water supply to SCVWD's retailers. In addition to the SBA, Calero and Anderson Reservoirs would be available to supply water while the Santa Clara Conduit is not operational.

Pipeline Draining

The pipeline draining plan incorporates one polyjet, two turnouts, four blow-off/pump-outs (including one site outside of the Proposed Action area), and twelve pump-out facilities to dewater the pipeline. Internal pump-outs are also needed to remove standing water from inside the pipeline.

After the SCVWD has isolated the pipeline, the draining activities can begin. The majority of water would be discharged at the Calaveras Fault Crossing Inlet into Pacheco Creek at a rate of 5 cubic feet per second (cfs). This site is outside the active work zone (i.e. the area slated for rehabilitation); however, it is the lowest point on the pipeline and is the best engineered dewatering location. This location has been used as a dewatering point many times this past decade, without adverse impacts to the environment.

On the segment of the Santa Clara Conduit between the Coyote Pump Station and the Sectionalizing Valve #1, the three blow-off/pump-out locations that would discharge significant volumes are:

- Coyote Pump Station Polyjet at 20 cfs into Coyote Creek
- Main Ave Turnout at 4 cfs into the Main Avenue Ponds
- San Pedro Turnout at 3 cfs into the San Pedro Percolation Ponds.

The above referenced discharges are more normal operation oriented than project related. The district manages the groundwater basin by routinely directing water to percolation ponds and to creeks for recharge. Gravity flow at the four above referenced locations is the first step in

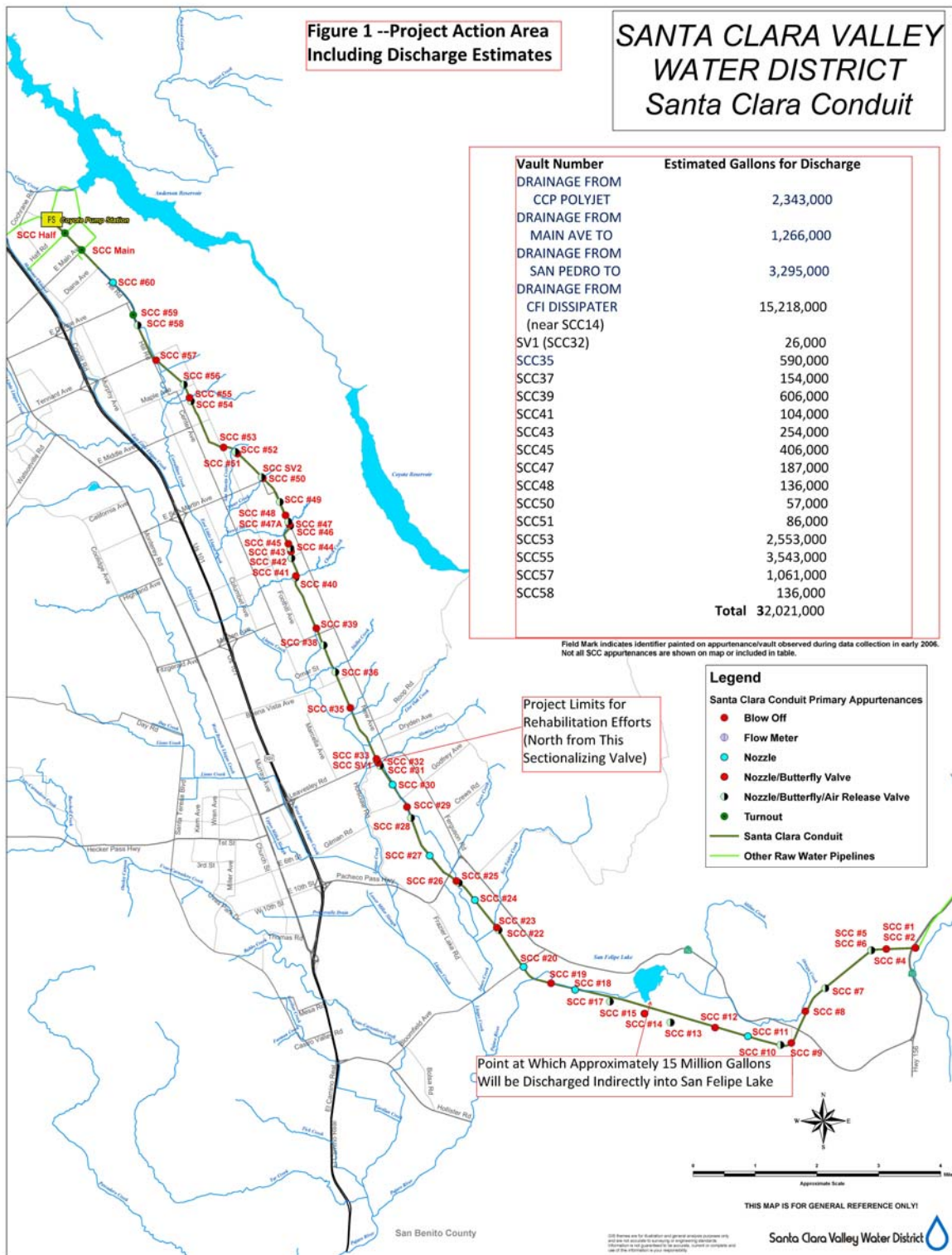


Figure 2-1 Pipeline Draining

draining the conduit, and represents a majority of the water that would be released. During the draining, the air/vacuum release valves open to allow air to enter into the pipeline.

Depending on the regional water supply situation, the elevation of the groundwater, and the weather, the Main Ave Turnout may not be available for use. If so, there would not be any discharges at the Main Ave Turnout and the water would be discharged at the San Pedro Turnout.

At the blowoff and pump-outs, a discharge rate of 2 cfs is necessary for the timely draining of the pipeline. Pump-out locations require a direct connection of the pump, powered by an on-site generator, to a fitting on the pipeline appurtenance. Layflat hose conveys the water from the pipeline, thru the pump, into the receiving creek. When the water level in the pipe is low, the vault lids shall be removed and a suction hose from the pump would be lowered down inside the pipeline to reach the targeted water. Once again, the remaining untreated water in the pipeline is pumped out to local surface waterways. Discharges are planned to occur simultaneously from two vault locations.

There are several vault locations that are planned for an internal pump-out. If the low point in the pipeline with the standing water cannot be easily reached from above, entrance into the pipeline may be necessary. For this case, with confined space rescue support on-site, a SCVWD staff member or a SCVWD Contractor would carry one end of the suction pipe to the low point in the pipeline with standing water. The other end of the suction pipe is connected to a pump outside of the pipe. Layflat hose conveys the water from inside the pipe to the nearest receiving creek.

Complete drainage of the pipeline is necessary to enter and inspect the pipeline for defects that need repair. After the drainage is completed, the total volume of removed water is approximately 98.3 acre-feet. This total includes the referenced “normal operation” component of the dewatering.

The estimated volumes and rates of the discharged water at each of the draining sites are shown on the dewatering table (Appendix B). In that all of water is from an unaltered source, no pre-treatment (e.g. dechlorination) is necessary. Fine mesh screens would filter the water prior to discharge in order to minimize the chances of importation of an exotic species.

Maintenance, Repairs, and Internal Inspections

Pipeline maintenance would be conducted according to the SCVWD standards. These plans would be prepared by the SCVWD’s Utility Programs Support Unit. The pipeline maintenance activities would be done primarily inside the concrete vaults. Blow-off and pump-out valves, vacuum breakers, air/vacuum release valves, ball valves, blind flanges, flowmeters, and other piping would be replaced or repaired at approximately 39 vault locations during the pipeline outage.

Representative vaults on the pipeline would be tested for lead in its existing paint and the maintenance contractor would take precautions if significant amounts of lead are found in the paint.

Pipeline inspection and repairs would be conducted according to the SCVWD standards and project drawings. An electromagnetic inspection consultant with SCVWD personnel would walk and inspect the Santa Clara Conduit from Coyote Pump Station to the Sectionalizing Valve#1. A confined space rescue contractor and radio communications contractor would provide additional support during the inspection and repairs. Fans would be on-site to provide adequate ventilation for the inspection team. The inspection is expected to take approximately one week.

The findings from the inspection would be used to determine the condition of the pipeline and the repair strategy/plan. Minor internal repairs such as welding steel plates and cement mortar patching would be performed by the pipeline maintenance contractor. Internal repairs may also include installation of rubber-type Weko Seals where appropriate. A Weko seal is a circular rubber ring that is the same diameter as the conduit and is held in place by an expandable metal ring and pressurized against the interior diameter of the pipe. Some in-pipe repair may also involve welding of pipe joints as needed. The Contractor would be responsible for adding an on-site generator and ventilation if welding inside the pipe is needed and providing support during the internal inspection.

If the internal inspection suggests a need for major repairs, further evaluation and corrective measures would occur at a later time and would require additional analysis.

Refilling

Refilling the conduit after maintenance, inspection, and repair would be in accordance with standard SCVWD procedures for returning pipelines back into service. The SCVWD and Contractor would seal and bolt up all pipeline openings upon refilling the pipeline. SCVWD staff would be on-site to monitor the refilling process. Any pipeline appurtenances found to be leaking and/or faulty under working pressure would be repaired immediately.

Equipment

Major equipment to be used would include:

- fans for ventilation of the pipeline while the inspection team enters the pipeline;
- submersible and centrifugal pumps for emptying the pipeline of water;
- generators for supplying power to the pumps and fans;
- welding equipment for installing pipeline appurtenances and making pipeline repairs;
- flat bed truck for transporting equipment and materials;
- cargo vans, utility trucks, and pickup trucks for general repair work;
- cranes mounted on the back of maintenance trucks may be needed to remove vault lids, replace piping, and place pumps;

The Contractor would deliver blow-off valves, bolts, nuts, welding materials and all other major equipment and tools to the Proposed Action site as needed.

Schedule

About eight weeks are planned for the Proposed Action from the valve isolation to resuming pipeline deliveries and service. The Proposed Action would begin in early 2011. Isolation and draining of the pipeline is expected to take three weeks. Maintenance activities on pipeline

appurtenances, internal pipeline inspection, and repairs are anticipated to take approximately five weeks. Refilling is expected to last three days.

Workforce

Up to 35 SCVWD and contracted staff would be required for the Proposed Action.

Staging and Access

Vehicles shall access work areas via local highways, streets, and existing access roads (where possible). Typically, access routes would be limited to a width of 14 feet or less. There are several vaults located in the middle of farms. The SCVWD would coordinate with the farm owners regarding access through their fields to the vaults.

At some work areas, existing fences may need to be temporarily removed to permit access. Interim gates and/or fencing would be installed at some locations to prevent unauthorized entry to the work area. The interim gates would be removed after Proposed Action completion. If the access roads and terrain become unstable due to wet weather conditions, composite mats may be set and used to provide a safe, continuous, solid surface for vehicles on-site. The composite mats are temporary and would be removed at the end of the Proposed Action. Staging areas shall consist of temporary areas, utilized by the SCVWD and/or contracted staff, around the approximately 39 vault locations and the outfalls in the receiving creeks. It is estimated the typical staging and work area is about forty feet by forty feet. The anticipated work includes all activities related to the pipeline draining, repair and maintenance, inspection, internal repairs, and refilling. For these activities, the staging includes the temporary storage of equipment, materials, supplies, or other incidentals.

