

# RECLAMATION

*Managing Water in the West*

**Draft Environmental Assessment**

## **Pipeline Maintenance Program for the Pacheco and Santa Clara Conduits and Tunnels Santa Clara Valley Water District**

**EA-06-110**



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

September 2007



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## List of Acronyms, Abbreviations, and Definition of Terms

ACOE	U.S. Army Corps of Engineers
AF	Acre-feet
ARV	Air Release Valves
bankfull	Associated with the flow that just fills the channel to the top of its banks and at a point where the water begins to overflow onto a floodplain.
Blow-off points	Discharge water directly into the receiving water or by way of a permanent or temporary drainage pipe.
BMP	Best Management Practice
CFI/CFO	Calveras Fault Input/Calveras Fault Output
cfs	Cubic feet per second
PMP	Pipeline Maintenance Program
CDFG	California Department of Fish and Game
District	Santa Clara Valley Water District
Lacustrine	Lake formed
NMFS	National Marine Fishery USFWS
NPDES	National Pollutant Discharge Elimination System
NTU	National Turbidity Unit
OHWM	ordinary high water mark
Pump-outs	Stations where water can be pumped out of the pipeline and directed to the receiving location with a portable hose or pipe. Pump-out discharges can be conveyed to city storm drains, swales and wetlands, or directly to creeks.
Reclamation	Bureau of Reclamation
ROW	Right-of-Way
RWQCB	Regional Water Quality Control Board
SCADA	Supervisory Control and Data Acquisition
USFWS	U.S. Fish and Wildlife Service
Turnouts	Similar to blow-offs, the primary distinction being that they are routinely used to supply water to customers or to channels, reservoirs, and percolation ponds for the purposes of storage, groundwater recharge, and/or riparian habitat improvement.

# Section 1 Purpose and Need for Action

## 1.1 Background

The San Felipe Division of the Central Valley Project, in the central coastal area of California, encompasses the Santa Clara Valley in Santa Clara County, the northern portion of San Benito County, the southern portion of Santa Cruz County, and the northern edge of Monterey County. Authorized in 1960, the division provides supplemental water to 63,500 acres of land, in addition to 132,400 acre-feet of water annually for municipal and industrial use. Water is conveyed from the Delta of the San Joaquin and Sacramento Rivers through the Delta-Mendota Canal to O'Neill Forebay. The water is then be pumped into San Luis Reservoir and diverted through the 1.8 miles of Pacheco Tunnel Reach 1 to the Pacheco Pumping Plant. At the pumping plant, the water is lifted to the 5.3-mile-long high-level section of Pacheco Tunnel Reach 2. The water flows through the tunnel and, without additional pumping, through the Pacheco Conduit to the bifurcation of the Santa Clara and Hollister Conduits. The water is then conveyed throughout the service areas for irrigation and municipal uses (Reclamation 2007).

The Santa Clara Valley Water District (District) is proposing to adopt and implement a Pipeline Maintenance Program (PMP) that defines the activities associated with maintenance and repair of water supply conveyance systems throughout the District's jurisdiction (SCVWD 2007a). The District maintains 14 raw water pipelines and nine treated water pipelines in Santa Clara County and portions of Merced and San Benito Counties. The Bureau of Reclamation (Reclamation) owns two of the 14 raw water pipelines – the Santa Clara Conduit and the Pacheco Conduit (See figures 1 and 2 for the project area). The District has an agreement with Reclamation to perform operations and maintenance of these facilities. Reclamation proposes to approve the pipeline maintenance program for the two federally owned pipelines. The scope of the project includes the Santa Clara Conduit, the Pacheco Conduit and corresponding easements that cross three counties: Santa Clara, San Benito, and Merced Counties. The project area would also include streams, fields, storm drains, and channels where discharge of pipeline water may occur.

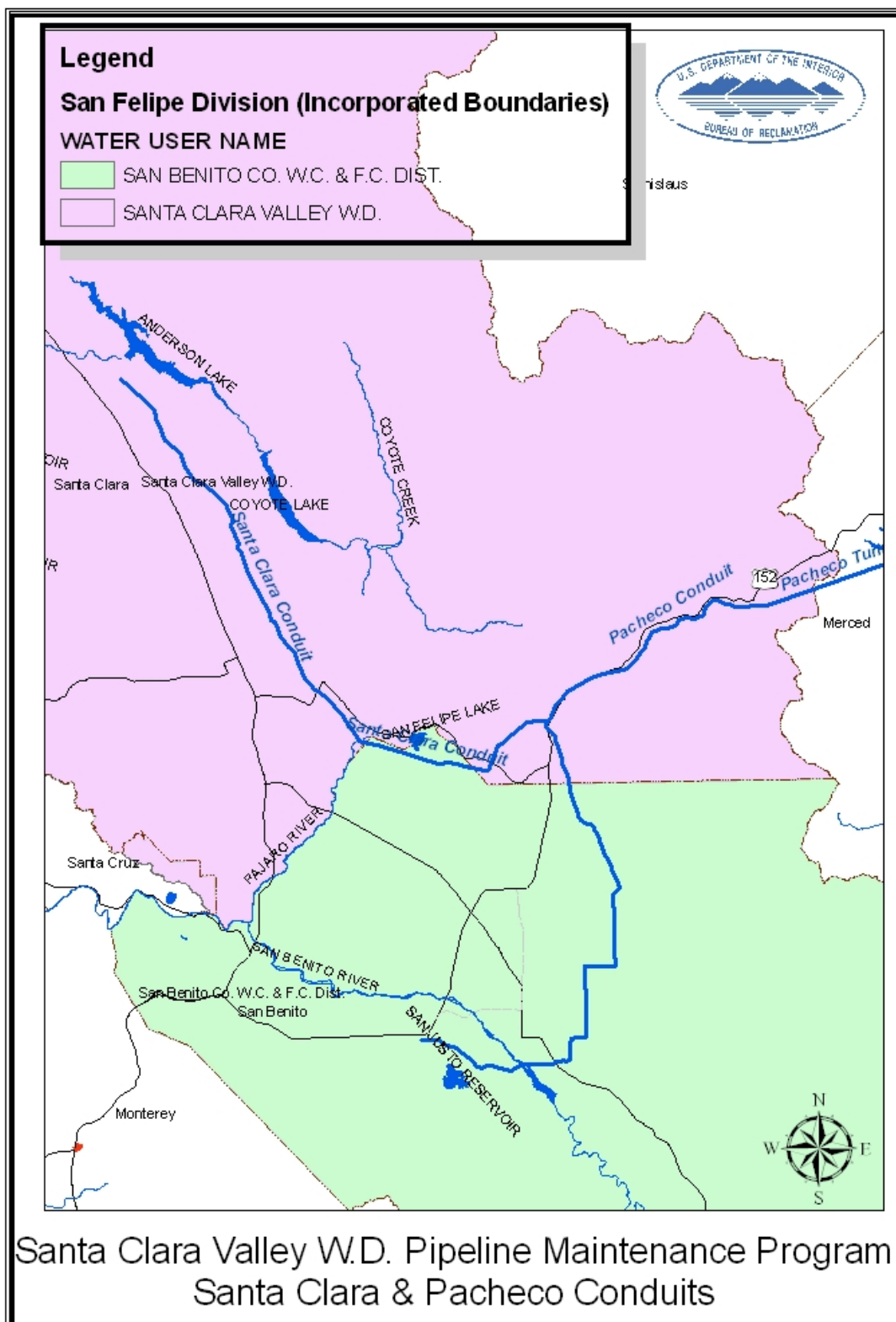


Figure 1 Project Area - 7 ½ minute U.S. Geological Survey, quadrangles Morgan Hill, Mount Sizer, Gilroy, Pacheco Peak, and Pacheco Pass



Figure 2 Santa Clara Valley Water District, Federal water projects in purple (SCVWD 2001)

## 1.2 Purpose and Need

The purpose of the PMP covered in this environmental assessment is to provide a program that guides and defines maintenance procedures for the Santa Clara Conduit and Pacheco Conduit.

The PMP would identify the range of maintenance activities and provide protocols and procedures for carrying out those activities, as well as long-term (ten-year) guidance on implementing routine and preventative maintenance on the two water conveyance systems. This maintenance is needed to meet the District's obligations of reliable water service and delivery.

Objectives of the PMP are to:

- 1) Standardize practices for routine activities associated with conveyance system maintenance by defining standardized procedure protocols for maintenance work.
- 2) Avoid or minimize adverse environmental effects through economically practical mitigation, where appropriate, by incorporating best management practices (BMPs) into activities.
- 3) Establish practices that optimize operational flexibility and allow integration of improved methodologies, learned through experience, to improve BMPs and train staff.
- 4) Ensure routine maintenance activities reflect the District's policies of environmental protection and stewardship.

## 1.3 Potential Issues

- Air Quality
- Aesthetics
- Noise
- Groundwater Resources
- Surface Water Resources
- Land Use
- Biological Resources
- Geology
- Cultural Resources
- Indian Trust Assets
- Socioeconomic Resources
- Environmental Justice

## 1.4 Scope

Santa Clara Valley Water District has prepared the *Draft Pipeline Maintenance Program Environmental Impact Report/Environmental Assessment* which covers the maintenance of all facilities that supply water to and within the District. Reclamation's approval is only applicable to the federal facilities (the Santa Clara Conduit and Pacheco Conduit). The District can implement the PMP on District-owned facilities without Reclamation's approval. This EA is limited to the environmental analysis of maintenance actions related to federally-owned pipelines only. Implementation of the PMP on District-owned facilities is not analyzed under this EA;



however, one facility, the Uvas-Llegas Transfer pipeline, which delivers raw water into the Pajaro System, was analyzed for cumulative effects.

# Section 2 Alternatives Including the Proposed Action

## 2.1 Alternative A - No Action

Reclamation would not approve the District PMP for federal facilities - Santa Clara Conduit or Pacheco Conduit. The No Action alternative would result in the District not preparing a program and instead preparing individual maintenance actions and environmental reviews on an as-needed basis. District schedules may be delayed by extended consultation with agencies and defining permitting requirements.

## 2.2 Alternative B – Proposed Action

Reclamation would approve implementation of the District PMP for the federal facilities - Santa Clara Conduit and Pacheco Conduit.

Maintenance work would take place at 42 vaults on the Pacheco Conduit and 10 vaults on the Santa Clara Conduit. All vault sites are either raised concrete vaults or blockhouses in Reclamation's right-of-way (ROW). They can be accessed through gates or roads that branch off of Highway 152. The "most critical" and challenging vault site would be Pacheco Conduit #22 which is near a dam belonging to a private property owner and is located in a wetland.

The PMP may require several permits including:

- Army Corps of Engineers (ACOE) Section 404 permit for placement of dredge and fill into waters of the United States
- Regional Water Quality Control Board (RWQCB) Section 401 Certification
- RWQCB National Pollutant Discharge Elimination System (NPDES) permits for low threat water quality discharges
- California Department of Fish and Game (CDFG) Section 1600 of Fish and Game Code Streambed Alteration Memorandum of Agreement
- Encroachment permits, as necessary

Prior to pipeline maintenance, the pipelines would be dewatered and inspected. The dewatering process is described in Section 2.2.1. Sections 2.2.2 and 2.2.3 describe the maintenance activities and subactivities, respectively. Table 1 lists the activities needed to complete the PMP and for each activity the subactivity required. The proposed action is a ten-year project.

### 2.2.1 Shutdown Schedule and Dewatering

The Pacheco Regulating Tank, Pacheco Tunnel, Pacheco Conduit, Santa Clara Tunnel, and a portion of the Santa Clara Conduit would be completely dewatered to allow for an internal visual walk-through inspection. Dewatering is accomplished by discharging through draining pipelines (draining is described in section 2.2.3 subactivities). A general description of the shutdown schedule and discharging follows.

### **2.2.1.1 Pacheco Conduit**

Shutdown and inspection of the Pacheco Conduit is proposed for fall 2007. This timing was selected so that the pipeline inspection would be in alignment with the tunnel inspection frequency of once every five years. The last Pacheco Tunnel inspection took place in March 2002. Shutdown duration is not anticipated to exceed one month.

The Pacheco Conduit, Pacheco Regulating Tank, and Pacheco Tunnel as well as a portion of the Santa Clara Conduit would be drained by gravity to San Benito County Water District (SBCWD). The Santa Clara Conduit would be, at a minimum, isolated at Calaveras Fault Output (CFO), which is leak tight. The Santa Clara Tunnel and a portion of the Santa Clara Conduit east of the Santa Clara Tunnel up to the bifurcation (BIF) would be drained to allow access to the line valve at BIF. The total amount of water to be removed from the pipe is about 184 AF (60,000,000 gallons). It is estimated the vast majority of the water to be discharged from the pipe would flow by gravity to SBCWD. However, relatively small amounts from low points in the system would be pumped (Appendix A photo). Due to possible boundary valve leakage at CFO or the San Benito line valve, some minor draining could flow into creeks in the area of the BIF.

During inspection, neither SBCWD nor the District would receive water from San Luis Reservoir.

Discharges to creeks would not occur between the months of December through April if steelhead trout are known to inhabit those creeks.

Shutdown of the Pacheco Conduit would not be accomplished during periods of high water demand (June through August, and as late as September). The maintenance availability for this shutdown would be the month of May, or September through November.

Shutdown would be coordinated with District Operations to ensure availability of alternate water sources during the shutdown.

### **2.2.1.2 Santa Clara Conduit Phase 1**

Shutdown and inspection of the Santa Clara Conduit is proposed for fall of 2008. The Santa Clara Tunnel and all piping west to sectionalizing valve (SV) 1 would be included in the Phase 1 inspection. The tunnel and fault crossing were last inspected in September 2003. Shutdown duration is not anticipated to exceed one month.

Shutdown would be coordinated with District Operations to ensure availability of alternate water sources during the shutdown.

The Santa Clara Conduit would be drained from the Santa Clara Tunnel to SV1, which is a distance of approximately 12.71 miles. The total amount of water to be discharged from the pipe is approximately 78 AF (approximately 25,500,000 gallons). Most of the water would be discharged to surface streams in the area of CFI/CFO. Deliveries to SBCWD could be continued during this shutdown; however, flows to the District and Pajaro Valley Water Management Agency would stop. The Santa Clara Conduit would be isolated at BIF (84" line valve seat adjusted during 2007 Pacheco Conduit shutdown), SV1, and SV2. One irrigator at San Felipe

Road would be impacted for the duration of the shutdown. Due to possible boundary valve leakage at SV1 or BIF, some minor draining could flow into creeks in the area of the CFI. Other drainage points between CFO and SV1 may be required. The need for additional points of discharge would be determined during the development of the detailed de-watering plan approximately one year prior to the shutdown.

During the shutdown, the portion of 96-inch pipe generally located between the Santa Clara Tunnel outlet and the San Felipe Road not inspected during the 2003 shutdown would be inspected. This portion of pipe is approximately 6,663 feet in length. Approximately 8.21 miles of pipeline between CFO and SV1 would also be inspected.

Discharges to creeks would not occur between the months of December through April if steelhead trout are known to inhabit those creeks.

Shutdown of the Santa Clara Conduit would not be accomplished during periods of high water demand (June through August, and as late as September). The maintenance availability for this shutdown would be the month of May, or September through November.

Shutdown would be coordinated with District Operations to ensure availability of alternate water sources during the shutdown.

#### **2.2.1.3 Santa Clara Conduit Phase 2**

Phase 2 of the Santa Clara Conduit inspection is proposed for 2010. The reach of pipe to be inspected would be between SV1 and Coyote Pumping Plant, a distance of approximately 10.34 miles, 96-inch diameter pipe. This shutdown is anticipated to last one month but could be extended by one month or more if the Pacheco Regulating Tank is re-coated during this shutdown.

Re-coating of the Pacheco Regulating Tank, if not done during this shutdown, would likely be required within the next 3 to 6 years. The project to re-coat the tank would take approximately 2 to 3 months during which San Luis Reservoir would not be available as a water source. During this long duration shutdown, any recommended additional work not previously done should be completed, e.g., vault rehabilitation including air and vacuum valve, isolation valve, small diameter threaded steel pipe replacement, and blow off valve replacement as well as re-bolting and painting.

The Santa Clara Conduit would be drained from SV1 to Coyote Pumping Plant, a distance of approximately 10.34 miles. The total amount of water to be removed from the pipe is approximately 63 AF (approximately 20,500,000 gallons). The Santa Clara Conduit would be isolated at SV1 and Coyote Pumping Plant. Water can continue to be delivered to SBCWD and PVWMA (unless the regulating tank is re-coated during the shutdown). Water would be drained through turnouts as well as other blow off points between SV1 and Coyote Pumping Plant. A complete de-watering plan would be developed about one year in advance of the planned shutdown.

Discharges to creeks would not occur between the months of December through April if steelhead trout are known to inhabit those creeks.

Shutdown of the Santa Clara Conduit would not be accomplished during periods of high water demand (June through August, and as late as September). Shutdown would be scheduled for the month of May, or September through November.

This portion of the Santa Clara Conduit has several turnouts (Main Avenue, Hal Road, and San Pedro Ponds) which would be considered during the detailed shutdown planning effort.

Shutdown would be coordinated with District Operations to ensure availability of alternate water sources during the shutdown.

**2.2.1.4 Pacheco Tunnel**

Reclamation identified shutdown of this tunnel as once every five years. Re-coating of the regulating tank would be considered for completion during this shutdown if not already completed. Shutdown is proposed for 2012.

**2.2.1.5 Santa Clara Tunnel/Calaveras Fault Crossing**

Reclamation identified shutdown as once every five years. If the recommended additional work identified for completion under Santa Clara Conduit Phase 1 (install a pump, by-pass piping, and associated valves) was completed as recommended, this shutdown would not require discharges to the environment. The recommended infrastructure would allow the vast majority of water upstream of CFI to be pumped to the downstream side of the shut isolation valve at CFO thereby negating the need to discharge to the environment. Because of this capability, the shutdown would not be constrained by environmental concerns (steelhead trout) and could therefore be carried out during the winter months avoiding the need to run Coyote Pumping Plant. Shutdown would only be limited by high flow months (June through September).

**Table 1 List of activities involved in the proposed PMP of the Pacheco and Santa Clara Conduits.**

<b>PMP Activity (Section 2.2.2)</b>	<b>PMP Subactivity (Section 2.2.3)</b>
Air Release Valve Maintenance	Pump-out of Vaults, Access, Staging
Leak Repair	Lockout/Tagout, Draining and Refilling, Access, Staging, Pipeline Inspection, Excavation
Cathodic Protection/Corrosion Control	Access, Staging, Pipeline Inspection, Excavation
Internal Inspection	Lockout/Tagout, Pump-out of Vaults, Isolation, Draining and Refilling, Access, Staging, Pipeline Inspection, Repair
Replacement/Repair of Buried Service Valves or other pipeline components	Lockout/Tagout, Draining and Refilling, Excavation, Access, Staging
Replacement/Repair of Pipeline Segments	Lockout/Tagout, Draining and Refilling, Excavation, Access, Staging
Vault maintenance	Pump-out of Vaults, Dewatering and Refilling, Access, Staging
Telemetry System Maintenance	Access, Staging, Excavation
Access Road Repairs	Access, Staging, Excavation
Bank Stabilization	Access, Staging, Excavation

## **2.2.2 PMP Activity**

### **2.2.2.1 Air Release Valve Maintenance**

There are several different types of air release valves (ARVs), which are located along pipeline segments (usually at topographically high points), to release air that accumulates due to differential vertical displacement or to admit air during draining. The ARVs are critical in preventing potentially damaging vacuum conditions and pressure surges induced by air and in preventing friction due to ARV-binding. These valves, like most movable parts, wear out over time and have to be maintained or replaced periodically to prevent pipeline damage.

In order to replace the ARV, it would be isolated and drained. The valve would then be placed back in service to check for proper operation to ensure it would unseat and re-seat as designed. If proper isolation is not available, discharge is required.

#### ***Schedule***

ARVs are serviced approximately one to two times per year.

ARVs are generally not replaced often. ARVs must be replaced every 25 years if 2 inches or smaller. ARVs greater than 2 inches are replaced every 33 years. A number of ARVs would be replaced within the timeframe of the PMP.

#### ***Staff and Equipment***

The routine preventive maintenance of ARVs requires at least two staff and usually two trucks.

### **2.2.2.2 Leak Repair**

Leaks usually occur at pipeline joints, or connections such as at valves. A leak is easily detected within a vault but can also be detected through pressure drops and localized ground saturation or ponding. Once a month all pipelines would be inspected via helicopter to verify integrity. The helicopter crew scans for saturated ground or ponding near the facilities. Small, buried leaks would be harder to detect in winter months than in the summer when the ground is dry.

#### ***Schedule***

Leak repair is done on an as needed basis and can be done throughout the year.

#### ***Staff and Equipment***

See Section 2.2.3 PMP Subactivities that apply to this PMP Activity for staff and equipment requirements.

### **2.2.2.3 Cathodic Protection/Corrosion Control and Monitoring**

Cathodic protection (CP) is used to protect pipelines from corrosion. Current is applied to the pipeline in the form of AC voltage converted to DC voltage. The current is lowered to the millivolt level. The resistance and how much current is required to keep that resistance through a length of pipe would be monitored.

A technician would monitor the resistance and charge at hundreds of points along the pipe called CP sites to determine how it is changing over time. If necessary, the voltage at the application site would be adjusted. If resistance approaches infinity, there is likely a pipe break or excessive corrosion.

### ***Schedule***

Inspection schedules depend on the length of pipeline under question. Inspections usually take from one day to one week to complete.

### ***Staff and Equipment***

Pipelines are inspected by a minimum of two to three people. One person inspects the facilities and performs the measurements and the other records the data. The third holds lights and equipment. Several crews of three may be used if large sections of pipeline require inspection.

#### **2.2.2.4 Internal Inspection**

During shutdown, the Pacheco Tunnel, Pacheco Conduit (approximately 13.3 miles of 120' diameter pipe), and approximately 4,982 feet of the Santa Clara Conduit between the BIF structure and the Santa Clara Tunnel would be inspected. The Santa Clara Conduit, tunnel, all piping west to SV1, and Calaveras Fault Crossing would be inspected during Phase 1 shutdown. During Phase 2, pipe would be inspected between SV1 and Coyote Pumping Plant, as previously discussed.

Internal inspections are necessary to determine the integrity of joints and all sections of pipeline, pipeline materials, and equipment, especially in seismically active areas. Internal inspections are planned every 5-10 years, depending on the pipeline. Internal inspection activities usually occur on all pipelines as preventative maintenance although the inspection interval varies by pipeline.

Vault and nozzle openings provide entry points and fan ventilation for pipeline personnel during the project. Operation of fans would begin several hours to one day before the inspection commences. Visual inspection would be performed to determine how much the pipeline has moved at joints, if the pipeline is in need of repair, and what type of repair may be warranted. Each joint must be physically observed, recorded, and measured if necessary. Descriptions would be prepared describing the joint movement. Video and audio recording devices would also be used.

Visual inspections may also be performed to determine the cause of a leak or to inspect pipe integrity along any length. Another form of inspection is cathodic protection (CP) monitoring (Appendix A photo) (See discussion in Section 2.2.2.3). CP systems would be applied to the pipelines to prevent or minimize corrosion.

During inspection, a pump, by-pass piping and associated valves would be installed at the CFO vault so that future dewatering efforts would not require large discharges to surface streams.

### ***Schedule***

Internal inspections are typically planned once every 5 years. Inspections usually take from one day to one week to complete.

### ***Staff and Equipment***

Pipelines would be inspected by a minimum of two to three people. One person inspects the facilities and performs the measurements and the other records the data. The third holds lights and equipment. Several crews of three may be used if large sections of pipeline require inspection.

### **2.2.2.5 Replacement/Repair of Buried Service Valves or other pipeline components**

Service valve repair necessary would depend on the circumstances. Repair includes repair of up to three blow-off valves per year within stream banks.

Valves are replaced if they have demonstrated leaks or failure, or would not open. Replacement methodology depends on the type of valve. The procedure includes complete removal and disposal of old valves and installation of a new valve according to manufacturer's specifications. Valve replacement can occur during in-pipe or external repair. All used parts and wastes from repair are transported to District pumping plants for proper disposal.

#### ***Schedule***

Repair work usually takes about one week, but depends on the extent of repairs to be performed. Valves are replaced every 25 years for 4 inch to 36 inch valves, 40 years for butterfly valves, and 50 years for 36 inch and larger valves.

#### ***Staff and Equipment***

Three workers are traditionally used for in-pipe repair.

### **2.2.2.6 Replacement/Repair of Pipeline Segments**

Repair includes various types of repair to the pipeline itself, such as interior lining repair, slip lining repair, pipeline section replacement. Repair is necessary to maintain pipeline integrity.

Repair activities depend on the results of the inspections and the particular pipeline, and include both internal and external work. Repair can include installing Weko seals (rubber-type), applying cement-mortar grout at joints or locations where linings are damaged, welding joints, and replacing valves.

- **Weko Seals.** A Weko seal is placed over a joint that has experienced displacement or is at risk of failure. The seal is held in place by expandable metal rings and forced against the interior diameter of the pipeline.
- **Cement-mortar Grouting.** Cement mortar grout is usually applied when old grout is wearing down, has decayed, or has chipped from pipe cylinders. Sometimes the grout is applied to a joint before a Weko seal is installed or to a joint that has separated. Grout is applied manually during in-pipe repair according to manufacturer and American Water Works Association specifications. Mortar lining repairs occur during or after the inspection process.
- **Welding Joints.** Welding is performed a few times per year in total. Some pipelines may not require any joint welding in a given year. Joints that have pulled can be welded back together and covered with cement-mortar grout. Welding is performed manually and the procedure includes welding with a hand-held welder during in-pipe repair. Welding is performed within the pipeline if the inside can be accessed. Welding may require excavation and external welding if the pipe cannot be accessed internally.
- **Replacing Valves.** The procedure includes complete removal and disposal of old valves and installation of a new valve according to manufacturer's specifications.



- **Re-coat.** The Pacheco Regulating Tank may require re-coating
- **Rehabilitation.** Rehabilitation of piping in utility vaults would include painting, re-bolting and possible replacement of 6-inch butterfly valves.

In-pipe repairs require dewatering and its associated discharge. Other repairs can require excavation.

Occasionally sections of pipeline need to be replaced. The PMP covers in kind replacement for sections up to one mile in length. Replacement involves excavation and removal of the existing pipeline section. Procedures for placing the new pipeline sections depend on the type of pipeline material but generally consists of the following steps:

- Make each joint in accordance with written procedures that have been proven by test or experience to produce strong, gas tight joints;
- Obtain and follow the manufacturer's recommendations for each specific fitting used;
- Handle pipe properly without damaging the outside coating. If the coating is damaged, accelerated corrosion can occur in that area;
- Coat or wrap steel pipe at all welded and mechanical joints before backfilling as well as all areas of damaged coating;
- Test new pipe for leaks before backfilling;
- Support the pipe along its length with proper backfill. Make certain that backfill material does not contain any large or sharp rocks, broken glass or other objects which could scrape the coating or dent the pipe;
- Cathodically protect steel pipes; and
- Electrically insulate dissimilar metals.

### ***Schedule***

The repair schedule depends on the extent of repairs for the segment of pipeline under evaluation. Internal inspection occurs every five to ten years on each pipeline and internal repair work would be corollary to the pipeline shutdown for inspection. External repair work may involve excavation and could require a longer schedule. Repair work usually takes about one week, but depends on the extent of repairs to be performed.

### ***Staff and Equipment***

Three workers are traditionally used for in-pipe repair. Teams of qualified personnel are contracted for the repair. The District's Utility Maintenance Unit provides pipeline ventilation and confined space entry. Fans operate the entire time that there are workers in the pipeline, in addition to a period of a few hours to a day prior to entry for initial ventilation. The District's Environmental Health and Safety Unit enforce all applicable OSHA regulations.

Equipment includes headlamps and hand maintenance tools, ventilation fans, and welding torches. Workers also use specialized confined space equipment. District vehicles would be present on site.

### **2.2.2.7 Vault Maintenance**

Systems maintained in a vault include line valves, instrumentation and SCADA, meters, etc. Work involved depends on the system needing maintenance. Excavation could be involved in vault maintenance.

The vault is accessed and hosed down to clean off spider webs and animal debris. Water that may have accumulated in the vault as well as water supplied by the hose is then pumped out using the sump pump and discharged onto the nearby ground. Vaults need to be cleaned periodically in order to ensure a safe environment for workers to access valves and to reduce corrosion on equipment. Pumped out water usually just contains natural organic debris.

#### ***Schedule***

This activity could be scheduled yearly, quarterly, and sometimes monthly. Pump out takes less than one hour, and usually takes less than 15 minutes.

#### ***Staff and Equipment***

Routine preventive maintenance requires at least two staff and usually two trucks.

### **2.2.2.8 Telemetry System Maintenance**

Telemetry system cables and remote boxes need to be inspected and replaced on an as needed basis. Cables are usually about the thickness of utility wires and located one to two feet below the ground surface or in two to three inch diameter conduits under bridges to cross over creeks. Telemetry cables are located near vaults that have electronically operated valves and other circuitry.

Low power electrical wires connecting systems sometimes also require repair or replacement.

#### ***Schedule***

Maintenance would be accomplished on an as needed basis.

#### ***Staff and Equipment***

See PMP Subactivities that apply to this PMP Activity.

### **2.2.2.9 Access Road Repairs**

Access road excavations could be very small to repair a pot hole or shoulder slump; involve larger, linear excavations to install or replace culverts or drainage ditches; or non-specific larger excavations to repair slope failures for elevated access road fills.

If excavation is necessary through drainage crossings or in wetlands, permit conditions and special procedures apply. Erosion control measures would also be applied.

One specific road repair/maintenance project has already been identified. The levee road leading out to the Calveras Fault Input/Output (CFI/CFO) along the Santa Clara Conduit needs repair in the immediate future and would be one of the first activities covered under the PMP. It would be covered under this EA as road failure is expected in the future. Due to the uncertainty of the completion date of this EA and the need to repair the road in the early fall of 2007, a separate NEPA document has been completed for this repair entitled Santa Clara Valley Water District Access Road Repair – Calaveras Fault Crossing (EA-06-91.) The project description and

analysis in this EA is incorporated by reference. A brief description of the activity analyzed in the above EA is as follows:

There is only one access road to the facilities (vaults, valves, pipelines and instrumentation) at CFI/CFO. It is built on top of a causeway that crosses a low-lying ephemeral lakebed known as San Felipe Lake. The access road is approximately 15 feet wide and eight to ten feet high, and over the past few years has developed three minor slope failures on its north side. The failures progress in the winter, resulting in unacceptable loss of road width, which if not repaired, threatens to interrupt use of the road and limit access to critical Reclamation facilities. Existing telemetry cable lines are buried in the road surface and would need to be temporarily re-located during the road repair activities; the cable lines would be permanently replaced after the road repairs are complete.

### **Slope Failures**

Slide #1, the western-most slide, failed in January 2004 and was restored by a contractor in March 2004; the slope subsequently failed again in January 2005. This slide measures approximately 25 feet long along the northern face of the causeway and has encroached approximately two feet horizontally into the edge of the access road, with a three to four foot vertical drop.

Slide #2 failed in January 2005. This slide measures approximately 17 feet long along the northern face of the causeway and has encroached approximately one foot horizontally into the edge of the access road, with a one foot vertical drop.

Slide #3, the eastern-most slide, was first noticed as a crack in the fall of 2005; it has since deteriorated further. This slide measures approximately 15 feet long along the northern face of the causeway and has encroached approximately four to five feet into the edge of the access road, with a nine inch vertical drop.

The proposed project area contains potentially sensitive environments. To avoid potential impacts to these sensitive environments, the proposed project would occur only during the dry season.

### ***Schedule***

The proposed project would take approximately two weeks to complete and would be scheduled to take place during the dry season in late summer/early fall. The proposed project must occur within an eleven week window (August 15<sup>th</sup> through October 31<sup>st</sup>) determined by burrowing owl nesting season and the onset of the rainy season. A District biologist would perform a pre-construction survey prior to the start of project-related activities.

### ***Staff and Equipment***

The following equipment could be brought out to the site as needed and would stay on site for the duration of the project. Only the crew truck would travel back and forth to the site each day.

- A crew truck would be used to transport workers to the project site each day.
- A flatbed truck would be used to transport heavy equipment to the site. This would occur during the first two days of the project.

- A 3-axle dump truck would be used to bring material, such as sand to the site. This would occur during first two days of the project.
- A 325 Caterpillar excavator (or similar model) would be used to remove existing road and levee material and move it out of the way. It would also be used to replace material back over the Geofoam blocks. This would be a primary activity and would occur as needed throughout the workday (7:30 a.m. to 5:00 p.m.) for two work weeks. It would occur at each of the three road failure sites.
- A 650 Ferrec (or similar model) rubber tire loader would be used to move material from the excavation area to the staging area. This would occur as needed after excavation is complete.
- A water truck would be used as needed throughout the day for compaction and dust control.
- A sheep's-foot ride-on or walk behind compactor would be used to compact the road and levee surface once Geofoam blocks and replacement fill has been put in place at each of the three road failure sites.
- Hand-held tampers/whackers would be used to further compact the road and levee surface once Geofoam blocks and replacement fill has been put in place at each of the three road failure sites.
- A CASE 550 extended haul backhoe or Ditch Witch would be used to dig a trench in the access road for the telemetry lines. This would occur during the last two days of the project.

There would be one work crew that would consist of: one heavy-equipment operator, one senior maintenance worker, one dump truck operator, and three laborers. All activities would be directed by an on-site field supervisor.