Prior to the start of the Proposed Action, SCVWD staff may need to perform minor site and road preparation work to gain access and repair vulnerable areas along the pipeline. After the pipeline is refilled and back in service, SCVWD and contracted staff would complete any site restoration and road grading work as needed.

The estimated disrupted acreage resulting from Proposed Action related access and staging is summarized in Table 2-1.

Mitigation Measures

Before the SCVWD begins draining, staff would deploy BMPs, mitigation measures and minimization measures for the discharge of raw water into the creeks (see Appendix A). These practices/measures would be in accordance with various documents including, but not limited to, SCVWD's 10-year PMP EIR (adopted November 2007), Service Biological Opinion (file number 81420-2009-F-0245), and National Marine Fisheries (NMFS) "not likely to adversely affect" letter (file number 2007/05948) that addresses the SCVWD's 10-year program. The referenced opinion from the Service is not specific to the currently Proposed Action, but does address a different portion of the same pipeline and includes some of the same dewatering locations.

Baseline readings would be established for turbidity, temperature, and other water quality parameters. These parameters will be monitored and tracked during the period of the discharge to confirm they are within the targeted range. The frequency of the monitoring will be

conducted according to the PMP EIR. If the parameters are outside of the recommended range, adjustments to the discharge would be made such as implementing more BMPs (as can be found in the PMP EIR), decreasing the flow rate, or suspending the discharge. Similar monitoring procedures were used on previous pipeline rehabilitation projects on the San Felipe Division.

The applicant proposes to minimize and offset effects to wildlife including, but not limited to, the California California tiger salamander and California California red-legged frog by implementing the following conservation measures.

1. Vehicles shall access the work areas via local streets, highways, and the existing access roads, except for vault 16, in which the access route will be clearly demarcated by a Service-approved biologist. The routes will be limited to a width of 15 feet or less. Personnel will be required to adhere to marked paths. No other off-road travel will be allowed. If any burrows potentially occupied by California California red-legged frogs or California California tiger salamanders cannot be avoided, the Service-approved biologist will excavate the burrow and move any animal outside the work area.
2. Unpaved roadway traffic speed will be limited to 10 miles per hour.
3. An individual trained in monitoring water levels will observe flows in receiving waters. If it appears that discharges are approaching channel capacity, discharge rates will be reduced. If erosion is evident, flow rates will be reduced. If erosion continues to occur, discharges will be terminated until appropriate erosion control measures are installed. Monitoring will be conducted prior to the start of discharge and regularly during the discharge, frequency dependent on the nature of the discharge and the erosion in the area.
4. Woody material (including live leaning trees, dead trees, tree trunks, large limbs, and stumps) will be retained unless it is threatening a structure or impedes reasonable access, in which case it will be retained on site but moved to a less threatening position.
5. No fueling, repair, cleaning, maintenance, or vehicle washing shall be performed at job sites or within 65 feet of a wetland or riparian area.
6. All chemicals stored in staging areas will be stored in secondary containment with no less than 110% capacity. Proper storage and security will be implemented to ensure that chemicals are not spilled or vandalized during non-working hours.
7. No firearms shall be allowed on-site, except for Federal, State, local law enforcement, or security guards.
8. No pets will be allowed at the Proposed Action site.
9. During pipeline draining, wedge wire screens will be placed over the discharge openings of gravity drain gates and on the suction and discharge piping of any submersible pumps used for pipeline discharge to minimize discharge of non-native species.

**Santa Clara Conduit Reach 3 Maintenance Project
Staging and Access Area Estimates**

VAULT #	STAGING AREA (ACRES)	EXISTING DIRT ACCESS ROAD LENGTH (MILES)	ACCESS THROUGH FIELDS (MILES)	ACCESS THROUGH FIELDS (ACRES)	Notes
SV1	0.037	Off Shoulder of Leavesley Rd.	None	NA	
SCC33	0.037	Off Shoulder of Leavesley Rd.	None	NA	
SCC34	0.037	0.04	0.05	0.085	
SCC35	0.037	0.25	0.01	0.017	
SCC36	0.037	Paved & Gravel Road	0.02	0.034	
SCC37	0.037	Paved & Gravel Road	0.04	0.068	
SCC38	0.037	Off Shoulder of Guibal Ave.	None	NA	
SCC39	0.037	Off Shoulder of Guibal Ave.	None	NA	
SCC40	0.037	Residential Home	0.04	0.034	
SCC41	0.037	Residential Home	0.07	0.085	
SCC42	0.037	Off Shoulder of Wilder Ct.	None	NA	
SCC43	0.037	Residential Home	0.11	0.187	
SCC44	0.037	Residential Home	0.06	0.102	
SCC45	0.037	Residential Home	0.13	0.221	
SCC46	0.037	Off Shoulder of New Ave.	None	NA	
SCC47	0.037	Off Shoulder of New Ave.	None	NA	
SCC47A	0.037	Off Shoulder of New Ave.	None	NA	
SCC48	0.037	Off Shoulder of New Ave.	None	NA	

**Santa Clara Conduit Reach 3 Maintenance Project
Staging and Access Area Estimates**

SCC49	0.037	Off Shoulder of New Ave.	None	NA	
SCC50	0.037	Gravel Road	0.03	0.051	Coyote Lake Park
SV2	0.037	Gravel Road	None	NA	Coyote Lake Park
SCC51	0.037	Paved Road	0.01	0.017	Coyote Lake Park
SCC52	0.037	Paved Road	0.05	0.085	Coyote Lake Park
SCC53	0.037	Gravel Road	None	NA	Coyote Lake Park
SCC54	0.037	0.13	0.01	0.017	
SCC55	0.037	0.19	None	NA	
SCC56	0.037	0.08	0.05	0.085	
SCC57	0.037	0.09	None	NA	
SCC58	0.037	Off Shoulder of Half Rd.	None	NA	
San Pedro G.V.	0.037	Paved Road	None	NA	
San Pedro F.M. & T.O.	0.037	Paved Road	None	NA	San Pedro Percolation Ponds
SCC60	0.037	Off Shoulder of Hill Rd.	None	NA	
Main T.O.	0.037	Off Shoulder of Main Ave.	None	NA	
Half T.O.	0.037	Off Shoulder of Half Rd.	None	NA	
SCC61	0.037	Off Shoulder of Road	None	NA	
Coyote P.S.	0.037	Paved Road in Coyote P.S.	None	NA	Coyote Pump Station

Table Notes:

- 'Staging Area Acreage' at each vault assumes a conservative forty feet by forty feet staging, equipment and work area regardless of activities.
- 'Existing Dirt Access Road Length Mileage' at each vault was measured along the access routes as indicated on the previously submitted orthographic maps. Distances were derived via GIS software.
- 'Access Through Fields Acreage' at each vault assumes a fourteen (14) foot wide path along the access routes as indicated on the previously submitted orthographic maps. Distances were derived via GIS software.
- Note that access route mileage and acreage is not directly sum-able due to redundancies that occur in accessing multiple vaults via various portions of the same route.

Table 2-1 Staging

10. A survey for California red-legged frog and California tiger salamander would be conducted in the receiving water body by a Service-approved biologist one week prior to water release. If a California red-legged frog or California tiger salamander or their larvae are not found within 500 feet upstream or downstream of the release point, absence will be re-verified within 24 hours of the commencement of release. Release can commence if no adults, eggs, or larvae are found 500 feet upstream or downstream of the release point during the second survey. If adults, eggs, or larvae are found within 100 feet downstream of a release point, the discharge point will not be utilized. If found within 200-500 feet of the release point, velocity reduction, accomplished by either slowing release, decreasing release volume, and/or applying dissipation, will be utilized to minimize affects to California red-legged frogs and California tiger salamander.
11. Access and staging in areas with no pre-established areas will be surveyed to avoid serpentine areas and special status plants. A 100-foot buffer zone would be temporarily marked for avoidance. Upon Proposed Action completion, all temporary markers would be removed and properly disposed of.
12. Forty-eight hours prior to the start of construction activities, the site will be surveyed by a Service-approved biologist for California red-legged frogs, California tiger salamanders, San Joaquin San Joaquin kit fox, and least Bell's vireo. If any life stage of these animals is observed, the Service-approved biologist will immediately be notified and will follow protocol outlined in Measure 14.
13. Prior to the start of construction activities, a Service-approved biologist will conduct a training session for all construction personnel. Training will include a description of California red-legged frogs, California tiger salamander, San Joaquin kit fox, and least Bell's vireo and their habitats as well as proper procedures for staff if any individuals are detected within the Proposed Action area. Photographs of California red-legged frogs and San Joaquin kit foxes will be distributed to all workers and contractors as a part of this training.
14. The Service-approved biologist will survey for California tiger salamander, California red-legged frog, and San Joaquin kit fox morning before the start of construction. If a California tiger salamander, California red-legged frog, or San Joaquin kit fox, or any animal that construction personnel believes may be one of these species, is encountered during Proposed Action construction, the following protocol shall be followed:
 - i. All work that could result in direct injury, disturbance, or harassment of the individual animal shall immediately cease.
 - ii. The foreman and on-site biologist shall be immediately notified.
 - iii. The on-site biologist shall immediately notify the Service via telephone or electronic mail when a California tiger salamander, whipsnake, California red-legged frog, or San Joaquin kit fox is encountered that may be in harm's way.

- a. The on-site biologist shall move the California tiger salamander or California red-legged frog to a safe nearby location and monitor it until he/she determines that the animal(s) are not imperiled by predators, or other dangers. A San Joaquin kit fox encountered on the site would be allowed to leave the site on its own. In the case of trapped animals (e.g. in a ditch or trench), escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the Service should be contacted for advice.
 - b. If at any time a California tiger salamander or California red-legged frog is discovered in the construction area by the on-site biologist or anyone else (including during pre-construction surveys), the on-site biologist shall move the animal to a safe location outside the exclusion barrier in an area that will remain undisturbed throughout the Proposed Action. If a San Joaquin kit fox is discovered in the construction area, it will be allowed to leave the site on its own. The biologist will monitor any translocated animal until it is determined that it is not imperiled by predators or other dangers. California tiger salamanders, whipsnakes, and California red-legged frogs will be translocated to appropriate habitat for their life cycle. California tiger salamanders found in burrows will be translocated to burrows, not a pond or creek.
15. All litter and construction debris will be disposed of offsite in accordance with State and local regulations. All trash and debris within the work area will be placed in containers with secure lids before the end of each work day in order reduce the likelihood of predators being attracted to the site by discarded food wrappers and other rubbish that may be left on-site. If containers meeting these criteria are not available, all rubbish will be removed from the Proposed Action site at the end of each work day.
16. The introduction and/or spread of invasive animal and plant species will be avoided to the maximum extent practicable.
17. Animal exclusion fencing will be erected and maintained around all construction areas. Installation of the fence will be performed under the supervision of a Service-approved biologist. Fencing will be made of reinforced plastic or plywood and will be buried a minimum of six inches into the ground. Animal exclusion fencing will be checked once per week by construction personnel trained by a Service-approved biologist to identify weaknesses and all compromised portions will be repaired and/or replaced immediately. No plastic netting or monofilament shall be used at the site because California red-legged frogs, California tiger salamanders, and other species may become entangled or trapped in it.
18. Tightly woven fiber netting or similar material shall be used for erosion control or other purposes at the Proposed Action area to ensure that the California red-legged frog and California tiger salamander do not get trapped. This limitation will be communicated to the contractor through use of Special Provisions included in the bid solicitation package.