Although repair of these specific slides has already been approved by Reclamation and will probably be repaired prior to Reclamation's approval of the federally related aspects of the PMP, repair of similar future slides in this area, if they should occur, is described below.

### **Slope Failure Road Repair**

Construction would occur at the three slope failure sites located between approximately 300 and 600 feet apart. The length of each repair is expected to be less than 50 feet. The total volume of excavation and backfill for the three sites is estimated to be 400 to 600 cubic yards.

Road repairs would begin at Slide #3, the eastern-most slide. Once that slide has been excavated and the Geofoam has been placed, and the site has been backfilled and compacted, then Slide #2 would be repaired. Lastly, Slide #1 would be repaired.

The upper four to six feet of the levee crown in the area of the existing slope failures would be excavated. All excavation equipment would be confined to the existing access road. The excavated material would be stockpiled temporarily at one of two staging areas located on access ramps on either end of the access road. The staging areas are located off of the main access road and would not create a conflict for equipment accessing the repair sites.

Some of the excavated material would be re-used in thin (< 12 inches) compacted layers of backfill. Geofoam blocks would be installed at the head of the slide to reduce the driving force of the slide mass and build up the original road grade. The Geofoam would be covered with approximately three feet of backfill. The repaired areas would be re-compacted.

The excess material that is not re-used in rebuilding the road bed would be hauled off-site to the Pacheco landfill, using the established access road.

Excavations would be limited to three feet above the toe of the levee or the level of the lake, whichever is higher.

### **Telemetry Cable Line Replacement**

The excavation required for the road repairs would interrupt the existing direct-buried telemetry cable lines, which are currently located near the centerline of the roadway. To ensure continuous communication while the road is being repaired, a temporary telemetry cable line would be installed. After road repairs are complete, the telemetry cable lines would be permanently replaced.

Two new splice boxes measuring approximately 30 inches by 17 inches by 36 inches would be permanently installed approximately 50 feet on either side of the construction area. Excavation is required to bury the splice boxes 1 foot below the road surface.

A temporary cable line would be installed in 2-inch diameter PVC conduit between the new splice boxes, near the bottom of the sloped surface of the south side of the road, a safe distance outside of the work area. The PVC conduit would likely be secured to the face of the levee with rebar.

After the road repairs are complete, a new cable trench approximately 12 inches wide by 36 inches deep would be excavated between the two new splice boxes, a distance of approximately 900 feet. A new, permanent, 2-inch diameter PVC conduit would be installed in the trench, the trench would be back-filled and a new permanent cable would be pulled through the conduit.

The temporary telemetry cable line would be disconnected and the new line reconnected. The existing telemetry cable line would be abandoned in-place or removed. The all-weather gravel road surface would be restored.

### **2.2.2.10 Bank Stabilization (Protection) and Erosion Control**

Water discharges are point sources of high velocity flow. Discharges either come out of pipes within a stream bank and flow down the bank into the channel, or are pumped down or across a stream bank. Bank protection work would occur prior to a planned discharge in areas where banks within 50 feet of the discharge point appear to show signs of erosion or instability. The extent of existing erosion around a discharge point depends on several factors, some of which include:

- The existing bank substrate (vegetated versus earthen)
- The slope and stability of the bank/geotechnical considerations
- The natural and manmade erosion forces at the site (storm events, development, farming, etc.)

The District implements BMPs to minimize erosion during pipeline draining; however, bank stabilization prior to a draining may be necessary in some areas to ensure no substantial erosion effects during the activity.

Bank protection is associated with pipeline draining. The District would perform this activity every two to ten years, predominantly along the Santa Clara Conduit, in the area of the CFI/CFO.

A typical permanent bank protection project would replace the currently used geo-bales and fabric with concrete curbs and aprons. The intent is to capture and direct flow to the area protected by the concrete. This apron would be extended down past the normal winter high water line, in order to avoid erosion at the interface between concrete and channel bottom.

Some dewatering points would be used many times during the course of the ten-year program, making temporary BMP installation/deployment inefficient. The PMP includes the installation of more permanent erosion control measures.

Bank protection for discharge point stabilization would include the installation of hard structures. Hardscape protection measures include:

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

The number of bank protections that need to be performed per year would depend on the pipeline being drained and the condition of the banks at the discharge point. The type and location of bank protection needed would be determined during the spring prior to the scheduled fall and/or winter pipeline draining project.

The design of a particular bank protection project includes evaluation of other site specific characteristics such as bank slope, shear stress, locations (inside versus outside of a curve), soil type, flow velocity and anticipated flow velocity from discharge, channel characteristics. Bank stabilization methods would be written up in plans (similar to an excavation plan). The average length of a bank protection would be about 50 feet long by 10 feet deep on either side of a channel for a total of 100 feet of stabilization covering 1,000 square feet of area.

Bank protection projects generally occur between July 1 and October 15. If water must be bypassed around the site during construction, water pumps and piping may be used to divert water. These pumps could be supplemented by the use of cofferdams made of earth, gravel, geo-bales or other suitable material. The average duration of a bank protection project is 5-7 working days. A typical project would disturb about 500 square feet of bank/channel bottom.

### ***Schedule***

Excavations for road maintenance, or telemetry systems, should occur during the dry season (May 1 - October 31). The duration of time necessary for work depends on the length of the segment that needs to be excavated. Work would generally be completed within a few weeks. Restoration and reseeded of disturbed areas usually occurs in the late fall, before the rainy season begins.

### ***Staff and Equipment***

Excavation usually involves a crew of two to ten members, but could require a larger crew in some cases. Equipment used for bank protection may include delivery flatbed trucks, excavators, dozers, loaders, dump trucks, concrete trucks, compactors, sump pumps, shoring, backhoes, and water trucks.

## **2.2.3 PMP Subactivity**

### **2.2.3.1 Pump-out of Vaults**

The activities that require pump-out of vaults are: air release valve maintenance, internal inspection, and vault maintenance. The vaults containing the valves are accessed and hosed down to clean off spider webs and animal debris. Water that may have accumulated in the vault as well as water supplied by the hose is then pumped out using the sump pump and discharged onto the nearby ground. Vaults need to be cleaned periodically in order to ensure a safe environment for workers to access the valves and to reduce corrosion on equipment. Pumped out water usually just contains natural organic debris.

### ***Schedule***

Pump out takes less than one hour, and usually takes less than 15 minutes.

### ***Staff and Equipment***

Routine preventive maintenance requires at least two staff and usually two trucks.

### **2.2.3.2 Access and Staging**

The District would use previously disturbed areas for staging, such as paved or gravel parking lots and roads, to the greatest extent possible. Traffic control or encroachment permits would be obtained. Sometimes the vegetation must be cut back from existing roads or gravel is reapplied to the road base.

Off-road vehicle access is sometimes necessary to access pipes, vaults, blow-offs, and pipeline structures not located along existing roads or access trails. Ventilation vaults are sometimes located in rural fields. Vehicles must be driven off-road to remove manhole covers, and to carry supplies and equipment to the maintenance locations. Off-road vehicle access would be defined to avoid sensitive resources. A qualified biologist would stake the route in areas of sensitive resources. Any disturbed vegetation would be restored at project completion or at the appropriate time of year, as directed by the District or agency biologist.

### ***Schedule***

Staging areas are used for the duration of the project. Off-road vehicle access occurs before, during, and after operations.

### ***Staff and Equipment***

Maintenance personnel drive trucks and equipment when accessing pipelines. District crews consist of one to six people. Equipment may include backhoes, loaders and cranes.

### **2.2.3.3 Lockout/Tagout**

A designated individual would turn off and disconnect machinery or equipment from energy source(s) before performing service or maintenance. Authorized employee(s) must either lock or

tag the energy-isolating device(s) to prevent the release of hazardous energy and take steps to verify that the energy has been isolated effectively.

#### ***Schedule***

The activity would occur prior to inspection or repair and the tags must be removed afterwards by designated District staff only.

#### ***Staff and Equipment***

A designated District employee at each site performs lockout/tagout procedures.

#### **2.2.3.4 Draining**

Generally, discharge involves draining and follows isolation for all applicable activities.

**Opening/Closing Valves.** District clearance must be obtained prior to isolation of any section of pipeline for opening and closing the appropriate valves for isolation. The opening and closing of valves is controlled either at the appropriate SCADA center or manually in the field. The section of pipeline to be isolated depends on the work to be done. Combinations of isolation valves are sometimes used to drain a larger portion of the pipeline.

#### ***Schedule***

Isolation is typically performed remotely. Isolation takes a matter of minutes but could take longer depending on the number of valves to be isolated.

#### ***Staff and Equipment***

A qualified staff member performs isolation either manually or via computer.

**Discharge.** The District conveyance systems were designed with vaults, turnout piping, and blow-offs to allow drainage of sections of the pipelines. Valves are closed to divert water from the main pipeline into blow-off pipes that eventually flow to a surface discharge point.

District conveyance systems were designed with vaults, turnout piping, and blow-offs to allow drainage of sections of the pipelines. Valves are closed to divert water from the main pipeline into blow-off pipes that eventually flow to a surface discharge point. Surface discharge points all vary in design and structure as well as discharge site. The procedure for discharge depends on the area of discharge.

- **Discharge into Turnouts.** Water from within the pipeline is initially discharged into turnouts where possible. Turnouts are locations where customers receive water or locations that discharge into percolation ponds. Discharge into percolation ponds is conditionally exempt under the Municipal Stormwater National NPDES permit (Order No. 01-024) for Santa Clara County. There are permitted turnouts for the Santa Clara Conduit at San Pedro Ponds (Groundwater Recharge Facilities), Half Road/Madrone (Groundwater Recharge Facility), and Apple orchard at San Felipe Road and Highway 152.
- **Discharge into Local Waterways.** Discharge into local waterways occurs after discharge to turnouts, such as at groundwater recharge facilities. A number of discharge blow-off structures have been installed near natural waterways. Discharge into waterways is



accomplished first by gravity flow out of blow-off points then by actively pumping out residual water. Approximately 80 percent of water can be discharged by gravity flow through blow-off points. The amount of discharge depends on the season, length of pipeline isolated, topography of the pipeline, and amount of water that can be discharged into recharge facilities or turnouts. Flow rates are pulsed to minimize scouring and effects of rapid water level increase and decrease. Flow rates can be controlled manually to be between 0-20 cfs out of gravity flow blow-offs by manipulating valves. Discharge water passes through underground and above ground energy dissipaters to further reduce velocity in some areas. The discharge rate is ramped up slowly so that buildup of water in any streams, rivers, or canals is gradual and scouring of the channel bed and ground surfaces does not occur.

- **Discharge into Open Fields and Wetlands.** Discharge could also occur onto open areas (such as fields) and seasonal wetlands. Discharged water recharges into the groundwater supply or flows to the closest stream to the point of release. Although sometimes necessary, discharge to dry soil is mostly discouraged and is not common for large volumes of water. Small amounts of water, particularly for pipeline gradient dips under roads or other structures, are sometimes drained through pumping out of water by removing air release valves or blind flanges.

Turbidity testing is performed for all discharges into streams or other water channels. The turbidity analysis would be conducted 100 feet upstream and downstream of the discharge location. If readings downstream of the discharge point are over 5 national turbidity units (NTUs) above background levels measured upstream of the discharge point, discharge flow velocity and/or volume would be reduced to lower readings or discharge would be discontinued by closing the blow-off valves and notifying supervisors. In situations where upstream turbidity is already above 50 NTU, downstream readings should be within 10 percent of the upstream reading.

#### *Schedule*

Drainage time can last from a few hours to a few days. Flow rates are pulsed to minimize scouring and effects of rapid water level increase and decrease. Discharge rate would be ramped up slowly so that scouring of the channel bed or ground surfaces does not occur. Active pump-out may be necessary throughout the inspection process if any isolation valves have leaks. Discharge would preferentially be performed during winter months. Property owners, irrigators, retailers and stakeholders would be notified of pipeline shutdown dates and duration.

#### *Staff and Equipment*

Staff requirements include two team members for discharge, a valve operator, and a maintenance crew to monitor the release. Equipment depends on the blow-off in use. Cranes, flatbed trucks, energy generators, submersible pumps, and District vehicles are necessary.

#### **2.2.3.5 Refilling Pipelines**

Water conduits are refilled after shutdown for maintenance work. All ARVs would be monitored to be sure that they seat properly and are not discharging water. Pipeline profiles are used to determine the order in which to monitor ARVs.

### ***Schedule***

Refilling depends on the season and size of pipeline to refill.

### ***Staff and Equipment***

A staff of one to five members would be responsible for installing blind flanges and replacing manhole covers and closing valves. One staff member is needed to monitor the blow-offs and ARVs to ensure no leaks while the pipeline refills. The only necessary equipment at this stage is a truck to replace manhole covers.

#### **2.2.3.6 Pipeline Inspection**

Inspection is conducted according to the specific inspection plan for the pipeline and section of pipeline that requires inspection.

Vault and nozzle openings provide entry points and fan ventilation for pipeline personnel during the project. Operation of fans would begin several hours to one day before inspection commences. Visual inspection would be performed to determine how much the pipeline has moved at joints, if the pipeline is in need of repair, and what type of repair may be warranted. Each joint must be physically observed, recorded, and measured if necessary. Descriptions would be prepared describing the joint movement. Video and audio recording devices would also be used.

Visual inspections may also be performed to determine cause of leak or to inspect pipe integrity along any length. Procedures would be similar to those for formal preventative maintenance inspections. Another form of inspection is cathodic protection (CP) monitoring (Appendix A photo). CP systems would be applied to the pipelines to prevent or minimize corrosion. A technician monitors resistance and charge at hundreds of points along the pipe called CP sites to determine how it is changing over time.

### ***Schedule***

Inspection schedules depend on the length of pipeline under question. Inspections usually take from one day to one week to complete.

### ***Staff and Equipment***

Pipelines would be inspected by a minimum of two to three people. One person prepares the physical inspection and measurement and the other records the data. The third holds lights and equipment. Several crews of three may be used if large sections of pipeline require inspection.

#### **2.2.3.7 Excavation**

Excavation is usually only needed in circumstances where no other method of repair is feasible or where access roads need repair or erosion control features are needed. Excavation would not happen on a regular basis; it would be more likely on a case-by-case basis. Usually performed if in-pipe repair is not an option, and to replace service valves and ARVs, which occur underground along the pipeline.

Excavation would occur after identifying the leak, vault, valve, or segment of pipeline that requires repair. Survey crews would identify and mark the limits of the project ROW around the area to be excavated. The area would be cleared of debris. Backhoes or excavators would be

used to excavate around the existing pipeline, vault (or access road). Spoil material would be kept within the ROW. Pipelines vary in depth with an average of about five to six feet below the ground surface. Hand digging is performed around the pipeline or vault to prevent damage from heavy machinery. Dewatering, maintenance, and repair work would then be performed.

After repair, replacement, or maintenance work is performed, the excavation is often backfilled with the same excavated material, or in some cases backfilled with imported backfill soils, rock, or gravel. The area is cleaned up after backfilling is complete. All soil excavated or graded during excavation is backfilled and spread within the ROW or removed from the site. The ROW is then returned to either its original contours and grade or to design lines and grades. Where appropriate, the disturbed area is revegetated. If excavation is necessary through drainage crossings or in wetlands, permit conditions and special procedures apply. Whenever possible, excavation in wetland and riparian areas would occur during the dry season. If waterways contain flowing water, diversions may be necessary. The width of the area disturbed at drainage crossings is minimized to avoid impacting more of the drainage than is necessary.

Erosion control measures include sedimentation barriers (straw bales or silt fences) used to contain soil. If rain is forecast during excavation, sedimentation barriers would be installed and maintained across the ROW above the drainage. Sedimentation barriers would be left in place across the ROW above the creek banks until vegetation becomes established. Before any excavation operations are initiated, a complete photographic history would be taken of the site. Post excavation photographs would be taken to document the level of disturbance and any changes in appearance of the environment.

The Summary of District BMPS and Mitigation Measures is incorporated into the Proposed Action and can be found in Appendix B.

# Section 3 Affected Environment & Environmental Consequences

## 3.1 Air Quality

### 3.1.1 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 (CO), oxides of nitrogen (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), and lead (Pb). The area is in non-attainment for ozone (O<sub>3</sub>) and particulate matter under 10 microns in diameter (PM<sub>10</sub>) and as unclassified for particulate matter under 2.5 microns in diameter (PM<sub>2.5</sub>) (BAAQMD 2004b).

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 ozone and PM<sub>10</sub> and unclassified for PM<sub>2.5</sub> (MBUAPCD 2004). Ambient air quality is currently being monitored for PM<sub>2.5</sub> at the Salinas and Santa Cruz air monitoring stations (BAAQMD 29004b).

Approximately 2.5 miles of pipeline also fall within Merced County, which is part of the San Joaquin Valley Air Basin. The San Joaquin Valley Air Basin is in non-attainment for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> (CARB 2005).