19. Because California tiger salamanders and California red-legged frogs may take refuge in cavity-like and den-like structures such as pipes and may enter stored pipes and become trapped, all construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods will be either securely capped prior to storage or thoroughly inspected by the on-site biologist and/or the construction foreman/manager for these animals before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a California tiger salamander or California red-legged frog is discovered inside a pipe by the on-site biologist or anyone else, the protocol outlined in conservation Measure 14 will be followed and the Service-approved biologist shall move the animal to a safe nearby location (or, in the case of a San Joaquin kit fox, allow it to leave on its own) and monitor it until it is determined that it is not imperiled by predators or other dangers.

The Service issued a non-jeopardy Biological Opinion (81420-2010-F-1010) for the Proposed Action to Reclamation on February 3, 2011 (see Appendix D). The Biological Opinion contains the following non-discretionary terms and conditions that would apply to the Proposed Action. The text below is verbatim from the Biological Opinion and the first one refers to the conservation measures listed immediately above.

The Service has determined that the following reasonable and prudent measure is necessary and appropriate to minimize the effects of the Pipeline Maintenance Project on the California red-legged frog and California tiger salamander: Adverse effects to California red-legged frogs and California tiger salamanders and their habitat will be minimized to the extent possible.

In order to be exempt from the prohibitions of Section 9 of the Act, Reclamation must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measure described above. These terms and conditions are nondiscretionary.

1. *The following Terms and Conditions implement the Reasonable and Prudent Measure:*
 - a. *Reclamation shall require the Santa Clara Valley Water District to fully implement the Conservation Measures and Terms and Conditions in this Biological Opinion.*
 - b. *Reclamation shall require the Santa Clara Valley Water District to comply with the Reporting Requirements of this Biological Opinion, including a post construction report outlining how the Conservation Measures were implemented for this project.*

- c. *Reclamation shall require the Santa Clara Valley Water District to not utilize plastic mono-filament netting (erosion control matting) or similar material containing netting at the project. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.*
- d. *To avoid transferring disease or pathogens while handling California red-legged frogs and California tiger salamanders Reclamation shall require the Santa Clara Valley Water District to follow the Declining Amphibian Populations Task Force Fieldwork Code of Practice (Service 2005b)*
- e. *If requested, before, during, or after completion of pipeline maintenance activities, Reclamation shall require the Santa Clara Valley Water District to allow immediate access to the project site by the Service, California Department of Fish and Game, or their designated agents, to review the effects of the project on the California tiger salamander, California red-legged frog, and their habitats.*

Reporting Requirements

The Service and the Department of Fish and Game must be notified within one (1) working day of the finding of any injured or dead California red-legged frog, California tiger salamander or any unanticipated damage to their habitats associated with the proposed project. Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the Service-approved biologist. Notification must include the date, time, and precise location of the individual/incident clearly indicated on a USGS 7.5 minute quadrangle and other maps at a finer scale, as requested by the Service, and any other pertinent information. Dead individuals must be sealed in a Zip-lock® plastic bag containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it, and the bag containing the specimen frozen in a freezer located in a secure site. The Service contact persons are the Division Chief in the Endangered Species Program at telephone 916/414-6600; and the Resident Agent-in-Charge of the Service's Division of Law Enforcement at telephone 916/4146660. The Department of Fish and Game contact for Santa Clara County is Conrad Jones at telephone 650/328-2380, and the contact for San Benito County is Jess Cann at telephone 831/649-7194.

Reclamation through the Santa Water Valley Water District shall submit a post-construction compliance report prepared by the Service-approved biologist to the Sacramento Fish and Wildlife Office and the California Department of fish and Game within thirty (30) calendar days of the date of the completion of construction activity. This report shall detail (i) dates that construction occurred; (ii) pertinent information concerning the success of the project in meeting conservation measures; (iii) an explanation of failure to meet such measures, if any; (iv) known project effects on the California red-legged frog and California tiger salamander, if any; (v) occurrences of

incidental take of California red-legged frogs and California tiger salamanders if any; (vi) documentation of employee environmental education; and (vii) other pertinent information.

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 Surface Water Resources

3.1.1 Affected Environment

The major watershed for the Santa Clara Conduit is Llagas Watershed. Streams could serve as direct or indirect receiving waters from pipelines being drained for maintenance.

The Proposed Action area is rural. Drains have been installed to reduce flooding in adjacent uplands. Many of these historical “improvements” removed the hydrologic connection between the channel and the floodplain resulting in impacts such as higher peak flow velocities, erosion problems, reduced riparian habitat values, and flooding in upstream or downstream reaches.

Pacheco Creek

With headwaters in the Diablo Range, Pacheco Creek drains an area of about 169 square miles. Formerly seasonal, the lower reach of Pacheco Creek now flows all summer, possibly as a result of restored groundwater levels.

Jones Creek

Jones Creek joins Llagas Creek approximately 4 miles southeast of Gilroy. The creek is the continuation of Alamias Creek (Durham 1998). The Alamias feeds Jones Creek, which in turn feeds Llagas Creek, a migratory channel for steelhead trout heading to the Pajaro River (Gilroy Dispatch 2005).

Ortega Creek

Oretga Creek flows 4.25 miles to San Felipe Lake, 9.5 miles north-northwest of Hollister (Durham 2001).

San Ysidro Creek

San Ysidro Creek flows 5 miles to a point approximately 1.25 miles east-southeast of Old Gilroy. San Ysidro Creek contains a strip of riparian woodland (Durham 1998).

Millers Canal

Miller’s Canal is flat, narrow and relatively impermeable. It was constructed from San Felipe Lake to the Pajaro River to facilitate agricultural development. The canal reduces overflow from the lake and flows directly to a downstream portion of the Pajaro River near the confluence with Llagas Creek. The reduced overflow of San Felipe Lake facilitates farming and grazing around the lake. The canal has a minimal flow for most of the year (Reclamation 2003)

3.1.2 Environmental Consequences

3.1.2.1 No Action

The No Action Alternative would result in SCVWD waiting for approval of the PMP. The Santa Clara Conduit could degrade if timely maintenance did not occur and the system would be compromised.

3.1.2.2 Proposed Action

Draining up to 78 acre-feet from the pipeline would cause temporary increases in the rate and volume of runoff in receiving waters in the Proposed Action area. There is potential for up to 78 acre-feet of pipeline water to enter local waterways, open fields, swales, or wetlands.

Consequently, Proposed Action activities would require a National Pollutant Discharge Elimination System Permit for discharges of non-storm water to waters of the State or United States.

Pipeline inspection and maintenance would not directly affect retail customers because shutdown would be done during the winter when water needs are less. Any deliveries that would be needed would be accomplished through local water and State water sources. Deliveries to San Benito County Water District can be continued during this shutdown; however, flows to the SCVWD would cease during the Proposed Action.

Turbidity in receiving water could increase. Turbidity, temperature, and pH would be monitored during discharges and water would be treated or discharge rates would be modified if Regional Water Quality Control Board objectives were exceeded. SCVWD would adhere to their general permits.

Potential impacts to hydrology and water resources associated with the Proposed Action include potential to cause erosion, degrade water quality, and increase rates of runoff or flooding. The potential to cause erosion during maintenance activities is minimized through the Erosion Control Plan, Bank Protection Work, and re-vegetation (see Appendix A).

The Proposed Action has a potential to degrade water quality if exposed soils are flushed into waterways. Receiving water and discharge water would be monitored by a trained individual for turbidity prior to the discharge and periodically throughout the drainage operation. Silty or turbid water from Proposed Action activities would not be discharged into streams, lakes or storm drains.

Additionally, a fast rise and fall in water levels could cause bank failures and deposition of soil in the channel. Flow rates can be manipulated to control discharges and avoid sudden changes in receiving water flows. Receiving waters and flow paths would be evaluated for erosion potential and observed for erosion at the time of discharge. Pipeline discharge rates would be modified as needed to avoid erosion. If necessary, flow velocities would be reduced through implementation of energy dissipation BMPs and mitigation measures such as small settling ponds which function to pond water prior to release (see Appendix A). Soils and vegetation at discharge sites would be protected using a variety of conventional erosion control BMPs (see Appendix A).

Bank protection work would occur prior to a planned discharge in areas where banks within 100 feet of the discharge point appear to show signs of erosion or instability. Bank stabilization (hardscape methods) would be assessed before pipeline shutdown. Hardscape methods include:

- Gabions
- Rock Blanket (includes larger rip-rap with small rock fill)
- Sacked Concrete
- Articulated Concrete Mats
- Synthetic Cellular Confinement

The Proposed Action would be subject to a Clean Water Act (CWA) Section 404/Nationwide Permit from the U.S. Army Corps of Engineers for placement of any temporary or permanent BMPs into waterways (such as flow spreader dams/check dams, etc.), for any placement of fill during reclamation after valve repair in stream banks, and for any placement of fill into wetlands for access road repair.

Areas that show erosion or instability from natural or manmade conditions within 100 feet downstream of a discharge point (and up to 10 feet upstream of the point) would be hardened to further minimize the chances of erosion during water draining. Bank stabilization plans would be prepared prior to the work and the work would begin early 2011. Bank stabilization would minimize erosion effects.

3.1.2.3 Cumulative Impacts

The potential to increase or decrease rates of runoff or cause flooding is limited to draining and refilling activities. Activities that have the potential to degrade water quality would be temporary. The Proposed Action would require a National Pollutant Discharge Elimination System Permit for discharges of non-storm water to waters of the State or United States and a CWA Section 404/Nationwide permit. SCVWD would comply with all requirements to minimize any potential adverse impacts associated with the Proposed Action. In addition, SCVWD would employ BMPs (such as bank stabilization, flow monitoring, and discharge dissipation) to minimize impacts to water quality due to discharge of water from the Santa Clara Conduit (see Hydrology BMPs in Appendix A). Therefore, no cumulative impacts to surface water resources are expected.

3.2 Groundwater Resources

3.2.1 Affected Environment

The occurrence and movement of groundwater and surface water in the Proposed Action region is dictated by regional climate and hydrologic characteristics but to some degree is also managed by SCVWD activities. The Proposed Action area is located in the Pajaro watershed, which drains south to the Pajaro River and Monterey Bay. The Proposed Action area is underlain by the Llagas sub-basin. SCVWD is responsible for managing water resources in Santa Clara County. Runoff from primarily rural areas in the foothills is collected in ten reservoirs for storage and/or blending with imported water before being conveyed to groundwater recharge facilities or drinking water treatment plants. SCVWD sells both treated surface water and

groundwater to retail agencies that serve the communities within the county via their own distribution systems.

Aquifers within the Santa Clara Valley, Coyote, and Llagas groundwater basins supply nearly half of the SCVWD's total water supply. Groundwater replenishment occurs both naturally and through the SCVWD's efforts to augment natural processes. Percolation facilities, usually located near the basin's perimeter, are used to increase the recharge of groundwater basins and to compensate for the amount of water withdrawn.

In the low foothills at the edge of the sub-basin, the geologic materials that compose the aquifers are exposed at the ground surface. These zones are collectively known as the "forebay" of the aquifer. In these exposed areas, rainfall, streamflows, and other surface water are able to infiltrate and to seep into the aquifer (Iwamura 1995). The SCVWD actively promotes recharge to the aquifer using local and imported water applied to about 390 acres of off-stream percolation ponds located throughout the county. Seasonal dams are also used to encourage in-stream recharge (Reymers and Hemmeter 2001). Release of imported water to streams augments streamflow conditions for fish and wildlife.

3.2.2 Environmental Consequences

3.2.2.1 No Action

The No Action Alternative would result in SCVWD waiting for approval of the PMP. The Santa Clara Conduit could degrade if timely maintenance did not occur and the system would be compromised.

3.2.2.2 Proposed Action

Reclamation would approve the shutdown, inspection, and maintenance of the Santa Clara Conduit. The Santa Clara Conduit would be drained and refilled. Draining the pipeline would cause temporary increases in the rate and volume of runoff in receiving waters in the Proposed Action area. Discharge of pipeline water into local waterways, open fields, swales, or wetlands would be likely. As the quantity of water that would percolate to the basin is small (approximately 78 acre-feet or less would be diverted to waterways) it would not have a substantial effect on groundwater quality or quantity.

3.2.2.3 Cumulative Effects

The Proposed Action activities would be temporary and would not be expected to contribute to overall cumulative impacts.

3.3 Geology

3.3.1 Affected Environment

Santa Clara County lies at the southern end of San Francisco Bay in the central Coast Range of California. The county has four distinct physiographic regions or landscape units: 1) Santa Cruz Mountain uplands, 2) Diablo Range uplands, 3) foothills, and 4) bay plains and alluvial valleys. These units reflect the relations of landscape evolution to dominant geomorphic processes, such as the erosion of uplifted mountainous areas and broad, flat plains of recent sediment deposition along San Francisco Bay.

The Santa Clara Conduit traverses areas with soils of high erodible potential. Soils in the vicinity of the Santa Clara Conduit near the Calveras Fault Input/Calveras Fault Output are relatively soft and wet and derived from alluvial to lacustrine sources. Surrounding soils are nearly to completely saturated (depending on rainfall) due to the accumulation of groundwater that actually forms San Felipe Lake.

Santa Clara County is located in a seismically active region. The county is transected by the San Andreas and Calaveras Fault Zones, as well as other potentially active faults.

The San Andreas Fault Zone is located near the west edge of the county in the Santa Cruz Mountains. The Calaveras Fault Zone bisects the county along the northwest-southeast trend through the Diablo Range. Faults in the region have been the source of several large historic earthquakes that have subjected the county to strong shaking and are considered sources of future large earthquakes. Along the San Andreas Fault, a magnitude 8+ earthquake is possible with associated horizontal displacement of a few tens of feet. An earthquake of magnitude 7+ is possible along the Calaveras Fault with lateral displacements of several feet (Santa Clara County 1994).

Tectonic movements include both submergence (subsidence) and uplift. Movements of large landmasses occur as a result of displacement along faults during earthquakes. The extent of these movements could affect local features such as stream gradients. Horizontal displacements generally have little effect on stream gradients; however, vertical movements could impact areas of uplift with the secondary effects of increased erosion and areas of submergence with increased sedimentation. In Santa Clara County, the predominant sense of tectonic movement is horizontal and dominated by strike-slip faulting, although some vertical movement has been documented. Future ground displacement would probably be predominantly horizontal with associated small amounts of vertical displacement (Santa Clara County 1994).

Landslide Hazard Zones and Compressible Soil Hazard Zones have been identified within the Proposed Action area. Steep slopes, active earthquake faults and areas of geologic instability are prevalent (Santa Clara County 1994). Santa Clara Conduit pipeline falls within Santa Clara County. An approximately 2-mile portion falls within San Benito County at the border to Santa Clara County.

The Santa Clara Conduit crosses Fault Rupture Hazard Zones. These segments of faults may be capable of generating a maximum strength earthquake of magnitude 6.75 (SCVWD 2005). San Felipe Lake is a unique geologic feature resulting from the Calaveras Fault. The fault acts as a groundwater barrier, causing a buildup of groundwater on the eastern side (SCVWD 2005).

Santa Clara Conduit transects a Landslide Hazard Zone. Portions of the Santa Clara Conduit along the Pajaro Basin are within areas with high liquefaction potential.

3.3.2 Environmental Consequences

3.3.2.1 No Action

The No Action Alternative would result in SCVWD waiting for approval of the PMP. The No Action Alternative would not create geologic and soil-effects. However, there may be some geologic effects to the pipeline.

3.3.2.2 Proposed Action

The Proposed Action consists of dewatering, inspection, and minor repair of approximately 10.6 miles of the Santa Clara Conduit which would not create additional geologic and soil-effects related to seismicity, including rupture along faults, subsidence, and liquefaction. There may be some previously existing geologic effects to the pipeline but these would not be a result of the Proposed Action.

Landslide hazards are prevalent throughout the Proposed Action area and along various areas of the pipeline. Discharge has the potential to cause erosion. Erosion and sedimentation could have a substantial impact on water quality; however, these would be minimized by implementation of BMPs such as bank stabilization, flow monitoring, and discharge dissipation as described previously.

The surfaces below several blow-off pipes located in banks were armored with rock riprap or concrete sandbag riprap during construction of the Santa Clara Conduit to minimize erosion during blow-off events. These drainage points would have minimal erosion and would not have bank stability issues. However, draining of the pipeline could occur across a stream bank, and could cause minor instability of the bank slope on less vegetated slopes or slopes with higher erosion potential. Bank stability would be ensured through erosion control measures for draining, including hardening of bank slopes where needed (see Appendix A).

Staging and vehicle access would require less than 0.05 acres of surface disturbance for each staging site which could be located in areas that are safe for equipment and workers. Staging would involve some off-road access, sometimes down steep gradients; however, such travel would not present a substantial threat to slope stability since access would only be by a few vehicles (from one to ten vehicles are required at a site, but it is likely only one or two would need to travel down the slope, while the rest could stay along existing roads at the top of the slope) and would only be traversed once to a few times for a particular project. Most pipeline features that must be accessed have been accessed in the past and workers travel on the easiest and safest route to the facility. In considering access routes, slopes of greater than 20 percent would generally be avoided if possible. Subsequent to access, any sloped area would be examined for evidence of instability and either revegetated or filled as necessary to prevent future landslide or erosion (see Appendix A).

Pipeline repair would occur within or around the pipeline and would not be affected by or result in poor slope stability. Repair would occur either within the pipeline itself or on the pipeline exterior.

3.3.2.3 Cumulative Effects

Cumulative impacts could occur as a result of geologic and soil-effects related to seismicity, including rupture along faults, subsidence, and liquefaction associated with the Proposed Action activities in combination with impacts associated with any of the other programs at the SCVWD. However, SCVWD would deploy BMPs such as use of temporary reinforcement material in areas with potential slope stability problems and revegetation of slopes to ensure stability (see Appendix A).

Staging and access for other projects in the general vicinity would be coordinated such that similar access routes or staging areas are used, thus reducing cumulative impacts, as long as areas are properly restored.

3.4 Land Use

3.4.1 Affected Environment

The majority of the Proposed Action area is heavily used for agriculture, including grazing, orchards, and cultivated row crops. A small portion of the pipeline system falls within San Benito County at the border of Santa Clara County within the Santa Clara Valley in the Parajo River Basin. The area is predominantly rural agricultural and grazing land.

Land uses in the watershed transition from open space and rangeland in the headwaters to rural residential and agriculture in the foothills.

3.4.2 Environmental Consequences

3.4.2.1 No Action

Land use would not change due to the No Action Alternative.

3.4.2.2 Proposed Action

Drainage, inspection and repair of 10.6 miles of the Santa Clara Conduit would not impact land use within the Proposed Action area as maintenance activities would occur during a period of low water need for agriculture and would be temporary. Once inspection and maintenance is completed, the Santa Clara Conduit would be placed back in operation.

3.4.2.3 Cumulative Impacts

As there would be no changes in land use as a result of the Proposed Action and the pipeline would be placed back in operation, there would be no cumulative impacts.

3.5 Biological Resources

3.5.1 Affected Environment

In all, 39 vaults will be rehabilitated with new appurtenant features. The tabular summary on page eight of this document provides a summary of which vaults will be used to dewater the conduit (about 15 sites). Vaults SCC51, SCC45 and SCC35 will require relatively long (between 1,000' to 2,000') stretches of lay flat hose because they are either far from surface water or the nearby riparian area is too sensitive to receive additional flow. These long stretches of hose will

be monitored by a qualified biologist to avoid contacting sensitive species or crushing burrows prior to deployment and during the removal period.

Vault SCC 52 (not a discharge site) is located within wetland area that is part of a Santa Clara County Park. Given the fact that the work is intended to take place during the rainy season, access to this site will likely be via special light weight vehicle or on foot.

Animal exclusion fencing would be erected and maintained around work areas that are off-road. Installation of the fence would be performed under the supervision of a Service-approved biologist. Fencing would be made of reinforced plastic or plywood and would be buried six inches into the ground. Animal exclusion fencing would be checked once per week by work personnel trained by a Service-approved biologist to identify weaknesses and all compromised portions would be repaired and/or replaced immediately. No plastic netting or monofilament shall be used at the site because California red-legged frogs, California tiger salamanders, and other species may become entangled or trapped in it.

Species and Critical Habitat that May Occur in the Action Area

A species list was obtained from the Service for the nine 7.5 minute USGS quadrangles that touch or are near the action area at http://sacramento.fws.gov/es/spp_list.htm on November 16, 2010 (document number: 101116124144). The species list contained fifteen species under Service's jurisdiction and four species under the purview of NMFS. It should be noted that part of the action area, in the San Felipe quadrangle (CFI, San Felipe Lake) lies within San Benito County. Please see Table 3-1 below for a list of these species. Note that the NMFS-administered species and critical habitats are not addressed further because Reclamation has already completed consultation with NMFS for the entire 10-year PMP which includes the Proposed Action area (see Appendix C).

Table 3-1 Federally Listed Species and Critical Habitat

COMMON NAME	LISTING STATUS	CRITICAL HABITAT	EFFECTS DETERMINATIONS (species; critical habitat)	SUBACTIVITIES POTENTIALLY CAUSING EFFECTS (species; critical habitat)
bay checkerspot butterfly	threatened	designated	no effect; no effect on critical habitat	none; none
California least tern	endangered	no	no effect	none
California red-legged frog	threatened	designated	may adversely affect; no effect	staging and access, draining; none
California tiger salamander, Central DPS	threatened	designated	may adversely affect; may adversely affect	staging and access, draining; staging and access, draining
Central California Coast steelhead	threatened	designated	may affect, not likely to adversely affect; may affect, not likely to adversely affect	staging and access, draining; staging and access, draining
Central Valley spring-run chinook salmon	threatened	designated	no effect; no effect on critical habitat	none; none
Central Valley steelhead	threatened	designated	no effect; no effect on critical habitat	none; none
Coyote ceanothus	endangered	no	no effect	none
delta smelt	threatened	designated	no effect; no effect on critical habitat	none; none
least Bell's vireo	endangered	designated	no effect; no effect on critical	none; none

COMMON NAME	LISTING STATUS	CRITICAL HABITAT	EFFECTS DETERMINATIONS (species; critical habitat)	SUBACTIVITIES POTENTIALLY CAUSING EFFECTS (species; critical habitat)
			habitat	
marbled murrelet	threatened	designated	no effect; no effect on critical habitat	none; none
Metcalf Canyon jewelflower	endangered	no	no effect	none
Sacramento River winter-run chinook salmon	endangered	designated	no effect; no effect on critical habitat	none; none
San Joaquin kit fox	endangered	no	may effect, not likely to adversely affect	staging and access
San Joaquin woolly-threads	endangered	no	no effect	None
Santa Clara Valley dudleya	endangered	no	no effect	none
Santa Cruz tarplant	threatened	designated	no effect	None
South-Central California Coast steelhead	threatened	designated	may affect, not likely to adversely affect; may affect, not likely to adversely affect critical habitat	staging and access, draining; staging and access, draining
Tiburon paintbrush	endangered	no	no effect	None

Wildlife Movement Corridors Riparian corridors and waterways are important natural resources and are used by a diversity of wildlife as movement or migration corridors between areas of core habitat. Riparian corridors often link one or more tracts of open space to other areas of open space. This becomes particularly important when animals must navigate from one rural area to another and are forced to move through urbanized zones. Riparian vegetation offers both food and shelter for many species moving through the area.