### 3.1.2 Environmental Consequences

#### No Action

The No Action alternative would result in the District not preparing a program and preparing individual environmental reviews on an as-needed basis. The pipelines could degrade if timely maintenance did not occur and the system would be compromised.

The District 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, Carbon Monoxide Plan, and Ozone Plan for the San Joaquin Valley Unified Air Pollution Control District).

#### Proposed Action

Staging and access involves the transport of materials to a project site and the storage of those materials on site. PMP 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 ozone; however, PMP 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 project area would be indiscernible.

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

Excavation could occur along any pipeline segment to repair or replace (in-kind replacement) a section of pipeline (up to 1 mile long), to repair access roads, to fix pipeline parts, to repair vaults, to repair telemetry systems, to replace valves, etc. Excavation could generate some dust; however, emissions would be small because of the small footprint of maintenance excavation.

The emissions of all pollutants from any excavation projects would be below the threshold listed in the regulation for non-attainment or air quality maintenance areas.

Most pipeline repair work under the PMP would occur within a pipeline or within an excavated pipeline trench. 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 per pipeline. Repair work emissions would not interfere with implementation of the Basin Plan.

### Cumulative Effects

The District currently maintains pipelines and the PMP 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, Carbon Monoxide Plan, and Ozone Plan for the San Joaquin Valley Unified Air Pollution Control District).

There would be some dust emissions from excavation work. The District would implement effective and comprehensive dust control measures.

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, the District expects that minimal amounts of the above-mentioned products would be used.

The potential to cause cumulative air impacts with other District or local projects could only occur if other construction projects were occurring incidental to the proposed PMP activities. The District Operations Planning and Analysis Unit (OPAU) would determine any conflicting uses of resources or conflicting scopes of work within the District 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 PM<sub>10</sub> so as to minimize any individual project's contribution to an overall cumulative effect.

## **3.2 Aesthetics**

### **3.2.1 Affected Environment**

State Highway 152 (Highway) in Santa Clara County is an eligible state scenic highway. The Highway continues into Merced County east past San Luis Reservoir. The Highway is a listed State Scenic Highway from the Santa Clara County line to the junction with Interstate 5, along a 13.8-mile stretch (Caltrans 2005). The section of the Highway from the Santa Clara County

border up to San Luis Reservoir is a State Scenic Route and would be the main access route for maintenance work on the Pacheco Conduit in Merced County.

### **3.2.2 Environmental Consequences**

#### No Action

Under the No Action alternative, staging, access, draining, and repair would occur on a case-by-case basis. The No Action alternative would result in the District not preparing a program and preparing individual environmental reviews on an as-needed basis. The pipelines could degrade and the system would be compromised due to potential delays while individual environmental reviews took place.

#### Proposed Action

Staging and access could occur along private roads or near facilities that may occur on hills or near riparian corridors. Access may require longer travel distances to the generally more remote locations of pipeline facilities. District or contractor vehicles would often access sites via state highways and county roads as well as private gravel and dirt access roads. Access may require travel off-road for distances up to 1 mile. Staging of vehicles and equipment may be visible from designated scenic roads. Program maintenance work is temporary and would not involve installation of new structures. Some short-term, temporary visual impacts could occur if staging occurs along scenic roads or near vistas and scenic structures. Impacts would be temporary in nature, small in scale, and would not permanently degrade the visual character of the site. Workers would avoid staging near visual resources, if possible.

Draining is the discharge of pipeline water from project pipelines through blow-off points into creeks and wetlands. Blow-off pipes often protrude from creek banks.

Equipment necessary for draining could include worker transport vehicles, diesel generators, and even cranes or other equipment to remove facility covers. Blow-off points that discharge into stream banks are already reinforced in many areas by concrete or other forms of riprap. The blow-off pipes are embedded into the stream embankment and do not require additional equipment near the discharge point. Workers access valves to release water either remotely or through a nearby vault, which would require minimal presence at the draining site. Most draining points only require worker presence for a few hours to a few days and would not impact the visual area.

The discharge of water into local waterways to empty a pipeline for repair or other maintenance work is not visually intrusive. Water flows in creeks may increase, and water levels may slightly increase. Water flow and volume increases would only be visible from a short distance and would be temporary.

Visual impacts could potentially result from excavation equipment on site, spoils pile storage, and construction activity near creeks within viewsheds. Impacts could also occur from the appearance of an excavation scar viewed from a scenic route or if the scar is in a hillside and visible from several vantage points. Excavation would be temporary and relatively small. Excavation work would often occur during summer months. The visual effect of grading is minimized because of less of a color contrast between dead grasses and bare dirt than live grasses and bare dirt as seen in winter months. Some excavation may occur in the winter. Winter

excavations may be more visible against the contrast of the background landscape and grasses, but would remain small scale and the temporary.

Excavation would not likely involve tree removal since pipeline ROWs and structures are not generally located under trees (Trees were removed during initial pipeline installation.). Any excavation would only be re-excavation of previously excavated material for initial placement of the pipeline infrastructure. However, a small possibility does exist that tree removal may be necessary for construction on some of the older pipelines or pipeline segments.

Repair activities could require transport of workers and materials to perform pipeline repair. Most repairs would occur within a pipeline or within an excavated pipeline trench. Repair work occurring within trenches or within the pipeline itself would have minimal visibility.

### Cumulative Effects

PMP activities would not have any long-lasting visual effects on the environment since no new structures would be proposed as part of the proposed action. Temporary effects associated with night lighting during staging, draining, repair, and excavation would not likely combine with impacts of other District or local projects to generate adverse cumulative effects. The PMP would cause minimal aesthetic disturbance. PMP projects would be short in duration and would not contribute to any more permanent aesthetic impacts.

## **3.3 Noise**

### **3.3.1 Affected Environment**

Santa Clara County, San Benito County, and Merced County have policies and guidelines for their jurisdictions that attempt to minimize the effects of noise on people through construction standards, zoning restrictions, hours of operation and suppression techniques.

Approximately 2 miles of pipeline occur in San Benito County at the border of Santa Clara County and 2.5 miles of pipeline occur in Merced County. Pipeline occurring in San Benito County and Merced County are in unincorporated areas of the respective counties, in sparsely populated areas. The General Plans of both counties address noise policies to minimize exposure of residents to noise.

Sources of noise in San Benito County are mostly from farming operations. San Benito County has established that 50 to 80 dBA of noise generation is normally acceptable for industrial, manufacturing, utilities, and agricultural land uses (San Benito County 1984).

Sources of noise identified in Merced County include traffic on major roadways and highways, railroad operations, airports and industrial/agricultural activities (Merced County 2000). The community noise survey results indicate that typical noise levels in noise sensitive areas of Merced County are in the range of 37 dBA to 67 dBA  $L_{dn}$ . Noise from traffic on state and local roadways and aircraft from Castle Air Force Base (located 50 to 60 miles east of the pipeline areas) are the controlling factors for background noise levels in Merced County.

Pipelines are primarily located within the valleys and hills where agricultural uses predominate. While these areas are not frequently sensitive to noise impacts, there are occasional residences, open spaces, and trails along these routes. Some pipelines are located near freeways with

evident traffic noise. The South County Airport flight patterns intersect with a very small length of the Santa Clara Conduit.

A private airstrip is also located outside of Hollister in San Benito County within proximity to some pipeline stations along the Santa Clara Conduit.

### **3.3.2 Environmental Consequences**

#### No Action

Under the No Action alternative, the District would not have a PMP. Pipeline maintenance would occur on a case-by-case basis. Noise related to construction activities would still occur but on a case-by-case basis. However, each activity would require separate environmental analysis prior to the action which would increase time and cost. An increase in time to evaluate environmental impacts for each activity could lead to loss of pipeline structural integrity.

#### Proposed Action

##### *Staging and Access*

Staging and access involves the transport of materials to a project site and the storage of those materials on site. Staging and access activities would be temporary and periodic and would not impact permanent ambient noise levels in any area.

Some vaults and access points are located on private property and within front and back yards. The District currently has property access and easement agreements with all property owners. Owners are aware of occasional necessity for work on District facilities within these easements and are notified prior to when the work is conducted.

Pipeline draining generates some noise from equipment use. Erosion control devices and flow dissipaters attenuate sound generated by water discharge. The noise generated by discharge of water would be intermittent and short term.

Excavation may require the use of heavy equipment (trucks, dozers, loaders, pavement breakers) that generates intermittent noise. Excavation would usually occur for maintenance activities such as replacing valves, replacing small sections of damaged pipeline, or repairing joints, etc. Excavation footprints can be as large as one mile in length by up to 25-50 feet wide but would usually only cover a few hundred square feet.

Rural pipelines traverse more agricultural and grazing land. Excavation would not likely require as much pavement breaking but would still generate some noise. The District has BMPs that would be implemented as part of the PMP and serve to minimize impacts associated with excavation.

Repair activities could result in noise generation audible in the surrounding environment. Many repair activities take place in vaults or inside pipelines, which provides sound insulation and greatly reduces the audible surface noise from the repair activity. Some repair work such as grinding, soldering, and welding could occur in a staging area or within an excavated trench. Diesel generators may also be necessary to supply power for lighting or other equipment. None of this equipment generates noise above 83 dBA at 25 feet (the District's noise requirements for all work).



Valve maintenance may require emitting large quantities of air out of small valves. This can generate a loud whistling noise that could be a disturbance, although only for a few minutes.

Noise impacts from maintenance activities would be temporary, lasting for hours or intermittently for weeks at the most. Implementation of the PMP would not cause permanent increases in ambient noise levels. Each pipeline would likely only be maintained once every few years but at most sections could require work once per year.

#### Cumulative Effects

Potential noise impacts that could be associated with PMP activities are very limited. Most noise impacts would lessen in intensity over relatively short distances. Cumulative effects could only occur if other District or local projects are also generating substantial noise in close proximity to the proposed project. County and local noise ordinances would apply to all projects. The BMPs for noise would all serve to keep noise levels within standard for each jurisdiction.

### **3.4 Groundwater Resources**

#### **3.4.1 Affected Environment**

The occurrence and movement of groundwater and surface water in the project region is dictated by regional climate and hydrologic characteristics but to some degree is also managed by District activities. The project area is located in the Uvas/Llagas watershed, which drains south to the Pajaro River and Monterey Bay. The project area is underlain by the Llagas sub-basin. The District 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. The District 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 District's total water supply. Groundwater replenishment occurs both naturally and through the District'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 District 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.

#### **3.4.2 Environmental Consequences**

##### No Action

Reclamation would not approve the District's PMP for the Santa Clara Conduit and Pacheco Conduit. The District would continue to perform maintenance on a case-by-case basis. The

routine preventative and corrective maintenance may require that pipelines or sections of pipelines be drained to allow access to pipelines. Draining the pipelines would cause temporary increases in the rate and volume of runoff in the receiving waters in the project area. Water would percolate to groundwater; however, it would be a small quantity (less than 150 AF would be diverted to waterways) and would not substantially affect groundwater quality or quantity.

#### Proposed Action

Reclamation would approve the implementation of the District PMP for the Santa Clara Conduit and Pacheco Conduit. Activities would be performed as described in the PMP.

As in the No Action alternative, pipelines could still be drained and refilled. Draining the pipelines would cause temporary increases in the rate and volume of runoff in receiving waters in the project 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 (less than 150 AF would be diverted to waterways) it would not have a substantial affect on groundwater quality or quantity.

#### Cumulative Effects

PMP activities would be temporary and would not be expected to contribute to overall cumulative impacts.

## **3.5 Surface Water Resources**

### **3.5.1 Affected Environment**

The major watersheds for the Santa Clara Conduit and Pacheco Conduit are Llagas Watershed and Pacheco Watershed. In the event that maintenance activities require draining the pipelines, streams could serve as direct or indirect receiving waters. Beyond stream and channel crossings, the watershed within which the maintenance activity takes place should also be considered because runoff from the maintenance area could impact local waters, which eventually drain to larger systems (Figure 3).

The project 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.

#### Uvas Dam

Uvas dam and reservoir are located on Uvas Creek about two miles upstream from the intersection of Watsonville and Uvas roads in southern Santa Clara County. Uvas Dam was a part of the South Santa Clara Valley Water Conservation District. It was completed in 1957. The reservoir's capacity is 9,835 AF of water. The surface area is 288 acres. (SCVWD 2007b)

Uvas-Llagas Transfer pipeline delivers raw water up to a maximum of 8 cfs from Uvas Dam into the Pajaro system. The length of the pipeline is 3.33 miles. (SCVWD 2007a).

#### Pajaro River Watershed

The Pajaro River watershed drains southwest to the Monterey Bay and covers approximately 1,300 square miles of which about 40 percent is in Santa Clara County. This predominantly

agricultural watershed has headwaters in the Santa Cruz Mountains, the Diablo Range, and the Gabilan Range (Applied Science and Engineering 1999). Flows in the Pajaro River and its tributaries vary from year to year in response to rainfall and follow the same seasonal pattern with high flows recorded in January and February following major storm events and low flows recorded during the dry season. Flows in the Pajaro and some of its tributaries are partially regulated by reservoir operations, two of which (Uvas Reservoir and Chesbro Reservoir) are located in Santa Clara County. San Felipe Lake, a natural sag pond formed by the Calaveras fault, is the source of the Pajaro River via Miller's Canal in San Benito County. The lake is filled by inflows from Pacheco Creek and Tequisquita Slough.

#### 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.

#### Llagas Creek

Llagas Creek drains a 104-square mile watershed, north of and adjacent to the Uvas Creek watershed. This stream also originates on the east slopes of the Santa Cruz Mountains at Loma Prieta Peak. Llagas Creek flows east of Morgan Hill through the Paradise Valley, before joining the Pajaro River southeast of Gilroy. Llagas Creek is also on the adult steelhead migration pathway in the Pajaro River watershed, but steelhead use of this creek is less frequent and less extensive than Uvas Creek (HRG 1997).

Llagas Creek is dammed in its upper reaches in the Santa Cruz Mountains forming Chesbro Reservoir. Flow releases from Chesbro Dam are regulated by the District. Normally, reservoir releases are adjusted to match the percolation capacity of the lower reach and steelhead passage through the lower reaches of Llagas Creek is commonly blocked by dry streambeds by May or early June. It should be noted that live stream is maintained in most years from the reservoir, downstream to the Church Avenue percolation ponds just upstream of Hwy 101.

#### San Justo Reservoir

San Justo Dam forms the reservoir and is a 146-foot high earthfill structure located about 3 miles southwest of Hollister with a crest length of 1,105 feet long. These features form a reservoir with a 10,308 acre-foot capacity.

San Justo Reservoir was completed in January 1986 and serves as an offstream storage facility. Water from Hollister Conduit is stored in the reservoir and is released during the winter months (U.S. Bureau of Reclamation 2007).

### **3.5.2 Environmental Consequences**

#### No Action

Reclamation would not approve the District's PMP for the Santa Clara Conduit and Pacheco Conduit. The District would continue to perform maintenance on a case-by-case basis. The routine preventative and corrective maintenance may require that pipelines or sections of pipelines be drained to allow access to pipelines. Draining the pipelines would cause temporary increases in the rate and volume of runoff in the receiving waters in the project area. If pipelines are drained during large storm events, additional flows could temporarily compound existing flooding problems.

Turbidity in receiving waters could increase. Temporary introduction of pipeline water is not expected to substantially impact receiving waters for metals. Temperature of waters within the pipelines likely fluctuates considerably.

Excavation of the pipelines would still occur if in-pipe repair is not possible. It may also be necessary to replace valves and other equipment, which occur underground along the pipeline, including along banks and under streams. Construction-related erosion problems could result from alterations in local drainage patterns and grading activities. Excavation may also require removal of vegetation; the vegetation is usually what stabilizes the soil. Erosion could increase sedimentation in receiving waters and cause a loss of topsoil. Pipelines in rural environments are more likely to occur on private property and near natural drainages that may have a higher susceptibility to erosion because of topography and fewer hardscape surfaces.

Under the No Action alternative, District schedules could be delayed due to extended consultation with agencies and defining permitting requirements.

#### Proposed Action

Reclamation would approve the implementation of the District PMP for the Santa Clara Conduit and Pacheco Conduit. Activities would be performed as described in the PMP.

As in the No Action alternative, pipelines could still be drained and refilled. Draining the pipelines would cause temporary increases in the rate and volume of runoff in receiving waters in the project area. Discharge of pipeline water into local waterways, open fields, swales, or wetlands would be likely.

Pipeline inspection and maintenance would not directly affect retail customers. The Rinconada Water Treatment Plant and the Penitencia Water Treatment Plant would get source water from the DWR South Bay Aqueduct. The Santa Teresa Treatment Plant would get its water from the South Bay Aqueduct, Calero Reservoir, or Anderson Reservoir.

As in the No Action Alternative, 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 RWQCB objectives were exceeded.