California red-legged frog California red-legged frogs breed from late November through April (Jennings and Hayes 1989) and from January through March in Santa Clara County (Jennings et al. 1997). The frogs breed when water temperatures are cool enough for embryonic survival and sufficient water exists for larval growth to metamorphosis. Egg masses are attached to emergent vegetation.

Jennings and Hayes (1988) found that California red-legged frogs were extant in 81 percent of sites lacking bullfrogs and most likely completely extinct from sites with bullfrogs. California ranids have evolved under conditions of limited fish predation since California possesses only a small number of native fish species that prey on vertebrates. A majority of the over 50 exotic and transplanted species in California are known to prey on frogs or their premetamorphic stages (Moyle 1976).

California red-legged frogs often occupy burrows in upland areas and they may use burrows located closer to riparian areas. Non-breeding California red-legged frogs have been found in both aquatic and upland habitats. The majority of individuals prefer dense, shrubby, or emergent vegetation closely associated with deep, still, or slow-moving water. However, some individuals use upland habitats that are removed from aquatic habitats, seeking cover in ground squirrel burrows and non-native grasslands. Estivation habitat includes areas up to 300 feet from a

stream corridor and includes natural features, such as boulders, rocks, trees, shrubs, and logs. California red-legged frogs may use upland estivation sites when water levels are low or water temperatures are high, such as in summer and early fall months.

California red-legged frogs are found in ponds and intermittent and permanent streams with slow or still water. Both aquatic and upland habitat for the species occurs in the action area. According to the California Natural Diversity Database, California red-legged frogs have been reported at Tequisquita Slough, Pacheco Creek and a golf course that lies near the action area owned by the Fry's Golf and Mathematics Institute.

California tiger salamander California tiger salamanders require two major habitat components: aquatic breeding sites and terrestrial refuge sites. California tiger salamanders inhabit valley and foothill grasslands and the grassy understory of open woodlands, usually within one mile of water (Jennings and Hayes 1994). The California tiger salamander is terrestrial as an adult and spends most of its time underground in subterranean refugia. Underground retreats usually consist of ground-squirrel burrows and occasionally human-made structures. Adults emerge from underground to breed, but only for brief periods during the year. California tiger salamanders breed and lay their eggs primarily in vernal pools and other ephemeral ponds that fill in winter and often dry out by summer (Loredo et al. 1996); they sometimes use permanent human-made ponds (e.g., stock ponds), reservoirs, and small lakes that do not support predatory fish or bullfrogs (Zeiner et al. 1988). Streams are rarely used for reproduction. Amphibians require cool water during larval development. California tiger salamanders cannot tolerate temperatures over 80 degrees.

A strong negative association between bullfrogs and California tiger salamanders has been documented. Although bullfrogs are unable to establish permanent breeding populations in vernal pools, dispersing immature frogs from permanent water bodies within two miles take up residence and prey on adult or larval salamanders in these areas during the rainy season. Louisiana swamp crayfish, mosquito fish, green sunfish and other introduced fishes also prey on adult or larval salamanders.

Adult salamanders migrate from upland habitats to aquatic breeding sites during the first major rainfall events of fall and early winter and return to upland habitats after breeding. This species requires small-mammal (e.g., California ground squirrel) burrows for cover during the non-breeding season and during migration to and from aquatic breeding sites (Zeiner et al. 1988).

Critical habitat has been designated for the Central Distinct Population Segment (DPS) (Service 2005). Critical habitat occurs in the action area. The Central DPS of has the following Primary Constituent Element: (1) Standing bodies of fresh water [including natural and manmade (e.g., stock)] ponds, vernal pools, and other ephemeral or permanent water bodies which typically support inundation during winter rains and hold water for a minimum of 12 weeks in a year of average rainfall. (2) Upland habitats adjacent and accessible to and from breeding ponds that contain small mammal burrows or other underground habitat that California tiger salamander depend upon for food, shelter, and protection from the elements and predation. (3) Accessible upland dispersal habitat between occupied locations that allow for movement between such sites.

East Bay Region Unit 12 (San Felipe Unit) overlaps the Santa Clara Conduit (refer to the map showing critical habitat). Reconnaissance surveys for California tiger salamander habitat were performed in 2003 and 2006 in the area of the Calaveras Fault Inlet/Calaveras Fault Outlet (CFI/CFO) along the Santa Clara Conduit in the vicinity of San Felipe Lake [Critical Habitat Unit 12] (Rana Resources 2003; Abel 2006). The surveys were performed for a previous pipeline draining and inspection project in 2003, and in anticipation of levee access road repairs in 2006 (which did not occur).

Reconnaissance surveys showed that California tiger salamander habitat is not present in the vicinity of the CFI/CFO, due to the hydrology of the lake and the population of native and exotic predatory fish in the lake (Rana Resources 2003; Abel 2006). California tiger salamanders have been found along the northerly side of Highway 152; stock ponds and upslope grasslands along the northerly side of the highway affords more secure breeding and estivation habitat. Currently, access to the project area along CFI/CFO from this occupied habitat is very unlikely. The CFI/CFO area is largely isolated from the known occupied area by the highway, the lake itself expanse and the upper reach of Miller Canal which drains the lake. The lake and canal host predatory fish which have access to the bottom-lands with the regular inundation of the adjacent pastures in high flows. Appendix A includes additional information on the survey work at CFI/CFO.

San Joaquin San Joaquin kit fox The San Joaquin kit fox was once distributed over a large portion of central California, extending roughly from southeastern Contra Costa County south along the eastern flanks of the Interior Coast Range to the southern San Joaquin Valley on the valley floor and the adjacent low foothills, including major portions of western Kern County and Tulare County. Currently, its range has been reduced to some regions of Alameda, Contra Costa, San Joaquin, Fresno, Kings, Madera, Merced, San Benito, Stanislaus, Tulare, Monterey, Kern, San Luis Obispo, Santa Barbara, and Ventura Counties. The species can be found in desert and steppe habitat covered with shrubs or grasses. The best habitat for the species is open saltbush scrub or arid grasslands (Cypher 2006), found in the southern portion of the range. To the north, the available habitat is of lower quality, consisting primarily of more mesic grasslands.

Due to the human disturbance of habitats, the San Joaquin kit fox can be found in habitats of annual grasslands and scrublands with active oil fields, wind turbines, and agricultural row crops. The San Joaquin kit fox is nocturnal, so it spends most of the day in soft, sandy burrows and hunts in the twilight and nighttime hours. They feed primarily on ground squirrels, kangaroo rats, desert cottontails, mice, insects, carrion, and ground-nesting birds (DFG 2005). Kangaroo rats are the preferred prey, and are found in the southern and central portions of the species' range (Cypher 2006). Burrows of other animals, particularly California ground squirrels, can be enlarged and utilized as den sites by San Joaquin kit foxes, especially in the northern range (Orloff et al. 1986). Man-made structures such as culverts and pipes may also be used as dens in those areas with a shortage of dens.

San Joaquin kit foxes may range up to 20 miles at night (Girard 2001) during the breeding season and somewhat less (six miles) during the pup-rearing season. Home ranges vary from less than one square mile up to approximately 12 square miles (Spiegel and Bradbury 1992, White and Ralls 1993).

Mortality for this species has been documented from attacks by coyotes, golden eagles, road kills, conversion of habitat, shooting, drowning, entombment, pneumonia, and starvation. The use of rodenticides can result in secondary poisoning, since San Joaquin kit foxes are vulnerable through consumption of poisoned rodents.

Grassland habitat near the Santa Clara and Pacheco Conduits has been known previously to be occupied by the species, so the species is considered to have the potential to occur in the action area. However, the habitat is not of high quality, unlike that in the southern part of the species' range, so the occurrence probability is low and only small numbers of foxes could be expected to occupy the action area.

Critical Habitat Designations

Critical Habitat is defined as areas essential for the “conservation” of the species in question. Conservation is defined as using all means necessary to bring a species back to the point it no longer needs the protection of the Endangered Species Act. Habitat currently occupied by a listed species, “may require special management considerations or protection.”

Critical Habitat The pipeline crosses Critical Habitat for the South Central Coast Evolutionary Significant Unit of steelhead and the Central Populations of California tiger salamander.

Non-federally listed Species

Fish and Wildlife The Western Burrowing Owl, a non-federally-listed special status animal species, is known to occur in the affected environment.

3.5.2 Environmental Consequences

3.5.2.1 No Action

The No Action Alternative would result in SCVWD waiting for approval of the PMP. The Santa Clara Conduit could degrade if timely maintenance did not occur, and the system would be compromised.

3.5.2.2 Proposed Action

Reclamation would approve the shutdown, inspection, and maintenance of the Santa Clara Conduit. The pipeline would be drained, inspected, maintenance completed, and refilled. Reclamation prepared a Biological Assessment for the PMP and submitted it along with a request for consultation with Service and NMFS. Informal consultation has been completed with NMFS on the PMP which covers the Proposed Action area (see Appendix C). Reclamation prepared a separate Biological Assessment for the Proposed Action and the Service utilized it to prepare a Biological Opinion for the species and critical habitat under their jurisdiction. The Service issued a non-jeopardy Biological Opinion (81420-2010-F-1010) for the Proposed Action to Reclamation on February 3, 2011 (see Appendix D).

Access within some riparian corridors may result in temporary impacts to riparian vegetation as a result of trampling by foot or vehicle traffic, or direct removal of wetland or woody riparian vegetation. Any crushed or removed vegetation would regrow shortly after the Proposed Action is complete.

Pipeline would be drained directly into channels, streams, or storm drains that empty into channels. Water discharge would not negatively impact riparian areas with implementation of BMPs that control erosion, sedimentation and scour (see Appendix A).

Access and staging activities would have limited potential for adversely affecting jurisdictional wetlands. No staging would occur within wetlands, which would be defined prior to Proposed Action activities. Staging would not involve placement of any base material and would most often utilize already disturbed areas.

Access to some blow-off vaults and valves could require off-road travel. Access may require removing or crushing a limited amount of vegetation. Crushed or trimmed vegetation would regrow. Impacts from staging and access would not be considered “fill” of a wetland, and would therefore not require U.S. Army Corps of Engineers permits (under Section 404 of the CWA).

Pipeline draining would occur in winter months during small storm events. During this timeframe wetlands are usually inundated and additional water added from draining would not adversely impact the wetland as long as prevention of erosion, scour, and sedimentation is implemented. Raw water from the Santa Clara Conduit has as good or better water quality than receiving water and would not adversely impact the wetlands as long as measures to control erosion, sedimentation, and scour are implemented.