Potential impacts to hydrology and water resources associated with PMP activities include potential to cause erosion, degrade water quality, and increase rates of runoff or flooding. The potential to cause erosion during PMP maintenance activities is minimized through the Erosion Control Plan, Bank Protection Work, and re-vegetation. Other projects that disturb vegetation and soils could potentially occur in the same area as a PMP project, thus increasing the potential for erosion and siltation from greater human presence in the area.

The PMP 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 project 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. Soils and vegetation at discharge sites would be protected using a variety of conventional erosion control BMPs.

Bank protection work would occur prior to a planned discharge in areas where banks within 100 feet of the discharge point that appear to show signs of erosion or instability. Bank stabilization (hardscape methods) would be assessed in the spring before a planned fall pipeline shutdown. 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 be performed in the summer when flows are lowest and the likelihood of affecting anadromous fishes and amphibians is lowest. Bank stabilization would minimize erosion effects.

#### Cumulative Effects

PMP activities that have the potential to degrade water quality would be temporary and would not be expected to contribute to overall cumulative impacts.

The potential to increase or decrease rates of runoff or cause flooding is limited to draining and refilling activities. A trained individual would observe flows in the receiving water. If it appeared that discharges were approaching bankfull in the channel or any structure within the channel, discharge rates would be reduced.

Other projects which introduce water to natural drainage systems could occur in the same systems as a PMP activity. Coordination among District departments would prevent conflicts, and coordination with the Fisheries Aquatic Habitat Collaborative Effort can help resolve issues that relate to streamflow and temperature needs of sensitive fisheries.

The managed approach to pipeline maintenance over the entire program would act to reduce potential for cumulative effects because the BMPs have been designed for application at a program level considering a breadth and depth of potential impacts associated with several different PMP projects as well as District and region-wide projects.

### Pacheco and Santa Clara Conduits with Creeks, Rivers and Other Waterbodies

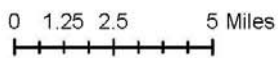
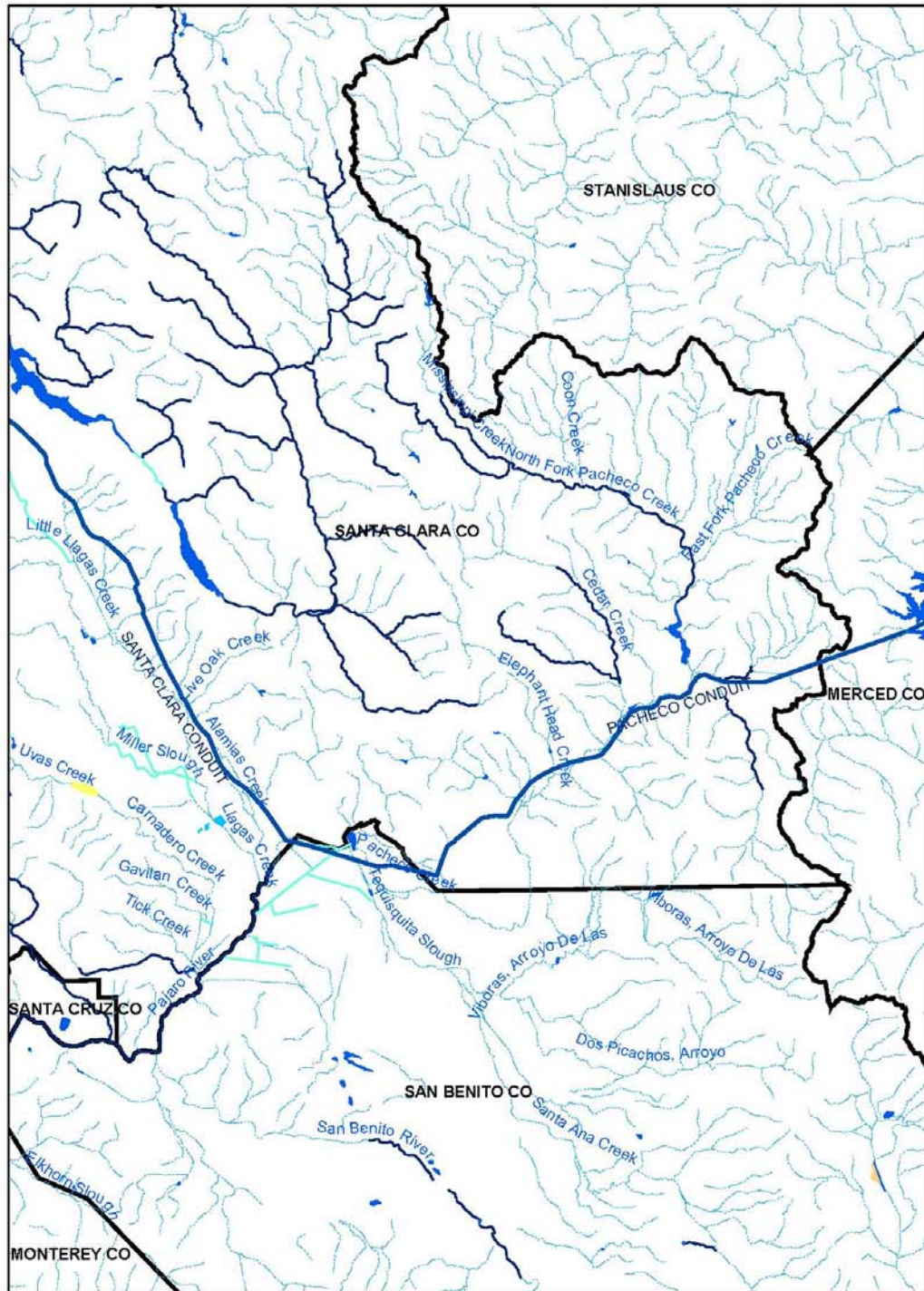


Figure 3 Watersheds and Surface Waters

## **3.6 Land Use**

### **3.6.1 Affected Environment**

The small portion of the pipeline system that falls within San Benito County at the border of Santa Clara County falls within the Santa Clara Valley in the Parajo River Basin. The area is predominantly rural agricultural and grazing land. The 2.5 miles of pipeline that stretches from the Santa Clara County border into Merced County is within the hills of the Diablo Range, which is largely open space land (Santa Clara County 2003a).

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

Santa Clara Conduit extends across agricultural lands into San Benito County.

### **3.6.2 Environmental Consequences**

#### No Action

Under the No Action alternative, the District would continue to perform maintenance on a case-by-case basis. Pipelines would still be drained and refilled. Land use would not change due to the No Action alternative.

District schedules could be delayed due to extended consultation with agencies and defining permitting requirements. An increase in time to evaluate environmental impacts for each activity could lead to loss of pipeline structural integrity.

#### Proposed Action

Reclamation would approve the implementation of the District PMP for the Santa Clara Conduit and Pacheco Conduit. Activities would be performed as described in the PMP.

As in the No Action alternative, pipelines would still be drained and refilled. Approval of the PMP would not lead to any land use changes.

#### Cumulative Effects

PMP maintenance activities have the potential to cause erosion; however, this would be minimized through the Erosion Control Plan and re-vegetation. Other projects that disturb vegetation and soils could potentially occur in the same area as a PMP project, thus increasing the potential for erosion and siltation from greater human presence in the area.

## **3.7 Biological Resources**

### **3.7.1 Affected Environment**

#### **3.7.1.1 General Vegetation and Vegetative Communities**

The vegetation in Santa Clara Valley consists of plant communities adapted to the Mediterranean climate of the region, which is typified by hot, dry summers and cool, moist winters.

The most prevalent vegetation type in the Santa Clara Valley consists of valley and foothill grassland communities. Much of the valley grassland habitat once occurring regionally on fertile

alluvial soils, has now been converted to urban uses or to agricultural cropland. The majority of remaining foothill grasslands is utilized for livestock grazing.

Native perennial bunchgrasses such as purple needlegrass (*Nassella pulchra*) and a diversity of annual spring-blooming forbs once dominated grasslands. Non-native annual grasses of European origin such as soft chess (*Bromus hordaceus*), Italian ryegrass (*Lolium multiflorum*), and slender wild oats (*Avena barbata*) have invaded native grasslands since European colonization. These non-native species now form the dominant vegetative component of most grasslands in the area.

Other prevalent natural communities in the region include chaparral, oak savanna, oak woodland, and riparian woodland habitats. Dominant species of chaparral habitats in the area include black sage (*Salvia mellifera*), California sagebrush (*Artemisia californica*), and coyotebrush (*Baccharis pilularis*). Oak savannas and woodlands of the region are variously dominated by blue, coast live, and/or valley oak (*Quercus douglasii*, *Q. agrifolia* and *Q. lobata*, respectively), with the dominant oak species dependent on soil depth and microclimate factors. Riparian woodlands occur in relation to many of the seasonal and perennial creeks and rivers of the region.

Agricultural lands include cropland and orchards, as well as cattle and other livestock grazing land.

### **3.7.1.2 Special-Status Natural Communities**

Sycamore alluvial woodland is found at Pacheco Creek near Pacheco Peak outside Morgan Hill where the creek opens into the Hollister Plain. Sycamore alluvial woodland is considered a unique plant community; only 2,000 acres occur worldwide, all of which occur in only 17 stands in California (CDFG 2006). The natural hydrologic regime of sycamore alluvial woodland is impacted by upstream dams on seven of the 17 stands, and gravel mines are causing impacts to seven of the stands (CDFG 2006). Sycamores do better in areas where deep, coarse sediment has accumulated, because the water table drops rapidly through the growing season and does not remain high enough for willows and cottonwoods to out-compete them. Sycamores have little tolerance of artificially manipulated water levels. If water flow is eliminated too early in the year due to diversions, the soil-water reservoir available to the root system may be depleted before the growing season ends. If the water table is raised a few feet during the growing season, roots may be injured due to poor aeration. Sycamore alluvial woodland also requires overbank flooding, which generally occurs during the dormant season (winter) for short durations, and is usually shallow.

The stand along Pacheco Creek has some trees that appear to be afflicted with a fungal disease that may have infected the trees during the recent wet years prior to last year (Abel, pers. comm.).

Wetland and riparian habitats are common at the discharge points of the Pacheco Conduit. Common riparian species in the vicinity of project pipelines throughout the county include western sycamore, willow (*Salix* spp.), coast live oak, coyote brush, and California blackberry.



### **3.7.1.3 Wildlife**

#### **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.

#### **Exotic and Non-Native Wildlife Species**

Pajaro River basin has been subject to the introduction of a number of exotic fish species. It is made up of introduced and native fish fauna.

Another notable non-native wildlife species is the bullfrog (*Rana catesbeiana*). Primary concerns are competition with and predation upon native herpetofauna such as the California red-legged frog, *Rana aurora draytonii*. Bullfrogs are found throughout Santa Clara County in lakes, streams and rivers.

### **3.7.1.4 Special-Status Species**

#### **Special-Status Amphibian Species**

Amphibians require cool water during larval development. There are no studies delimiting the critical thermal maximum for the California red-legged frog; however, Jennings and Hayes (1989) noted that some species experience stress when exposed to water temperatures at or above 84°F, and can die if exposure is chronic. California tiger salamanders cannot tolerate temperatures over 80°F.

#### **Special-Status Reptilian Species**

Western pond turtles (*Clemmys marmorata*) could also occur in many of the same areas as California red-legged frogs. Western pond turtles mate in the spring and nest from April through August. Young remain in upland nests until spring and then travel to ponds and waterways.

#### **Special-Status Invertebrate Species**

The bay checkerspot (*Euphydryas editha bayensis*) inhabits areas in Santa Clara County with serpentine soils. However, serpentine soils would be avoided during PMP activities along the Santa Clara and Pacheco Conduits and Tunnels.

#### **Special-Status Avian Species**

Burrowing owls (*Athene cunicularia*) have the potential to occur areas along both Conduits and Tunnels, particularly in areas with low-stature vegetation and ground squirrel activity. The least Bell's vireo might occur in riparian habitat near the Conduits and Tunnels; vireos have been detected along Llagas Creek in recent years.

#### **Special-Status Fish Species**

The South-Central California coast steelhead occurs in the Pajaro River and its tributaries. This ESU is federally listed as a threatened species.

Salmonids spawn at depths of 6 to 60 inches, current velocities of 0.7 to 5.1 feet/second, and in gravel of 0.25 to 5 inches in diameter (Smith 1973; Hunter 1973; Bovee 1978; Wesche and Rechard 1980). Steelhead migrate from December through April when stream flows are relatively high. The minimum depth required for successful migration of adult steelhead is 7 inches. Intermittent streams are often used by steelhead for spawning (Everest 1973; Kralik and Sowerwine 1977; Carroll 1984). Most of the fry produced in these habitats migrate to perennial streams soon after hatching.

**Special-Status Mammals.**

San Joaquin kit fox (*Vulpes macrotis mutica*) and their dens could be in the pipeline area. The pipeline area is within the northwestern segment of the species’ range. Although there have been a few kit foxes sighted nearby, the habitat is more mesic than the good-quality habitat in the southern portion of the range. Also, the San Joaquin kit fox’s preferred prey, kangaroo rats, are lacking in the northwestern segment of the range. Therefore, the occurrence probability is very low and at most a few foxes could possibly occupy the pipeline area.

**3.7.1.5 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 (ESA). Habitat currently occupied by a listed species, “may require special management considerations or protection.”

**Critical Habitat**

Pipelines cross Critical Habitat for the South Central Coast evolutionary significant unit (ESU) of steelhead, the Central Populations of California tiger salamander, and California red-legged frog.

**3.7.1.6 Non-federally listed Species**

**Plants**

The following non-federally-listed special status plants potentially occur in the affected environment: alkali milk vetch (Pacheco Conduit), arcuate bush mallow (both conduits), Congdon’s tarplant (Pacheco Conduit), Hall’s bush mallow (Pacheco Conduit), western leatherwood (Pacheco Conduit). Habitat information and legal status is summarized in Table 2 below.

**Table 2 Non-federally listed Plants**

<b>Species</b>	<b>Legal Status</b>	<b>Habitat</b>
Alkali Milk-vetch ( <i>Astragalus tener</i> var. <i>tener</i> )	1B	Playas, valley and foothill grassland, and vernal pools, on alkaline clay soils.
Congdon’s Tarplant ( <i>Centromadia parryi</i> ssp. <i>congdonii</i> )	FSC/1B	Valley and foothill grasslands on alkaline soils.
Arcuate Bush Mallow ( <i>Malacothamnus arcuatus</i> )	1B	Chaparral.
Western Leatherwood ( <i>Dirca occidentalis</i> )	1B	Mesic areas within broadleaved upland forest, closed-cone coniferous forest, chaparral and cismontane woodland at elevations between 50 and 395 meters.
Hall’s Bush Mallow ( <i>Malacothamnus hallii</i> )	1B	Occurs in chaparral and coastal scrub, often on serpentine soils.

SOURCE: CNDDB 2006 and CNPS 2001

FSC Federal Species of Concern CSC California Species of Concern

1B Rare, threatened, or endangered in California and elsewhere

## Fish and Wildlife

The following non-federally-listed special status animal species occur or potentially occur in the affected environment: late fall/fall-run Chinook salmon (both conduits), California mastiff bat (Santa Clara Conduit), pallid bat (Santa Clara Conduit), tricolored blackbird (both conduits), western burrowing owl (both conduits), other raptors (Pacheco Conduit), western pond turtle (both conduits). Habitat information and legal status is summarized in Table 3 below. All of these birds are also protected by the Migratory Bird Treaty Act and certain sections of California Fish and Game Code.

**Table 3 Non-federally listed Wildlife**

Species	Legal Status	Habitat
Chinook salmon- Fall/late Fall Run ( <i>Oncorhynchus tshawytscha</i> )	FSC/CSC	Breeds in low elevation streams in Central CA lacking significant barriers for travel to and from the ocean. Such stream habitats are usually <70°F, with good water quality, and abundant riparian vegetation.
Western Pond Turtle ( <i>Actinemys marmorata</i> aka <i>Emys marmorata</i> aka <i>Clemmys marmorata</i> )	CSC	Ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation and suitable basking sites. Often found in same habitat as CRLF.
White-tailed Kite ( <i>Elanus leucurus</i> )	CP	Open grasslands and agricultural areas throughout central California.
Northern Harrier ( <i>Circus cyaneus</i> )	CSC	Frequents meadows, grasslands, open rangelands, freshwater emergent wetlands; uncommon in wooded habitats.
Sharp-shinned Hawk ( <i>Accipiter striatus</i> )	CSC	Breeds mainly in coniferous forests, however winters in most terrestrial habitats of California.
Cooper's Hawk ( <i>Accipiter cooperi</i> )	CSC	Breeds mainly in broken woodlands, particularly in riparian woodlands in canyons and floodplains.
Golden Eagle ( <i>Aquila chrysaetos</i> )	CSC	Breeds mainly on steep cliffs or tall trees in open woodlands bordering on open rangeland. Forages over open rolling hillsides, and various grasslands.
Bald Eagle ( <i>Haliaeetus leucocephalus</i> )	FD/CE, CP	The breeding range is mainly in mountainous habitats near reservoirs, lakes and rivers. Has been documented at San Felipe Lake. Large nests are normally built in the upper canopy of large trees, usually conifers. The birds are opportunistic foragers, usually feeding on fish or waterfowl, but they also prey on other small animals and eat carrion.
Merlin ( <i>Falco columbarius</i> )	CSC	This falcon, which breeds in Canada, winters in a variety of California habitats, including grasslands, savannahs, wetlands, etc.
Prairie Falcon ( <i>Falco mexicanus</i> )	CSC	Breeds on cliffs. Forages far in marshlands, ocean shores, or dry, open terrain.
Peregrine Falcon ( <i>Falco peregrinus</i> )	CE	Individuals breed on cliffs in the Sierra or in coastal habitats; occurs in many habitats of the state during migration and winter.
Burrowing Owl ( <i>Athene cunicularia</i> )	FSC/CSC	Forages in grasslands and occupies burrows constructed by other species, usually ground squirrels.
Tri-colored Blackbird ( <i>Agelaius tricolor</i> )	CSC	Breeds near fresh water in dense emergent vegetation, though found year-round in open fields and on dairy farms.
Pallid Bat ( <i>Antrozous pallidus</i> )	CSC	Grasslands, chaparral, woodlands, and forests of California; most common in dry rocky open areas providing roosting opportunities.
Western Mastiff Bat ( <i>Eumops perotis californicus</i> )	CSC	Forages over many habitats, requires tall cliffs or buildings for roosting.

### 3.7.2 Environmental Consequences

#### No Action

Pipelines would still be drained and filled; however, maintenance would be conducted on a case-by-case basis. District schedules may be delayed by extended consultation with agencies and defining permitting requirements.

#### Proposed Action

Reclamation would approve the District's PMP for Santa Clara and Pacheco Conduits and Tunnels. Reclamation has prepared a biological assessment and submitted it along with a request for formal consultation with U.S. Fish and Wildlife Service (Service) and National Marine Fisheries Service. This EA will not be finalized until ESA compliance has been completed.

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. Impacts to the riparian habitat would be temporary. Any crushed or removed vegetation would regrow shortly after the project is complete.

Pipelines 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.

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 project activities. Staging would not involve placement of any base material and would most often utilize already disturbed areas.

Some access to pipelines may be required through a wetland near creeks. Access to some blow-off vaults and valves could require off-road travel through seasonal wetlands. 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 ACOE permits (under Section 404 of the Clean Water Act).

Pipeline draining should preferentially 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 pipelines 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.

Draining pipelines is sometimes necessary to access the interior of the pipes to perform maintenance work. Pipes 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.

Jurisdictional wetland and waters of the United States could also be impacted by construction of flow check filters and other BMPs within channels to slow water flow. Some streams may require the placement of flow check filters within the ordinary high water mark (OHWM) of streams, creeks, and wetlands in order to reduce flow velocities during draining. Filters would have a footprint 1 to 5 feet by 3 to 25 feet, for a maximum surface area of 125 square feet. Flow check filters would be removed after project completion.

Excavation would not have more than very minor impacts on sycamore alluvial woodland, because it would occur only in previously disturbed areas and would not remove any gravel. 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.

#### *Upland Impacts*

Excavation for repair of pipeline segments or system components could occur in upland habitat. Excavation could occur along a pipeline for a section up to 1 linear mile in total by 25 feet wide. The program could also include up to ten excavations at specific locations with an area up to about 25 feet by 25 feet each. The total excavation area can range from 0 square feet to 12.7 acres per year. Most likely, excavation in a year would be less than 1 acre in upland areas. Impacts to upland habitat in undisturbed areas would be limited. Some burrows may be crushed and some vegetation temporarily removed. All areas where excavation could occur would have had previous excavation when the pipeline was installed. Upland areas would be reclaimed and revegetated after work was complete.

#### *Riparian Impacts*

Excavation for repair of blow-off valves within banks and for placement of any flow dissipation BMPs could occur in riparian habitats. Up to three blow-off valves would be replaced under the PMP within stream banks per year. The length of excavation in the riparian corridor would be up to 50 feet long by 25 feet wide for a maximum of 0.086 acres of potential riparian excavation per year, but would likely be less. The areas would be relatively small as compared with the corridor and would be reclaimed after construction.

Material from excavations would be stockpiled on-site and replaced after the excavation and repair. Any contaminated soils would be properly disposed of at an authorized location. Replacement soils would need to be imported and filled. Placement of new soils within the OHWM would be considered fill and would require an ACOE Section 404 of the Clean Water Act permit.

Some access roads cross riparian corridors to reach blow-offs and vaults located adjacent to streams. The PMP includes repair of these roads, which could have some impacts on the riparian corridors. Impacts could include vegetation removal and some placement of base material into the riparian corridor. The potential area would be limited to less than 1 acre per year per pipeline.

Measures would be implemented to minimize erosion and no new roads would be created in riparian corridors. Effects to riparian vegetation would include trimming vegetation and potentially driving on vegetation for equipment access to the repair areas (if repairs cannot be accomplished from the road).

#### *Wetland Impacts*

Some blow-offs may occur within the OHWM of a stream bank. Up to three of these blow-offs may be excavated for repair per year. An excavation area of 25 feet by 50 feet may be required within the OHWM to repair blow-offs. The total excavation and backfill area for excavation within the OHWM would be 0.086 acres per year, but would likely be much less. Areas would be reclaimed after fixing pipe structures with no permanent loss of habitat. Restoration of the area would be implemented according to BMPs.

Permanent bank stabilization and erosion control measures may also be implemented within the OHWM of streams. Stabilization would be up to 50 feet long on each side of the channel by up to 10 feet high/deep for a total of 3,000 square foot maximum area. Up to three bank stabilizations would occur per year for a total of 0.57 acres of impact.

Areas would be reclaimed and restored after repairing pipe structures, with no permanent loss of habitat. In order to reduce potential impacts to wetlands, excavation areas would be surveyed by a qualified biologist for potential wetland areas.

Road and/or levee reconstruction or repair could potentially require placement of gravel base or other materials. Some of these access roads or levees may be located within or adjacent to a jurisdictional wetland area (most likely a seasonal wetland area). Any activity that could involve placement of material into a wetland area would be considered “fill” of a wetland and could require ACOE permits. Total fill into wetlands for access road repair would be less than 1 acre per year. Some years may require no fill or a very small fraction of fill. Potential impact areas would be surveyed by a qualified biologist.

Permanent bank stabilization may be necessary to repair banks around blow-off or pump-out points prior to releasing water. The stabilization would be performed in the dry season (June 1 through October 31) prior to the scheduled pipeline shutdown. Total fill in wetlands for bank stabilization would be at most 0.01 acres per year.

#### *Special-Status Fish Species*

The South-Central California coast steelhead trout could potentially be impacted by excavation and ground disturbing activities if the activities resulted in sedimentation of nearby waterways. Sediment can have direct impacts on the fishes’ metabolic activities and can have effects on breeding habitat, such as from covering gravels and causing temperature increases. Prior to any ground disturbing work, the District would prepare an Erosion Control Plan to be included in the Excavation Plan. At a minimum, the plan would include:

- A proposed schedule of grading activities
- Identification of any critical areas of high erodibility potential and/or unstable slopes

- Contour and spot elevations indicating runoff patterns before and after grading
- Identification of erosion control measures on slopes, lots, and streets. Erosion control measures such as placement of silt fencing or straw wattles would be utilized to prevent sedimentation from runoff from graded surfaces into any waterways or wetlands.
- Soil stabilization techniques such as short-term biodegradable erosion control blankets and hydroseeding
- Post excavation inspection and cleaning of drainage facilities for accumulated sediment

Streambank stabilization measures would be employed where excavation projects disturb stream channels and their associated riparian areas.

Impacts may occur if large changes in water temperature, water chemistry (dissolved oxygen), water level and flow, or siltation occur. The District would implement control release measures so as not to affect salmonids and other aquatic species.

Water temperature affects all metabolic and reproductive activities of fish, including growth, swimming, and ability to capture and assimilate food (Tebo 1974). Productive salmonid streams should have summer temperatures in the range of 50 to 59° F with an upper limit of 68° F (Hooper 1973). The National Marine Fisheries Service (1996) more recently characterizes properly functioning conditions for adult steelhead as between 50 to 57° F. Salmonids have difficulty extracting oxygen from water at temperatures much over 68° F regardless of the amount of oxygen present (Hooper 1973). The virulence of many fish diseases and the toxicity of most chemicals also increase with increasing water temperatures (Lantz 1971). Steelhead spawning temperatures generally range from 39 to 49° F and must be less than 58° F. During spawning season, a sudden drop in water temperatures may cause all salmonid spawning activity to cease (Reiser and Bjornn 1979).

In fall, winter, and spring, Santa Clara Valley stream temperatures are affected primarily by ambient air temperatures. In summer, stream temperatures are also affected by the amount of cold water released from reservoirs, as well as shade from creek side trees.

Temperature of water release must not alter receiving water temperature in accordance with applicable basin plans. Pipeline water temperature varies, but due to the closed conduit system the water is not exposed to solar radiation and is usually cooler than receiving water and usually closer to receiving water temperatures during winter months.

Pipeline discharge for maintenance work would preferentially be performed during winter months, when storm events are more common and when water is naturally highest. Discharge flows are then a minimal portion of overall stream or river flow. If draining must occur during summer or fall, a slow release is mandatory to ensure receiving waters do not experience a temperature change greater than 2° F in either direction. (Jennings, personal communication 2006). Overall receiving water would not exceed 68° F in steelhead inhabited streams. Receiving water and discharge water would be monitored by a trained individual for temperature prior to discharge and periodically throughout the drainage operation.

Salmonids function normally at dissolved oxygen concentrations of 7.75 mg/L; exhibit various distress symptoms at 6.00 mg/L; and are often negatively affected at 4.25 mg/L (Davis 1975). Low dissolved oxygen levels impair metabolic rate, growth, swimming performance, and overall survival of young salmonids.

Raw water pipeline discharges do not adversely impact dissolved oxygen concentration in receiving waters. The typical discharge process should increase dissolved oxygen levels as water exits the pipe and flows into the receiving water body with turbulent mixing in open air. The small local streams with a relatively high surface area to volume ratio generally maintain good air mixing.

Releases of water from pipelines along rivers and tributaries could potentially influence the locations where steelhead trout spawn. Higher flows in certain reaches can lead to spawning at locations in the riverbed that may be dewatered by subsequent reduced flows before the eggs hatch. These reductions in flow can strand fry in side channels and shallow backwaters that are isolated from the main river channel. While short-term increases in flow from storms often cannot be avoided, flow fluctuations due to scheduled releases of water can be managed to reduce adverse impacts on downstream fisheries. Preferred timing would be for winter releases, which could correspond to steelhead spawning (December to April). Reduced flow rates would minimize impacts of water level increases and decreases that could strand fish and eggs.

Temporary fish screens would be applied to any primary or secondary or side channel that could receive pipeline flows, causing attractant flows that would subside once draining is complete. Screens would be periodically monitored for debris, and constructed with a second layer of plastic construction fencing on the side exposed to the fish.

Water release could also scour out eggs or young fry if a release is to occur in the immediate vicinity of the eggs or fry. Velocity dissipation devices could be installed at frequently used discharge sites to reduce flow velocities and capture sediment. These devices typically combine plantings of willows with placement of angular stone riprap on top of filter fabric to create an apron at the discharge point. Where this BMP is recommended for permanent stabilization of existing erosion, minor grading may be necessary.

Temporary flow path check filters could be placed at single or multiple locations along the flow path to remove sediment from discharges and slow the rate of flow. Check filters are constructed of rock, discharge cages, sandbags, fiber rolls, or equivalent materials, and would be installed. Each check filter would be modified with a notch or low spot to direct the flow path and prevent discharges from flowing around the sides of the check filter. Sediment that becomes trapped behind the check filters would be carefully removed to avoid disturbing the channel or swale and disposed of appropriately. Flow path check filters are typically applied where discharges to upland areas are planned. In channel settings, the temporary installation of flow path check filters would likely require that the District obtain a Streambed Alteration Agreement from the CDFG.

In areas where temporary velocity dissipation devices or temporary spreader dams are proposed for installation, the area would first be surveyed by a qualified biologist to ensure that no steelhead fry or eggs; no California red-legged frog eggs or larvae; and no California tiger



salamander eggs or larvae are present within 500 feet upstream and downstream of the proposed structure (within the stream channel). If fry or eggs are found and could be impacted by placement of flow dissipation, then the discharge point would either not be used, be redirected upstream in a cleared area (such as with a hose), or discharge would not occur until the eggs and/or fry have moved from the area.

Salmonids' environment can be impaired by both sediment suspended in water and by particles deposited as bedload sediment that can cover spawning gravel and can contribute to elevated water temperatures. Physiological damage includes the adhesion of silt particles to the chorion of salmonids' ova, and the abrasion, thickening, and fusion of the gill filaments. 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 project activities would not be discharged into streams, lakes or storm drains.

#### *Special-Status Amphibian Species*

California tiger salamander and California red-legged frogs could be impacted by excavation activities if the activities caused sedimentation of habitat, animals are harmed or killed by vehicles or heavy equipment, and/or if excavation affected occupied burrows.

Sedimentation can have direct impacts on amphibian metabolic activities and can have effects on breeding habitat.

Both the California tiger salamander and California red-legged frog often occupy burrows in upland areas and red-legged frogs may use burrows located closer to riparian areas.

California tiger salamanders spend a portion of the year in burrows (from late January until the first rains in early November), and could be impacted if these burrows are disrupted during construction (which would occur during summer dry season).

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. Aestivation 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 aestivation sites when water levels are low or water temperatures are high, such as in summer and early fall months. Excavation and construction work would most likely occur during this timeframe (outside of the November to April rainy season). Excavation can also occur in stream banks, where there may be greater likelihood to affect aestivating frogs. Excavation could cause direct harm to frogs if burrows inhabited by the frogs are collapsed by construction equipment, or if individuals using upland habitat are harmed or killed by equipment.

If excavation were to occur along a pipeline within potential California tiger salamander or California red-legged frog habitat, the area would be surveyed, according to current agency protocols by a qualified biologist, for presence of California tiger salamanders and California red-legged frogs prior to any excavation. Any burrows within the construction footprint of areas that are determined to have suitable habitat and potential for occurrence of California tiger salamanders or California red-legged frogs, as determined through habitat reconnaissance

surveys, would be examined for individuals following recommendations of the CDFG and/or US Fish and Wildlife Service (USFWS) or protocol surveys, as appropriate. If any individuals were found, a qualified biologist would remove them to suitable habitat outside of the project limits. Moving of animals would be consistent with applicable USFWS and CDFG permits.

Special-status amphibians that could be affected by draining pipelines include the California red-legged frog and California tiger salamander.

Water releases would likely occur during breeding, and egg and larval growth periods of California red-legged frog (during winter months) and California tiger salamander. Receiving water temperatures would not change by more than 2° F in either direction during discharge, which would avoid water temperature impacts to any listed amphibian present in receiving water.

California red-legged frogs, and to some extent California tiger salamander, are found in ponds and intermittent and permanent streams with slow or still water. Pipeline water discharges could impact larval amphibians if discharge velocities cause scour or increase base flow velocities to a level that could wash out eggs and larvae. If discharges are conducted between late October and late January there would be no adverse effect on the species (Jennings pers. comm. to Michelle Korpos 2006).

If pipeline water discharge is scheduled to occur from January through August where there is potential for California tiger salamander and/or California-red legged frog, a survey for the species with potential to occur would be performed by a qualified biologist within 1 week prior to release. If California tiger salamander and/or California red-legged frog eggs or larvae are not found within 500 feet upstream or downstream of the release point, absence would be re-verified within 24 hours of installation of BMP's and commencement of release. Release could commence if no eggs or larvae are found 500 feet upstream or downstream during the second survey. If eggs or larvae are found within 100 feet downstream of a release point, the discharge point would not be utilized, if possible. Velocity reduction could be accomplished either by slowing release, decreasing release volume at the point, and/or applying dissipation in the immediate area of the discharge point as long as dissipation devices would not affect any adult Special-status amphibians, their eggs, or larvae.

Reservoir water has a potential to contain exotic species. Discharge of the pipeline water has a small potential to introduce predatory species to areas where these species do not occur. Introduction of amphibian competitors, parasites and nuisance species of plants and animals all could potentially be introduced as a result of water transfers. Additionally, pipeline intakes require the pumping of reservoir water in several stages upward of sometimes as much as 200 vertical feet with each stage pump. Pump turbulence and cavitation pressures tend to eliminate most aquatic species from passing through the pipelines.