Pipe or pipe sections are isolated and water is discharged out of special pipeline structures designed for releasing water. There should be only minor effects to upland areas from draining. In regions where discharge points are not adjacent to creeks, standard erosion control techniques would be employed. For areas that may be occupied by listed species, animal burrow inundation would be avoided to the extent possible.

Draining would not affect water levels in a way that would impact sycamores; draining would be preferentially timed in such a way that it would coincide with natural small storm events.

Special-Status Fish Species Staging and access would not occur within any stream channels and would not interfere with migration of fish species.

Draining pipelines involves the discharge of the pipeline into channels, streams, or wetlands. The preferential time of discharge for maintenance work is during small storm events. This timing could coincide with migration of anadromous fish. Temperature, dissolved oxygen, flow, and sedimentation impacts would be minimized during discharge so as not to adversely impact anadromous fishes. Placement of flow check filters and velocity dissipation devices could impede fish passage. Minimizing erosion, scour and sedimentation would minimize any other impacts to any wildlife species that inhabits or uses project waterways and riparian corridors.

Species could be impacted primarily by changes in water chemistry, sedimentation, temperature change, or changes in the amount of dissolved oxygen in the water. Flow rates also have the potential to impact some species through scour of fry or eggs if erosion and flow rate are not controlled. These impacts would be avoided by SCVWD draining procedures.

Federally Listed Amphibian, Avian and Mammalian Species Mortality, injury, and harassment of California red-legged frogs, San Joaquin kit fox, and California tiger salamanders may occur on the entire Proposed Action area, including the 0.37 acre of staging areas, 2.11 acres of off-road access, 0.68 miles of dirt access roads, San Felipe Lake, and creeks described in the Proposed Action. The proposed conservation measures as described in the Proposed Action may reduce the amount and/or potential for take of these listed species.

Impacts to Critical Habitat Critical habitat designations for the South-Central California coast steelhead, California tiger salamander exist within the Proposed Action area. Discharge would have a minor temporary impact on steelhead critical habitat through release of water.

Staging and access would occur outside of channels and therefore would not impact South-Central Coast steelhead trout critical habitat. BMPs to reduce any potential erosion or sedimentation impacts from staging and access would avoid critical habitat impacts for steelhead.

The Proposed Action would result in temporary effects to 2.358 miles of dirt access road within California tiger salamander critical habitat for access to facilitate dewatering near CFI, which is within Unit 12 of the East Bay Geographic Region. This dirt road access is not expected to appreciably diminish the value of the critical habitat for the California tiger salamander, or prevent critical habitat from sustaining its role in the conservation and recovery of the species.

Wildlife Movement Corridors There would be no permanent disturbance to movement corridors. Any impacts on vegetation will either recover naturally, or by replanting with native species, or sterile non-native species.

Non-Federally Listed Species The SCVWD would implement their standard measures to protect migratory bird species such as the Western Burrowing Owl (see Appendix A).

3.5.2.3 Cumulative Impacts

Cumulative effects on special-status species and habitats include operations and maintenance activities conducted by Reclamation and SCVWD under the Operations and Maintenance Plan, use by adjacent landowners of insecticides, rodenticides and herbicides and predation on native bird species by feral cats. The potential for the Proposed Action to cause biological impacts is reduced through the application of preventative BMPs and mitigation measures (see Appendix A).

Potential impacts to biological resources associated with the Proposed Action activities include potential to degrade habitats such as wetlands, and the potential to harm or injure Special-Status species. Species could be harmed directly through physical injury from equipment and activities, or habitat could be negatively affected such as through sedimentation or crushing of burrows. All impacts to Special-Status species would be minimized through implementation of BMPs, including several BMPs related to hydrology and water quality (see Appendix A). All impacts would be temporary and would not be expected to contribute to overall cumulative impacts. While some areas may support Special-Status species, the areas of temporary impact would be relatively small, and like-kind habitats surround the work areas. Thus, it can be anticipated that

any species temporarily displaced by maintenance activities would be able to find other suitable habitat close by.

3.6 Cultural Resources

Cultural resources is a broad term used to describe both ‘archaeological sites’ depicting evidence of past human use of the landscape and the ‘built environment’ which is represented in structures such as dams, roadways, and buildings. The National Historic Preservation Act (NHPA) of 1966 is the primary Federal legislation which outlines the Federal Government’s responsibility to cultural resources. Other applicable cultural resources laws and regulations that could apply include, but are not limited to, the Native American Graves Protection and Repatriation Act, and the Archaeological Resources Protection Act. Section 106 of the NHPA requires the Federal Government to take into consideration the effects of an undertaking on cultural resources included in, or eligible for inclusion in, the National Register of Historic Places (National Register). Those resources that are included in, or eligible for inclusion in, the National Register are referred to as historic properties.

3.6.1 Affected Environment

The area of potential effect (APE) for this undertaking comprises the Santa Clara Conduit and construction staging areas immediately surrounding the conduit. The Santa Clara Conduit is a Reclamation-owned water conveyance facility that delivers water to Santa Clara, Monterey, and Santa Cruz, California. This facility is a component of the San Felipe Division of Reclamation’s Central Valley Project (CVP). Initial authorization for elements of the San Felipe Division took place in 1960 and construction on Pacheco Tunnel, which diverts water from San Luis Reservoir for transport to the Santa Clara-San Benito service area, began in 1964; however, construction of other project features, including the Santa Clara Conduit and Tunnel, was delayed for more than a decade due to a variety of economic and political reasons.

Construction on the Santa Clara Conduit and Tunnel commenced in 1981 and was completed in 1987. Because the features of the San Felipe Division, including the Santa Clara Conduit, are not yet 50 years old, they do not meet the criteria for consideration as historic properties as outlined in the regulations at 36 CFR Part 60.4. As a result, although the CVP and many of its components are considered eligible for inclusion in the National Register, the San Felipe Division and its associated water conveyance features, including the Santa Clara Conduit, are not eligible for National Register inclusion, either individually or as contributing elements of the CVP.

3.6.2 Environmental Consequences

3.6.2.1 No Action

The No Action Alternative would result in SCVWD waiting for approval of the PMP. There would be no adverse impact to cultural resources due to the Proposed Action.

3.6.2.2 Proposed Action

The Proposed Action would result in Reclamation approving the draining, inspection, maintenance, and refilling of the Santa Clara Conduit. As this feature is not yet 50 years old, it is not considered a historic property as defined by the regulations at 36 CFR Part 60.4. When the

Santa Clara Conduit was constructed, grounds in which it was constructed were significantly disturbed. Barring any new excavation into intact subsurface deposits, the Proposed Action needed to maintain and enhance the water conveyance feature would have no potential to cause effects on historic properties pursuant to the regulations at 36 CFR Part 800.3(a)(1).

3.6.2.3 Cumulative Impacts

The Proposed Action would result in no cumulative impacts to cultural resources. When the water conveyance features of the San Felipe Division of the CVP reach 50 years or older, however, Reclamation may have to consider future maintenance activities for their potential to cause adverse effect to these resources.

3.7 Indian Trust Assets

ITA are legal interests in assets that are held in trust by the United States Government for federally recognized Indian tribes or individuals. The trust relationship usually stems from a treaty, executive order, or act of Congress. The Secretary of the interior is the trustee for the United States on behalf of federally recognized Indian tribes. “Assets” are anything owned that holds monetary value. “Legal interests” means there is a property interest for which there is a legal remedy, such a compensation or injunction, if there is improper interference. Assets can be real property, physical assets, or intangible property rights, such as a lease, or right to use something. ITA cannot be sold, leased or otherwise alienated without United States’ approval. Trust assets may include lands, minerals, and natural resources, as well as hunting, fishing, and water rights. Indian reservations, rancherias, and public domain allotments are examples of lands that are often considered trust assets. In some cases, ITA may be located off trust land.

Reclamation shares the Indian trust responsibility with all other agencies of the Executive Branch to protect and maintain ITA reserved by or granted to Indian tribes, or Indian individuals by treaty, statute, or Executive Order.

3.7.1 Affected Environment

The nearest ITA is Lytton Rancheria, which is approximately 76 miles northwest of the Proposed Action area.

3.7.2 Environmental Consequences

3.7.2.1 No Action

Under the No Action Alternative there would be no impacts to ITA as there are none.

3.7.2.2 Proposed Action

As in the No Action Alternative, the Proposed Action does not have a potential to affect ITA as there are none.

3.7.2.3 Cumulative Impacts

There would be no cumulative impacts to ITA when added to other past, present, and future Proposed Actions as existing conditions would not change.

3.8 Environmental Justice

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

3.8.1 Affected Environment

Santa Clara County is made up of people from diverse cultures, nationalities, and racial groups. As of the 2009 Census, approximately 62 percent of the population was White, 32 percent Asian, 3 percent Black, 0.4 percent Native Hawaiian or Pacific Islander, and 3 percent of the population was of some other race or two or more races. The Hispanic or Latino population consists of 26 percent of the total population.

In San Benito County, approximately 91 percent of the population in San Benito County was White, 1 percent Black, 2 percent American Indian and Alaska Native persons, 3 percent Asian persons, 0.4 percent Native Hawaiian and Other Pacific Islander, and 54 percent Persons of Hispanic or Latino origin; and, in 2008, 10 percent persons were below poverty (U.S. Census Bureau 2010).

3.8.2 Environmental Consequences

3.8.2.1 No Action

The No Action Alternative would result in SCVWD waiting for approval of the PMP. The delay of repairs could lead to pipeline degradation. This could lead to a long-term shut-down of the pipeline and SCVWD would have to use other water sources in order to supply their customers. This could increase the cost of water to their customers until the pipeline could be repaired.

3.8.2.2 Proposed Action

Under the Proposed Action, Reclamation would approve the draining, inspection, maintenance, and refilling of the Santa Clara Conduit. The Proposed Action would not disproportionately affect minority or low-income populations and communities.

A portion of the Santa Clara Conduit is located on the Maida de Fiori Ranch in the Bolsa de San Felipe near San Felipe Lake, in San Benito County. San Benito County is a poorer county than Santa Clara County; however, the Proposed Action would only affect a small number of rural residents located in the northeastern corner of San Benito County. Work to maintain pipelines has limited temporary physical effects, which could result from staging and access, and draining water from the pipelines into local waterways; however, none of these tasks would result in displacement of persons or housing. BMPs would be implemented as part of the program to minimize environmental impacts so that residents in San Benito County are not experiencing adverse environmental effects of pipeline maintenance work.

3.8.2.3 Cumulative Impacts

The Proposed Action would not have any long-lasting effects that would disproportionately affect minority or low-income populations and communities. BMPs are implemented anywhere work is performed with potential to impact a natural resource, such that impacts are avoided or minimized.

The Proposed Action would not have any disproportionately adverse effects on minority and low-income populations because of the location and nature of the work. When considered with the potential effects of other projects and programs, the Proposed Action would still not contribute to adverse effects to low-income and minority populations.

3.9 Socioeconomic Resources

3.9.1 Affected Environment

Santa Clara County extends over 1,315 square miles and is located at the southern end of the San Francisco Bay. As of the 2009 Census, the county's population was approximately 1.8 million, making it the largest of the nine bay area counties (U.S. Census Bureau 2010). Santa Clara County is the 5th largest county in California, with 24 percent of the Bay Area's total population living within the county's jurisdiction.