California tiger salamanders could also be impacted by introduction of predators. During pipeline draining, mesh screens, adhering to Fish Screen Criteria, which list specific mesh sizes, would 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 species, if the water is discharged to a stream that does not regularly receive imported water directly for recharge. It may be necessary to place fish containment screens in side channels that

are examined throughout the draining process to remove introduced fish and maintain function against debris clogging.

Sedimentation can have a negative effect on amphibians, their eggs, and larvae either through direct harm or by altering temperature. Turbidity would be monitored to ensure that it would not be greater than 50 NTU or 10 percent more than baseline turbidity levels.

#### *Special-Status Reptilian Species*

Western pond turtles and/or their nests could be crushed or damaged by excavation equipment. Excavation areas would be surveyed prior to ground breaking, and any individual pond turtles encountered would be moved to a suitable area out of the excavation footprint by a qualified biologist; should a turtle nest be uncovered during excavation, any viable individuals would be moved to suitable habitat.

The preferred time of discharge is in winter and draining would not negatively impact pond turtles or young turtles. Increased water level and water quality is beneficial to pond turtles. Western pond turtles would not be impacted by project discharges as long as flow velocity, erosion, and sedimentation are controlled. Discharge would likely occur during winter months when turtles overwinter in upland areas. Discharge could occur to some wetland areas but would not occur to upland or dry ground area where turtles could be overwintering. Project discharge velocities would be controlled.

#### *Impacts to Critical Habitat*

Critical habitat designations for the South-Central California coast steelhead, California tiger salamander, and California red-legged frog exist within the project 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.

Draining would not adversely impact California tiger salamander or California red-legged frog critical habitat with implementation of surveys of potential habitat (e.g. abandoned burrows), control of erosion, sedimentation, and scour to protect the habitat. Impacts from draining would only be temporary and would not involve installation of features or construction that could alter the habitat.

Some excavation could occur within the stream or banks of these creeks for both replacement of blow-off valves and for placement of BMPs. Permanent velocity dissipation devices would not be installed in any steelhead critical habitat area.

Excavation could occur through critical habitat for California tiger salamander and possibly the California red-legged frog for pipeline component replacement or for repair to access roads. Prior to excavation areas would be surveyed for species and move any that may be present, following current USFWS protocols. Excavation for pipeline repair would be a temporary effect and would not introduce any new surface features. The areas could be fully reclaimed so as not to adversely impact critical habitat.

Some access road repair may occur within California tiger salamander critical habitat. Any permanent removal of habitat would be compensated for at a minimum of a 1:1 ratio. The final replacement ratio (up to 3:1) would be based on assessment of the area to be affected and the mitigation site provided to compensate for this impact.

If the impact is temporary then restoration measures would be used to restore the value of the temporarily disturbed area. If the impact is permanent and affects one or more primary constituent elements, then a similarly valued area at up to a 3:1 ratio would be preserved within a critical habitat unit.

### *Repair*

Repair activities would have no direct impact on sensitive species at maintenance site locations. Repair activities would likely occur within pipelines or within staging areas, which are addressed above.

### *Staging and Access*

Migratory animals such as avian species, rodents, and several of the common wildlife species could potentially be impacted by staging and access adjacent to creeks that serve as migratory corridors. Large migration corridors exist for all kinds of wildlife species.

Staging and access are relatively short term and localized activities that would not permanently inhibit migration and migratory patterns. Most locations would only be accessed once every 2-3 years for a period up to a few weeks at a time.

Some minimal effects to individual migratory species could occur. Migratory animals could be impacted from off-road vehicle access. Off-road travel has a small potential to harm migrating animals such as California tiger salamander. Noise can affect nesting or migrating birds.

Staging and access would not occur within any stream channels and would not interfere with migration of fish species.

### *Draining*

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 District draining procedures.

### *Repair*

Pipeline repair requires the shutdown of the pipeline, which can have a secondary impact on species that may reside in percolation ponds if that pipeline is the water source for the pond. Fish have been introduced to the ponds through transfer of eggs and/or fry through the pipeline as well as through transplantation of exotics by surrounding residents or other visitors. Discontinued flows of water could lead to fish kills; however, these fish are common or exotic species.

The actual repair activities would not have an impact on migratory or wildlife species.

#### *Excavation and Ground Disturbance*

##### *Sensitive Plant Species*

Excavation and ground disturbance would be limited to a right-of-way not more than 25 feet wide over existing pipeline facilities. BMPs for reduction of impacts to plant species from access and staging would reduce impacts associated with excavation as well. BMPs include additional botanical surveys for work within potential habitat for this species, and avoidance of any plants found and/or site restoration or off-site compensation, if plants cannot be avoided.

##### *Sensitive Fish Species*

Effects on sensitive fish species due to excavation in stream banks or beds would be avoided or minimized by the implementation of the measures to control erosion, scour, and sedimentation.

##### *Sensitive Wildlife Species*

Excavation could harm special-status wildlife species by causing sedimentation in aquatic habitats, collapsing burrows in upland areas, generating disturbing noise, or by physically injuring or killing individuals with construction equipment.

##### *California tiger salamander and California red-legged frog*

Some staging and access could occur through California tiger salamander and California red-legged frog upland habitat (used enroute to and from aquatic habitat). Land disturbances from off-road access would be relatively small and temporary; staging and access would not result in substantial impact. Burrows would be avoided by choice of access routes.

##### *Non-federally listed plants*

Excavation could damage or remove sensitive plant species. BMPs for reduction of impacts to plant species from access and staging would reduce impacts associated with excavation as well.

##### *Non-federally listed fish species*

Chinook salmon and steelhead trout could potentially be impacted by excavation activities that could result in sedimentation of nearby waterways. Sediment can have direct impacts on the fish metabolic activities and can have effects on breeding habitat, such as from covering gravels and causing temperature increases. BMPs would be implemented to reduce potential impacts related to sedimentation from excavation.

##### *Non-federally listed bird species*

Excavation would not directly affect any avian species. Tree removal may be necessary to remove trees growing on or too close to pipes and could affect nesting birds. BMPs would reduce effects.

### *Non-federally listed bats*

Excavation would be limited to existing pipeline right-of-ways and would not include bat habitat.

### Cumulative Effects

Cumulative effects on special-status species and habitats include operations and maintenance activities conducted by Reclamation and the District under the O&M Plan, use by adjacent landowners of insecticides, rodenticides and herbicides and predation on native bird species by feral cats. The District also plans to implement the PMP on the Uvas-Llagas Transfer Pipeline, which will discharge water into the Pajaro basin (but it will be of local sources, eliminating the possibility of inter-basin transfer of invasive species). The potential for the PMP to cause biological impacts is reduced through the application of preventative BMPs and mitigation measures.

Potential impacts to biological resources associated with PMP 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. Draining activities would be timed with storm events to minimize changes in flow and water chemistry, and would only occur every few years in a single location. 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.

The managed approach to pipeline maintenance over the entire program would act to reduce potential for cumulative effects because the BMPs have been designed for application at a program level considering a breadth and depth of potential impacts associated with several different PMP projects as well as District and region-wide projects.

## **3.8 Geology**

### **3.8.1 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 CFI/CFO 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.

The Pacheco Conduit crosses areas containing serpentine soils.

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 project area. Steep slopes, active earthquake faults and areas of geologic instability are prevalent (General Plan 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 and a 2.5 mile segment of the Pacheco Conduit extends to the east from the Santa Clara County border to San Luis Reservoir in Merced. The section within San Benito County is in the valley and does not have a high potential for landslide hazard. The section in Merced County is in steeply sloping hills and would be expected to have a high potential for landslide hazard

The Santa Clara and Pacheco Conduits cross Fault Rupture Hazard Zones. These segments of faults may be capable of generating a maximum strength earthquake of magnitude 6.75 (SCVWD 2002). 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 2002).

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.

### **3.8.2 Environmental Consequences**

#### No Action

Pipelines are existing structures already in place. The District would continue to perform maintenance on a case-by-case basis. Pipelines would still be drained and refilled. Maintenance activities would not change due to the No Action alternative. However, each activity would require separate environmental analysis prior to the action which would increase time and costs.

An increase in time to evaluate environmental impacts on an as needed basis for each activity could lead to loss of pipeline structural integrity.

### Proposed Action

The project pipelines are existing structures already in place. The proposed project activities and their subtasks would not create additional geologic and soil-effects related to seismicity, including rupture along faults, subsidence, and liquefaction. There may be some geologic effects to the pipeline; however, these are previously existing effects and not a result of the proposed action.

Landslide hazards are prevalent throughout the project area and along various areas of the pipelines. Several proposed subtasks have the potential to cause erosion, such as discharge and excavation. Erosion and sedimentation could have a substantial impact on water quality.

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

Santa Clara Conduit transects Landslide Hazard Zones. Staging and vehicle access would require less than 0.05 acres of surface disturbance for each staging site. Staging sites would be located in feasible locations 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 should generally be avoided if possible. Subsequent to access, any sloped area should be examined for evidence of instability and either revegetated or filled as necessary to prevent future landslide or erosion.

Draining occurs into local waterways or wetland areas; water would not be directed to flow down an upland earthen slope. Draining would not be affected by, or result in, poor slope stability. Erosion control measures would be included. Draining 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. The surfaces below several blow-off pipes located in banks were armored with rock riprap or concrete sandbag riprap during the pipeline construction. These drainage points would have minimal erosion and would not have bank stability issues.

Excavation on slopes could be affected by or result in poor slope stability.

Equipment or digging on steep grades could create slope instabilities. Excavation plans would identify any areas where slope stability may be impacted by excavation activities. In areas of potential slope stability problems, measures to stabilize the slope during excavation would be taken, such as cutting benches instead of large slopes, and using temporary reinforcement materials. After excavation is complete, the area would be revegetated and repaired to ensure slope stability.



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 within an excavated pipeline trench. Slope stability from excavation (to expose pipeline) is discussed above. Actual repair activities on the pipeline and its components would not have an effect on slope stability.

The limited amount of surface disturbance required for the maintenance activities would not increase existing seismic hazards.

### Cumulative Effects

Cumulative impacts could occur as a result of geologic impacts associated with the PMP activities in combination with impacts associated with any of the other programs at the District.

Staging and access for other projects in the general vicinity of a given PMP project can be coordinated such that similar access routes or staging areas are used, thus reducing cumulative impacts, as long as areas are properly reclaimed.

Cumulative impacts to geologic resources would not occur as a result of implementation of the PMP activities.

## **3.9 Cultural Resources**

### **3.9.1 Affected Environment**

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 (NAGPA), and the Archaeological Resources Protection Act (ARPA). Section 106 of the NHPA requires the Federal Government to take into consideration the affects of an undertaking listed on cultural resources on or eligible for inclusion in the National Register of Historic Places (National Register). Those resources that are on or eligible for inclusion in the National Register are referred to as historic properties.

The Section 106 process 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 would 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 to affect historic properties, Reclamation must identify the area of potential effects (APE), determine if historic properties are present within that APE, determine the effect that the undertaking would have on historic properties, and consult with the State Historic Preservation Office (SHPO), to seek concurrence on Reclamation’s findings.

The APE for this undertaking is the Santa Clara Conduit and the Pacheco Conduit and any potential staging areas needed to conduct maintenance activities on these Reclamation-owned and administered water conveyance features. These features were constructed in starting in 1964

as part of Reclamations San Felipe Division of California's Central Valley Project (CVP); however, due to various setbacks was not fully operational until as late as 1986. The CVP has been determined eligible for inclusion in the National Register using a multiple property listing that evaluates the individual components of the CVP for their significance according to the National Register criteria outlined in 36 CFR Part 60.4. The features of the San Felipe Unit of the CVP including the Santa Clara Conduit and the Pacheco Conduit are not yet 50 years old and do not meet the criteria for consideration as a historic property as outlined in the regulations at 36 CFR Part 60.4. As a result, the San Felipe Unit and its associated water conveyance features are not contributing elements of the CVP and are not yet eligible for inclusion in the National Register.

### **3.9.2 Environmental Consequences**

#### No Action

Reclamation would not approve the PMP; however, maintenance of Reclamation-owned and administered pipelines could occur on a case-by-case basis. Section 106 would be applied on a case-by-case basis depending on the maintenance program. Barring any unforeseen disturbance to cultural resources, the proposed maintenance activities would result in no potential to affect historic properties as defined in the regulations at 36 CFR Part 800.3(a)(1).

#### Proposed Action

The proposed action would result in Reclamation approving the PMP. As these features are not yet 50 years old, they are not considered historic properties as defined by the regulations at 36 CFR Part 60.4. The construction and installation of these facilities significantly disturbed the grounds in which they were constructed. Barring any new excavation into intact subsurface deposits, the routine activities needed to maintain and enhance the water conveyance features would have no potential to affect historic properties pursuant to the regulations at 36 CFR Part 800.3(a)(1).

#### Cumulative Effects

The proposed action to approve the PMP activities would result in no potential to affect historic properties resulting in no cumulative impacts to cultural resources. At such a time when the water conveyance features of the San Felipe Division of the CVP reach 50 years or older, Reclamation may have to consider future maintenance activities for their potential to cause adverse effect

## **3.10 Indian Trust Assets**

### **3.10.1 Affected Environment**

Indian Trust Assets (ITAs) are legal interests in property held in trust by the U.S. 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. ITAs 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 U.S. is the trustee. By definition, ITAs cannot be sold, leased, or otherwise encumbered without approval of the U.S. The characterization and application of the U.S. trust relationship have been defined by case law that interprets Congressional acts, executive orders, and historic treaty provisions.

Consistent with President William J. Clinton's 1994 memorandum, "Government-to-Government Relations with Native American Tribal Governments," Bureau of Reclamation (Reclamation) assesses the effect of its programs on tribal trust resources and federally-recognized tribal governments. Reclamation is tasked to actively engage federally-recognized tribal governments and consult with such tribes on government-to-government level (59 Federal Register 1994) when its actions affect ITAs.

The U.S. Department of the Interior (DOI) Departmental Manual Part 512.2 ascribes the responsibility for ensuring protection of ITAs to the heads of bureaus and offices (DOI 1995). Part 512, Chapter 2 of the Departmental Manual states that it is the policy of the Department of the Interior to recognize and fulfill its legal obligations to identify, protect, and conserve the trust resources of federally recognized Indian tribes and tribal members.

The nearest ITA to the proposed site is approximately 26 miles south/southwest and it is a Public Domain Allotment.

### **3.10.2 Environmental Consequences**

#### No Action

The No Action alternative would have no affect on ITAs as there are none.

#### Proposed Action

As in the No Action alternative, the PMP would have no affect on ITAs.

#### Cumulative Effects

There would be no cumulative effects to ITAs as there are none.

## **3.11 Socioeconomic Resources**

### **3.11.1 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 January 1, 2005, the county's population was approximately 1.7 million, making it the largest of the nine bay area counties. 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 2003a).

A portion of the project pipeline length occurs at the borders of Santa Clara County and San Benito and Merced Counties. The service area of the District'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 Central Valley Project, 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 56,000. 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). San Benito County's growth rate has decreased in the last two years.

Merced County has a land area of 1,929 square miles and a population of approximately 240,162 (DOF 2005). Merced County is located in the heart of the San Joaquin Valley, an exceptionally productive agricultural area. The county spans from the coastal ranges to the foothills of Yosemite National Park (Merced County 2005).

Merced County has experienced a population growth of about 3 percent in the past 5 years. Population growth areas are situated towards the urbanized center of the county and not near the small section of pipeline located on the west side of the county.

### **3.11.2 Environmental Consequences**

#### No Action

Under the No Action alternative Reclamation would not approve the PMP. Pipeline maintenance would be on a case-by case basis and would not have an effect on population or housing because maintenance activities do not promote population growth, and would not displace housing. Maintenance activities would be accomplished on a case-by-case basis and would require separate environmental review, possibly delaying repairs. The delay of repairs could lead to pipeline degradation.

#### Proposed Action

Under the Proposed Action, Reclamation would approve the PMP. Maintenance of existing facilities does not include provision of additional capacity for growth. No new water conveyance facilities, roads, or other infrastructure are included as part of the PMP program. There would be no growth inducing impacts associated with implementing routine and corrective maintenance defined in the PMP.

The maintenance labor would be sourced from the existing District 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 PMP would not result in substantial increased demands for labor that could lead to population growth within the project areas.

Work to maintain pipelines has limited temporary physical effects, which could result from staging and access, draining water from the pipelines into local waterways, and excavation to repair the pipelines; 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, the District maintains agreements with the landowners to ensure access and the safety and integrity of the pipelines and residents. The District would rely on these agreements for access to perform the maintenance activities in the PMP, and the access would not be considered a large impact to residents because the District would follow the terms of the agreements. No other disturbance to residents and their homes would occur as a result of implementing the program.

### Cumulative Effects

The project would not have cumulative effects on population and housing with any other past, present or future project, because the PMP would have no affect.

## **3.12 Environmental Justice**

### **3.12.1 Affected Environment**

Executive Order 12898 (February 11, 1994) requires federal agencies to ensure that their actions do not disproportionately impact minority and disadvantaged populations.