The county has a diverse population, high standard of living, and strong economic vitality. These characteristics have attracted people from all over the world to reside in Santa Clara County. The county's location provides residents with a suburban lifestyle, while providing close access to nature and the outdoors (Santa Clara County 2003).

A portion of the project pipeline length occurs at the borders of Santa Clara County and San Benito County. The service area of SCVWD's water conveyance pipeline system falls within Santa Clara County; however, the infrastructure does not remain completely within the boundaries of the county. Raw water sourced from the federal CVP, is brought in on the Pacheco Conduit from San Luis Reservoir, located in Merced County.

San Benito County covers approximately 1,396 square miles ranging in elevation from near sea level to over 5,000 feet, and has a population of over 55,058 (U.S. Census Bureau 2010). Hollister, the County seat, is approximately 95 miles south of San Francisco, 45 miles inland from Monterey, and 300 miles north of Los Angeles (San Benito County 2005).

3.9.2 Environmental Consequences

3.9.2.1 No Action

The No Action Alternative would result in SCVWD waiting for approval of the PMP. The delay of repairs could lead to pipeline degradation. This could lead to a long-term shut-down of the pipeline and SCVWD would have to use other water sources in order to supply their customers. The delay could increase the cost of water to their customers until the pipeline could be repaired.

3.9.2.2 Proposed Action

Under the Proposed Action, Reclamation would approve the draining, inspection, maintenance, and refilling of the Santa Clara Conduit. Maintenance of existing facilities does not include provision of additional capacity for growth. No new water conveyance facilities, roads, or other infrastructure would be included as part of the Proposed Action. There would be no growth inducing impacts associated with implementing corrective maintenance defined under the Proposed Action.

The maintenance labor would be sourced from the existing SCVWD mechanical, engineering, and field staff. The maintenance work has been performed on pipelines since initial installation in the 1960s on an as needed basis. The Proposed Action would not result in substantial increased demands for labor that could lead to population growth within the Proposed Action area.

Work to maintain pipelines has limited temporary physical effects, which could result from staging and access, and draining water from the pipelines into local waterways; however, none of these tasks would result in displacement of persons or housing.

Some pipeline easements do occur through private property. Where pipeline easements pass through private property, SCVWD maintains agreements with the landowners to ensure access and the safety and integrity of the pipelines and residents. SCVWD would rely on these agreements for access to perform the maintenance activities, and the access would not be considered a large impact to residents because SCVWD would follow the terms of the agreements. No other disturbance to residents and their homes would occur as a result of implementing the Proposed Action.

3.9.2.3 Cumulative Impacts

The Proposed Action would not have cumulative effects on population and housing with any other past, present or future project, as the Proposed Action would not affect socioeconomic resources.

3.10 Air Quality

Section 176 (C) of the Clean Air Act [CAA] (42 USC 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 (SIP) required under Section 110 (a) of the Federal CAA (42 USC 7401 (a)) before the action is otherwise approved. In this context, conformity means that such federal actions must be consistent with SIP'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 SIP 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.

3.10.1 Affected Environment

Santa Clara County falls under the jurisdiction of the San Francisco Bay Area Air Quality Management District (BAAQMD). The San Francisco Bay Area has been designated as attainment for carbon monoxide, oxides of nitrogen, sulfur dioxide, and lead. The area is in non-attainment for ozone (O₃) and particulate matter under 10 microns in diameter (PM₁₀) and as unclassified for particulate matter under 2.5 microns in diameter [PM_{2.5}] (BAAQMD 2010).

San Benito County falls under the jurisdiction of the Monterey Bay Unified Air Pollution Control District (MBUAPCD). The air basin is a non-attainment area for the State Ambient Air Quality Standards for O₃ and PM₁₀ and unclassified for PM_{2.5} (BAAQMD 2010). Ambient air quality is currently being monitored for PM_{2.5} at the Salinas and Santa Cruz air monitoring stations (BAAQMD 2010).

3.10.2 Environmental Consequences

3.10.2.1 No Action

The No Action Alternative would result in SCVWD waiting for approval of the PMP. The Santa Clara Conduit could degrade if timely maintenance did not occur and the system would be compromised.

SCVWD currently maintains pipelines with the necessary vehicles and travel. The current number of maintenance related vehicular trips does not conflict with any of the air quality plans (BAAQMD's Clean Air Plan, the Air Quality Management Plan for the Monterey Bay Region, or the Particulate Matter Plan, and Carbon Monoxide Plan).

3.10.2.2 Proposed Action

Staging and access involves the transport of materials to a project site and the storage of those materials on site.

The Proposed Action activities would require travel to and from project sites both on highways and residential streets as well as on recreational paths and some unpaved or off-road areas. Traffic is a main generator of particulate matter and precursors to O₃; however, activities would require relatively small maintenance fleets (less than 10 vehicles). The contribution of pollutants from maintenance vehicles relative to the contribution from the existing traffic in the Proposed Action area would be indiscernible.

Draining pipeline water for activities would not include emission of criteria pollutants at levels that would prevent any of the air plans from being implemented.

Most pipeline repair work would occur within a pipeline. Repair could involve some welding, soldering, and cementing of joints and pipeline components; however, the scale and size of repair work would be limited to a few areas. Repair work emissions would not interfere with implementation of the Basin Plan.

3.10.2.3 Cumulative Impacts

SCVWD currently maintains pipelines and the Proposed Action would not cause the generation of new sources of traffic that could conflict with any of the air quality plans under which the

pipelines fall (BAAQMD's Clean Air Plan, the Air Quality Management Plan for the Monterey Bay Region, or the Particulate Matter Plan, and Carbon Monoxide Plan).

Repair activities would use small quantities of various emission-producing materials, such as primer, NSF International-approved paint, and epoxy resins for carbon fiber application. Although the physical and chemical properties of the products and their constituents have not been verified, SCVWD expects that minimal amounts of the above-mentioned products would be used.

The potential to cause cumulative air impacts with other SCVWD or local projects could only occur if other construction projects were occurring incidental to the Proposed Action activities. The District Operations Planning and Analysis Unit (OPAU) would determine any conflicting uses of resources or conflicting scopes of work within SCVWD and among other jurisdictions. If the OPAU allowed a construction project alongside another project, implementation of BMP Air Quality-2 would minimize any cumulative effects. BMP Air Quality-2 incorporates the BAAQMD guidelines for controlling construction-related emissions for PM₁₀ so as to minimize any individual project's contribution to an overall cumulative effect.

3.11 Global Climate

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 2010a)

Gases that trap heat in the atmosphere are often called greenhouse gases (GHG). Some GHG, such as carbon dioxide (CO₂), occur naturally and are emitted to the atmosphere through natural processes and human activities. Other GHG (e.g., fluorinated gases) are created and emitted solely through human activities. The principal GHG that enter the atmosphere because of human activities are: CO₂, methane, nitrous oxide, and fluorinated gasses (EPA 2010a).

During the past century humans have substantially added to the amount of GHG 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 methane, 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 2010b).

3.11.1 Affected Environment

More than 20 million Californians rely on the State Water Project and CVP. Increases in air temperature may lead to changes in precipitation patterns, runoff timing and volume, sea level rise, and changes in the amount of irrigation water needed due to modified evapotranspiration rates. These changes may lead to impacts to California's water resources and project operations.

While there is general consensus in their trend, the magnitudes and onset-timing of impacts are uncertain and are scenario-dependent (Anderson et al. 2008).

California Assembly Bill 32, the Global Warming Solutions Act of 2006, mandates the reduction of GHG emissions in California to 1990 levels by the year 2020. Currently there are no established significance thresholds for GHG in California.

Emissions estimates (Table 3-2) were calculated by SCVWD at approximately 5 metric tons based on types of vehicles used, activities, and number of trips.

Table 3-2 Emission Estimates

Activity Type	Vehicle Type Used	Veh. / Activity	Miles / Trip	# Sites	Miles / Veh	Gallons of Gas Used	Emissions (lbs. CO₂)	Emissions (metric tons CO₂)
Construction Related	heavy-duty	5	20	40	4,000	286	5,714	2.6
Monitoring Related	medium-duty	5	20	40	4,000	267	5,333	2.4
				TOTAL	8,000	552	11,048	5.0

3.11.2 Environmental Consequences

3.11.2.1 No Action

There would be no impact to global climate change as conditions would remain the same as existing conditions.

3.11.2.2 Proposed Action

The Proposed Action would involve short-term impacts consisting of emissions during maintenance and repairs. Estimated emissions from the Proposed Action would be approximately 5 metric tons per year of CO₂ which is negligible compared to the EPA's 25,000 metric tons per year threshold for annually reporting GHG emissions (EPA 2009). Therefore, there would be no adverse impacts to the global climate due to the Proposed Action.

3.11.2.3 Cumulative Impacts

GHG impacts are considered to be cumulative impacts. The Proposed Action, when added to other existing and proposed actions, would not contribute to cumulative impacts to global climate change owing to the *de minimis* magnitude of annual GHG emissions.

Section 4 Public Review Period

Reclamation posted the draft EA/FONSI for public review and comment on Reclamation's website between January 11, 2011 and January 25, 2011. Reclamation received no comments.

Section 5 Consultation and Coordination

5.1 Fish and Wildlife Coordination Act (16 USC § 661 et seq.)

The Fish and Wildlife Coordination Act (FWCA) requires that Reclamation consult with fish and wildlife agencies (Federal and State) on all water development projects that could affect biological resources. The amendments enacted in 1946 require consultation with the Service and State fish and wildlife agencies where the "waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted or otherwise controlled or modified" by any agency under a Federal permit or license. Consultation is to be undertaken for the purpose of "preventing the loss of and damage to wildlife resources."

The Proposed Action is the approval of maintenance on the Santa Clara Conduit, and does not require a Federal permit or license; therefore, the FWCA does not apply.

5.2 Endangered Species Act (16 USC § 1531 et seq.)

Section 7(a)(2) of the Endangered Species Act requires Federal agencies, in consultation with the Secretary of the Interior/Commerce, to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of designated critical habitat. In fulfilling these requirements, each agency must use the best scientific and commercial information available. Section 7(a)(4) requires Federal agencies to confer with the Service(s) on actions likely to jeopardize the continued existence of any species proposed for listing or result in the destruction or adverse modification of any proposed critical habitat.

Reclamation received a "not likely to adversely affect" letter from NMFS on the PMP which includes the Proposed Action area (see Appendix C).

The Service issued a non-jeopardy Biological Opinion (81420-2010-F-1010) for the Proposed Action to Reclamation on February 3, 2011 (see Appendix D). Reclamation and SCVWD will comply with all terms and conditions in the incidental take statement provided with the Biological Opinion.

5.3 National Historic Preservation Act (16 USC § 470 et seq.)

The Section 106 process of the NHPA is outlined in the Federal regulations at 36 CFR Part 800. These regulations describe the process that the Federal agency (Reclamation) takes to identify

cultural resources and the level of effect that the proposed undertaking will have on historic properties. In summary, Reclamation must first determine if the action is the type of action that has the potential to affect historic properties. If the action is the type of action that has the potential to affect historic properties, Reclamation must identify the APE, determine if historic properties are present within that APE, determine the effect that the undertaking will have on historic properties, and consult with the State Historic Preservation Officer to seek concurrence on Reclamation's findings. In addition, Reclamation is required through the Section 106 process to consult with Indian tribes concerning the identification of sites of religious or cultural significance, and consult with individuals or groups who are entitled to be consulting parties or have requested to be consulting parties.

The activities needed to drain, inspect, repair, and refill the Santa Clara Conduit have no potential to cause effects on historic properties pursuant to the regulations at 36 CFR Part 800.3(a)(1). All work would take place within or on conveyance features that have not yet reached 50 years of age. Additionally, the areas surrounding the Santa Clara Conduit were heavily disturbed during its original construction and have little potential to contain intact archaeological deposits.

5.4 Indian Trust Assets

ITA are legal interests in property held in trust by the United States for federally-recognized Indian tribes or individual Indians. An Indian trust has three components: (1) the trustee, (2) the beneficiary, and (3) the trust asset. ITA can include land, minerals, federally-reserved hunting and fishing rights, federally-reserved water rights, and in-stream flows associated with trust land. Beneficiaries of the Indian trust relationship are federally-recognized Indian tribes with trust land; the United States is the trustee. By definition, ITA cannot be sold, leased, or otherwise encumbered without approval of the United States. The characterization and application of the United States trust relationship have been defined by case law that interprets Congressional acts, executive orders, and historic treaty provisions.

The Proposed Action would not affect ITA because there are none located in the Proposed Action area.

5.5 Executive Order 13007 – Indian Sacred Sites

Executive Order 13007 requires Federal land managing agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sacred sites. It also requires agencies to develop procedures for reasonable notification of proposed actions or land management policies that may restrict access to or ceremonial use of, or adversely affect, sacred sites.

The Proposed Action would not affect Indian Sacred Sites as there are no known sites in the Proposed Action area.

5.6 Migratory Bird Treaty Act (16 USC § 703 et seq.)

The Migratory Bird Treaty Act implements various treaties and conventions between the U.S. and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. Unless permitted by regulations, the Act provides that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. Subject to limitations in the Act, the Secretary of the Interior (Secretary) may adopt regulations determining the extent to which, if at all, hunting, taking, capturing, killing, possessing, selling, purchasing, shipping, transporting or exporting of any migratory bird, part, nest or egg will be allowed, having regard for temperature zones, distribution, abundance, economic value, breeding habits and migratory flight patterns.

The Proposed Action would include measures to protect migratory birds, ensuring compliance with the Migratory Bird Treaty Act.

5.7 Executive Order 11988 – Floodplain Management and Executive Order 11990 – Protection of Wetlands

Executive Order 11988 requires Federal agencies to prepare floodplain assessments for actions located within or affecting flood plains, and similarly, Executive Order 11990 places similar requirements for actions in wetlands. This action would not adversely affect floodplains or wetlands.

5.8 Clean Air Act (42 USC § 7506 (C))

Section 176 of the CAA requires that any entity of the Federal government that engages in, supports, or in any way provided 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 CAA (42 USC § 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 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 involves maintenance and repairs to an existing pipeline. The proposed activities would require travel to and from project sites both on highways and residential streets as well as on recreational paths and some unpaved or off-road areas. The contribution of these activities relative to the contribution from the existing traffic in the area would be indiscernible. The Proposed Action emissions would not interfere with implementation of the Basin Air Plan.

5.9 Clean Water Act (16 USC § 703 et seq.)

Section 401

Section 401 of the CWA (33 USC § 1311) prohibits the discharge of any pollutants into navigable waters, except as allowed by permit issued under sections 402 and 404 of the CWA (33 USC § 1342 and 1344). If new structures (e.g., treatment plants) are proposed, that would discharge effluent into navigable waters, relevant permits under the CWA would be required for the project applicant(s). Section 401 requires any applicant for an individual U. S. Army Corps of Engineers dredge and fill discharge permit 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.

Section 404

Section 404 of the CWA 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” (33 USC § 1344).

The Proposed Action is subject to Section 401 of the CWA because it involves discharge into surface waters. Proposed Action activities would require a National Pollutant Discharge Elimination System Permit for discharges of non-storm water to waters of the State or United States. The Proposed Action would be subject to a Section 404/Nationwide Permit from the U.S. Army Corps of Engineers for placement of temporary or permanent BMPs into waterways (such as flow spreader dams/check dams, etc.), for any placement of fill during reclamation after valve repair in stream banks, and for any placement of fill into wetlands for access road repair.

Section 6 List of Preparers and Reviewers

Patti Clinton, Natural Resource Specialist, SCCAO

Shauna McDonald, Wildlife Biologist, SCCAO

Joanne Goodsell, Archaeologist, MP-153

Patricia Rivera, ITA, MP-400

Rain Healer, Natural Resource Specialist (reviewer), SCCAO

Yvonne K. Bernal, Natural Resource Specialist, Denver TSC

Section 7 References

- Abel, Jae. 2006. Personal communication report to Ned Gruenhagen regarding CFO Levee Repair/CTS-CH. August 4, 2006.
- Anderson, J, F Chung, M Anderson, L Brekke, D Easton, M Ejetal, R Peterson, and R Snyder. 2008. Progress on Incorporating Climate Change into Management of California's Water Resources. *Climatic Change* 87(Suppl 1):S91–S108 DOI 10.1007/s10584-007-9353-1
- BAAQMD. 2010. Air Quality Standards and Attainment Status. Website: http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm.
- Bureau of Reclamation (Reclamation). 2003. *San Felipe Preventive Maintenance Shutdown Project, FONSI/EA-03-08*. South-Central California Area Office, Mid-Pacific Region.
- Bureau of Reclamation 2007. *Pipeline Maintenance Program for the Pacheco and Santa Clara Conduits and Tunnels Santa Clara Valley Water District, Draft EA-06-110*. South-Central California Area Office, Mid-Pacific Region.
- Bureau of Reclamation 2008. *Santa Clara Conduit Shutdown, Inspection, and Repair Santa Clara Valley Water District, FONSI/EA-08-78*. South-Central California Area Office, Mid-Pacific Region.
- California Department of Fish and Game (DFG). 2005. Central Valley Bay-Delta Branch. Available: <http://delta.dfg.ca.gov/>.
- Cypher, B. L. 2006. San Joaquin kit fox conservation in the San Luis drainage study unit. California State University-Stanislaus, Endangered Species Recovery Program, Fresno, CA. 8 pp.
- Durham, D.L. 1998. *California Geographic Names – A Gazetteer of Historic and Modern Names of the State*. Published by Quill Driver Books. 1676 pps.
- Durham, D.L. 2001. *Durham's Place Names of California's Central Coast*. Published by Quill Driver Books. 241 pps.
- Environmental Protection Agency (EPA). 2009. Mandatory Reporting of Greenhouse Gases, Final Rule (40 CFR Parts 86, 87, 89 et al.) *Federal Register*. 74(209): 56260-56519.
- Environmental Protection Agency (EPA). 2010a: Website – Climate Change, Basic Information. <http://www.epa.gov/climatechange/basicinfo.html>
- Environmental Protection Agency (EPA). 2010b: Website – Climate Change, Science. <http://www.epa.gov/climatechange/science/index.html>

- Gilroy Dispatch. 2005. Webiste: <https://secure.gilroydispatch.com/printer/article.asp?c=159148>
- Girard, I. 2001. Field cost of activity in the San Joaquin kit fox, *Vulpes macrotis*. *Physiological and Biochemical Zoology* 74(2): 191-202.
- Iwamura, T.I. 1995. Hydrogeology of the Santa Clara and Coyote valleys groundwater basins, California: Recent Geologic Studies in the San Francisco Bay Area: Pacific section S.E.P.M., Vol. 76, p. 173-192.
- Jennings, M. R., and M. P. Hayes. 1988. Habitat correlates of distribution of the California red-legged frog (*Rana aurora draytonii*) and the foothill yellow-legged frog (*Rana boylei*): implications for management. In: *Proceedings of the symposium on the management of amphibians, reptiles, and small mammals in North America*. R. Sarzo, K.E. Severson, and D.R. Patton, (technical coordinators). U.S.D.A. Forest Service General Technical Report RM-166, pp. 144-158.
- Jennings, M. R. and M. P. Hayes. 1989. Final report of the status of the California red-legged frog (*Rana aurora draytonii*) in the Pescadero Marsh Natural Preserve. Contract No. 4-823-9018. California Academy of Sciences, pp. 56.
- Jennings, M. R., and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, California. 255 pp.
- Jennings, M.R., S. Townsend, R.R. Duke. 1997. Santa Clara County Valley Water District California red-legged frog Distribution and Status.
- Loredo, I., D. Van Vuren and M. L. Morrison. 1996. Habitat use and migration behavior of the California tiger salamander. *Journal of Herpetology* 30:282-285.
- Moyle, P. B. 1976. Inland fishes of California. University of California Press, Berkeley. 405 pp.
- National Marine Fisheries Service (NMFS). 2008. Not likely to adversely affect memo (2007/05948) to Michael Kinsey, Supervisory Wildlife Biologist. September 30, 2008.
- Orloff, S., F. Hall, and L. Spiegel. 1986. Distribution and habitat requirements of the San Joaquin kit fox in the northern extreme of their range. *Transactions Western Section Wildlife Society* 22: 60-70.
- Rana Resources. 2003. Pre-construction survey report for the San Felipe Preventative Maintenance Shutdown Project. Prepared for Tania Treis, MHA Environmental Consulting.

- Reymers, V. and Hemmeter, T. 2001. Santa Clara Valley Water District Groundwater Management Plan: prepared under direction of Ahmadi, B., Whitman, K., and Wadlow, W.L, July 2001, 67p.
- San Benito County. 2005. San Benito County, County Government Website: <http://www.san-benito.ca.us/>. Accessed: December 2005.
- Santa Clara County. 1994. General Plan.
- Santa Clara County. 2003 (from SOCEV). California County Fact Book produced by California Institute for County Government in conjunction with the California State Association of Counties.
- Santa Clara Valley Water District (SCVWD). 2005. *Santa Clara Valley Water District Pipeline Maintenance Program Environmental Impact Report* (#2005101047, notice of determination dated 11/13/2007).
- Spiegel, L. K. and M. Bradbury. 1992. Home range characteristics of the San Joaquin San Joaquin kit fox in Western Kern County, California. *Transactions of the Western Section of the Wildlife Society* 2:83-92.
- U.S. Census Bureau. 2010. Website: <http://quickfacts.census.gov/qfd/states/06/06085.html>.
- U.S. Fish and Wildlife Service (Service). 2005. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the California tiger salamander, Central Population; Final Rule. *Federal Register* 70 (162):49379-49458.
- U.S. Fish and Wildlife Service (Service). 2009. Biological Opinion on the Santa Clara Conduit Pipeline Maintenance Program in Santa Clara and San Benito Counties, California (81420-2009 F-0245). Issued to Reclamation on January 28, 2009.
- U.S. Fish and Wildlife Service (Service). 2010. Species List (document number: 101116124144). Website: http://www.fws.gov/sacramento/es/spp_list.htm. Accessed: November 16, 2010.
- White, P. J., and K. Ralls. 1993. Reproduction and spacing patterns of San Joaquin kit foxes relative to changing prey availability. *Journal of Wildlife Management* 57:861-867.
- Zeiner, D.C. W.F. Laudenslayer Jr., and K.E. Mayer (eds.). 1988. California's wildlife. Volume I. Amphibians and reptiles. California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game, Sacramento, CA. 272 pp.