Santa Clara County is made up of people from diverse cultures, nationalities, and racial groups. As of 2000, approximately 45 percent of the population was White, 26 percent Asian, 3 percent Black, 0.3 percent Native Hawaiian or Pacific Islander, and 17 percent of the population was of some other race or two or more races. The Hispanic or Latino population consists of 24 percent of the total population (DOF 2005b).

According to the U.S. Census Bureau (2000), approximately 91.7 percent of the population in San Benito County was White, 1.4 percent Black, 1.6 percent American Indian and Alaska Native persons, 3.1 percent Asian persons, 0.5 percent Native Hawaiian and Other Pacific Islander, and 50.6 percent Persons of Hispanic or Latino origin; and, in 2004, 8.8 percent persons were below poverty.

According to the U.S. Census Bureau (2000), approximately 85.4 percent of the population in Merced County was White, 4.1 percent Black, 1.6 percent American Indian and Alaska Native persons, 6.6 percent Asian persons, 0.2 percent Native Hawaiian and Other Pacific Islander, and 5.4 percent Persons of Hispanic or Latino origin; and, in 2004, 17 percent persons were below poverty.

### **3.12.2 Environmental Consequences**

#### No Action

Under the no action alternative, the District would continue to accomplish maintenance on a case-by-case basis. Maintenance of existing facilities does not include provision of additional capacity for growth. No new water conveyance facilities, roads, or other infrastructure would be anticipated from maintenance of existing facilities. Maintenance activities would not have any long-lasting effects that could affect population, housing, or disproportionately affect minority or low-income populations and communities.

#### Proposed Action

Under the Proposed Action, Reclamation would approve the PMP. PMP activities would not disproportionately affect minority or low-income populations and communities. Reclamation's approval of the PMP would provide a programmatic mechanism of accomplishing maintenance activities on the Santa Clara and Pacheco Conduits. The project would therefore, not have any disproportionately high and adverse effects on the health or environment of minority and low-income populations.

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 project would only affect a small number of rural residents located in the northeastern corner of San Benito County. 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.

The Pacheco Conduit passes into Merced County from the border of Santa Clara County up to the San Luis Reservoir. Merced is one of the poorest counties in California, with a sizable population below the poverty level. Most people live along the Highway 99 central corridor that bisects the county even though the population is distributed in rural and urban areas. The 2.5 miles of the Pacheco Conduit located in Merced County is located in a sparsely populated area to the west of the San Luis Reservoir. Very little maintenance work would likely occur in Merced County, as the first pipeline blow-off station is located down gradient in Santa Clara County. Where work did occur within the county, BMPs would be implemented to reduce any adverse effects. The project would not have a disproportionate adverse effect on minority or low-income populations in Merced County.

#### Cumulative Effects

PMP activities 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 PMP does 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 PMP would still not contribute to adverse effects to low-income and minority populations.

## **Section 4 Consultation and Coordination**

### **4.1 Fish and Wildlife Coordination Act (16 USC. 651 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 USFWS 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 project would not impound, divert, control or modify a body of water. Therefore, the FWCA does not apply to the Proposed Action.

### **4.2 Endangered Species Act (16 USC. 1521 et seq.)**

Section 7(a)(2) of the Endangered Species Act (ESA) 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 has prepared a biological assessment and submitted it along with a request for formal consultation with Service and National Marine Fisheries Service. This EA will not be finalized until ESA compliance has been completed.

### **4.3 National Historic Preservation Act (15 USC 470 et seq.)**

Section 106 of the National Historic Preservation Act requires federal agencies to evaluate the effects of federal undertakings on historical, archaeological and cultural resources.

The routine activities needed to maintain and enhance the water conveyance features would have no potential to affect historic properties pursuant to the regulations at 36 CFR Part800.3(a)(1).

### **4.4 Migratory Bird Treat Act (16 USC Sec. 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 would be allowed, having regard for temperature zones, distribution, abundance, economic value, breeding habits and migratory flight patterns.

The Proposed Action would have no effect on birds protected by the Migratory Bird Treaty Act.

#### **4.5 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.

#### **4.6 Federal Clean Water Act (33 USC 1251 et seq.)**

##### *Overview*

The CWA is a broad statute with the goal of maintaining and restoring waters of the United States. Among many provisions for the control of water pollution, the act also requires permits for filling or discharge of dredged materials to waters of the United States.

##### *Section 402 and 404 of the CWA*

Section 402 of the Clean Water Act (CWA) requires a NPDES permit prior to discharge of waste into surface waters. As authorized by the CWA, the NPDES Permit Program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. The EPA has delegated the NPDES program to Regional Water Quality Control Boards (RWQCBs). These boards issue NPDES permits and hold jurisdiction over the project area. Section 404 of the CWA establishes a permit program for the discharge of fill or dredged material into waters of the United States. Waters of the United States include navigable waters, interstate waters, and all other waters where the use, degradation or destruction of the waters could affect interstate or foreign commerce. Waters of the United States include tributaries of any of these waters, and wetlands that meet these criteria or that are adjacent to any of these waters or their tributaries.

The project is subject to Section 402 of the CWA because it involves discharge into surface waters. Project activities would require a NPDES Permit for discharges of non-storm water to waters of the State or United States. The project would be subject to a Section 404/Nationwide Permit from the US 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 5 List of Preparers and Reviewers

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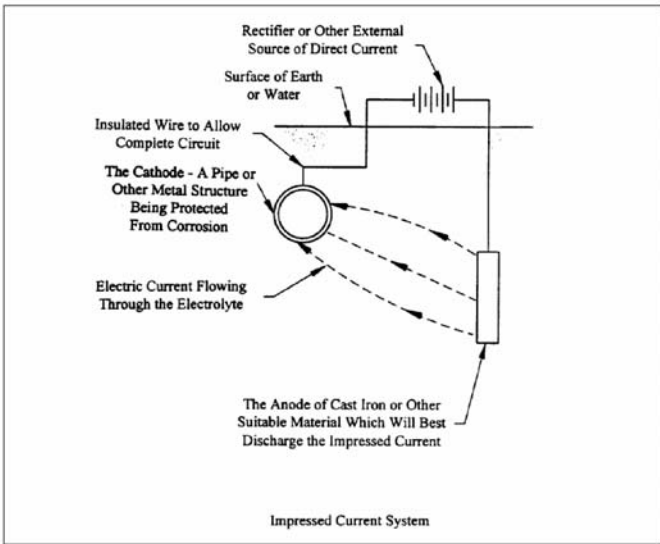
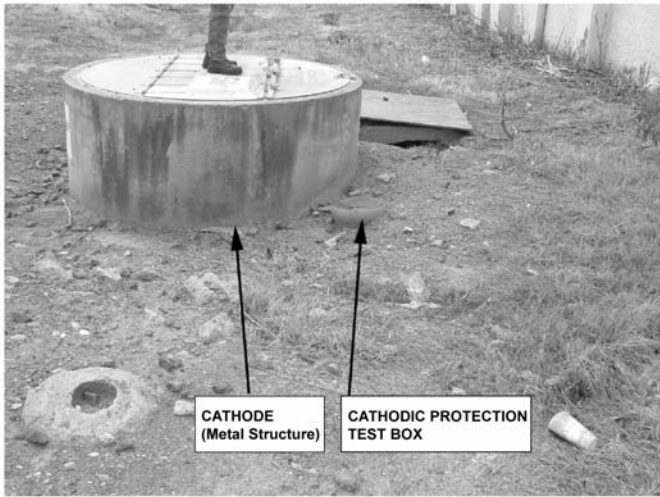
## Appendix A - Photos



SOURCE: SCVWD 2003



Pipeline Discharge, Pump Out of Raw Water, after Gravity Flow Stopped at Santa Clara Conduit Inlet



SOURCE: SCVWD 2005



**Cathodic Protection Monitoring**



I. Excavate Pipe - Straightforward operation which requires excavation to remove and replace pipe in kind.



II. Slip Line Pipe - Line the pipe with steel cylinders. Requires excavation to create an access pit. Steel cylindrical sections of a smaller diameter are driven into the existing PCCP and then welded. Grout is inserted between the inside of the PCCP and the outside of the steel cylinder.



III. Tendon Repair - External repair option which requires excavation around pipe such that a tendon can be secured around pipe.



IV. Carbon Fiber Composite Repair – Internal repair option using a composite of epoxy resin reinforced with high tensile strength carbon fiber.

SOURCE: SCVWD 2003



Examples of Pipeline Excavation/Repair

# Appendix B - Summary of District BMPS and Mitigation Measures

## BMPs Unrelated to T&E Species and Critical Habitats

The following measures are part of the proposed action, but only relate to the protection of resources other than federally listed species and their critical habitats. These measures are incorporated from the District's Draft Environmental Impact Report (SCVWD 2007) and the original numbering is preserved.

*BMP Hazards-1:* Smoking shall be prohibited except in designated staging areas and at least 20 feet from any combustible chemicals, dry grass, or vegetation. Smoking shall be prohibited in pipeline or near the repair surface. [Source: PMP]

*BMP Hazards-2:* All heavy equipment and rubber-tired construction vehicles used for off-road access in rural environments shall be equipped with fire extinguishers. All rubber-tired construction vehicles used for off-road access in rural environments shall be equipped with appropriate fire fighting equipment, such as shovels and axes or pulaskis, to aid in the prevention or spread of fires. All construction equipment shall be equipped with the appropriate spark arrestors and functioning mufflers. [Source: PMP]

*BMP Hazards-3:* An extinguisher shall be available at the project site at all times when welding or other repair activities that can generate sparks (such as metal grinding) is occurring. [Source: PMP]

*BMP Hazards-4:* Measures shall be implemented to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means. Prior to entering the work site, all field personnel shall know how to respond when toxic materials are discovered. The discharge of any hazardous or non hazardous waste as defined in Division 2, Subdivision 1, Chapter 2 of the California Code of Regulations shall be conducted in accordance with applicable State and federal regulations. [Source: Best Management Practices Handbook HM-12 Hazardous Materials Management]

*BMP Hazards-11:* Drivers transporting sodium bisulfite, sodium hypochlorite or any other hazardous material shall have a commercial driver's license with a HAZMAT endorsement. [Source: PMP]

*BMP Hazards-12:* To ensure worker safety is protected during bank protection projects in areas with potentially elevated contaminant concentrations, personal protective equipment would be required during project construction to maintain exposure below levels established by the Occupational Safety and Health Administration (OSHA). [Source: Best Management Practices Handbook HM-15: Avoid Exposing Soils with High Mercury Levels]

*BMP Hazards-13:* If road construction and maintenance, or construction and grading operations are to occur in areas where naturally-occurring asbestos is likely to be found (such as in

serpentine soils), appropriate dust control measures and notification requirements outlined by the Bay Area Air Quality Management District under BMP Air Quality-2 would be implemented. Regardless of the size of the disturbance, activities must not result in emissions that are visible crossing the property line. Road construction and maintenance activities in remote locations are exempt from this requirement. [Source: PMP]

*BMP Hazards-14:* The District shall provide one portable toilet and one wash station per 20 workers or fraction thereof for any project sites that do not have mobile access to a nearby facility.

Wash stations shall also be required on-site for any job where hazardous materials are handled (such as in repair work) or where pipeline draining involves using dechlorination chemical. [Source: PMP]

*Mitigation Measure Hazards-3:* If excavation work is to be conducted (1) in an area of known or suspected significant use or storage of hazardous materials (including gas stations, industrial plants, manufacturing facilities, etc.), or (2) in an area of known or suspected release of contaminants, the District shall contact the local agency overseeing hazardous materials releases as well as in-house personnel overseeing groundwater contamination sites to verify whether a release has occurred in the area and whether such a release is expected to affect conditions at the excavation site. If a release has occurred which is expected to affect excavation site conditions, a Health and Safety Plan shall be prepared prior to commencing with any excavation activities which addresses appropriate measures to be implemented, including personal protection and monitoring equipment, appropriate containment measures to implement if contaminated soil or shallow groundwater is encountered, and decontamination procedures. All workers shall be notified of the potential hazards and educated about the elements of the Health and Safety Plan prior to starting work. [Source: PMP]

*BMP Hydrology-2:* Methods used to prevent mud from being tracked out of work sites onto roadways include installing on unsurfaced access roads a layer of geotextile mat followed by a 4-inch thick layer of 1-3 inch diameter gravel. [Source: SMP Provision No. 4.3]

*BMP Hydrology-21:* RWQCB objectives for temperature in receiving waters (measured 100 feet downstream of project site in streams and 50 feet downstream in lakes) shall not be exceeded. Receiving water and discharge water would be monitored by a trained individual for temperature prior to the discharge and periodically throughout the drainage operation. [BMP Source: PMP]

*BMP Hydrology-24:* Receiving water would be monitored for dissolved oxygen and pH before, during, and after discharge of treated water to ensure that Region 2 Basin Plan standards (6.5 – 8.5 for pH, and greater than 5 mg/L for dissolved oxygen [SFRWQCB 2004]) are not violated for at least the initial release in each receiving water body or as required in NPDES permits issued by the RWQCB. Data shall be reported to the RWQCB as required. [Source: PMP]

*BMP Hydrology-19:* The District would obtain storm drain capacity information from the responsible municipality prior to discharge to a storm drain. Discharge rates to the storm drain would be maintained below its conveyance capacity. [Source: WUDPPP BMP CM-A]



*BMP Geology-1:* In considering access routes, slopes of greater than 20 percent should generally be avoided if possible. Subsequent to access, any sloped area should be examined for evidence of instability and either revegetated or filled as necessary to prevent future landslide or erosion. [Source: PMP]

*Mitigation Measure Geology-1:* Excavation plans shall identify any areas where slope stability may be impacted by excavation activities. In areas of potential slope stability problems, measures to stabilize the slope during excavation shall be taken, such as cutting benches instead of large slopes, and using temporary reinforcement materials. After excavation is complete, the area shall be revegetated and repaired to ensure slope stability. [Source: PMP]

*BMP Biology-5:* All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods would be thoroughly inspected for wildlife by properly trained construction personnel before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If a kit fox, or any other sensitive species particularly state or federally listed species, is discovered inside a pipe, that section of pipe would not be moved until the Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity [Source: PMP]

*Mitigation Measure Biology-4:* A qualified botanist shall survey serpentine soil grasslands, shrub lands, and woodlands prior to conducting activities for the presence of special status serpentine plant species. Buffer zones around individual plants or populations shall be established. Areas supporting sensitive species shall be permanently marked in the field (and in the District GIS) and shall include 100 ft. buffer zones within the marked area. [BMP Source: Best Management Practices Handbook BI-4]

Serpentine soil avoidance measures should be included in excavation grading plans. Avoidance measures may include flagging serpentine soils areas for avoidance during construction, minimizing the amount of vegetation to be removed in serpentine areas and using hand labor for upland vegetation control in serpentine soils after June 15.

*Mitigation Measure Biology-5:* Development of a Site Restoration Plan. If the project cannot be designed to avoid sensitive serpentine plant species (as discussed in BMP Geology-1 and Mitigation Measures Biology-3 and Biology-4) and the project activity would result in a significant impact to special status serpentine plants, then a Site Restoration Plan must be developed by a qualified restoration biologist familiar with the ecology of the significantly impacted species and approved by the responsible agency prior to the start of project activities. The objective of this mitigation measure would be to restore any special status plants and/or habitat that is temporarily disturbed during project implementation. The proposed restoration program would be monitored for a period of five years from the date of site grading to verify the success of the plant restoration. The restoration plan would be in accordance with District Revegetation Guidelines and would include:

- Designated locations on site to restore lost plant populations. Sufficient habitat within the proposed project area should exist for on-site restoration. Appropriate habitat would be created on suitable soils.
- Describe the propagation and planting techniques to be employed in the restoration effort. Perennial plants to be impacted by site grading should be salvaged and raised

in a greenhouse for eventual transplanting within the restoration areas. Annual plants can be established through direct seeding practices and/or transplanting container-grown plants into existing suitable habitat.

- Develop a timetable for implementation of the restoration plan
- Develop a monitoring plan and performance criteria.
- Describe remedial measures to be performed in the event that initial restoration measures are unsuccessful in meeting the performance criteria.
- Describe site maintenance activities to follow restoration activities. These may include weed control, irrigation, and control of herbivory by livestock and wildlife.

*Mitigation Measure Biology-6: Off-site Mitigation.* If a site restoration plan is not feasible, an off-site mitigation plan for affected sensitive plant species would be implemented. An off-site mitigation plan would incorporate all of the same elements as required under the Site Restoration Plan discussed above.

*Mitigation Measure Biology-9:* A qualified biologist would conduct pre-staging and pre-excavation surveys for bat species during the nursery period (March 15th through September 30th) if staging would occur within riparian settings or within 20 feet of bridges or overpasses. If pre-staging surveys determine that bat species occupy nursery sites just prior to staging, then an on-site biological monitor would be necessary during staging and access. The monitor would have authority to issue a cease and desist order if staging and access activity disturbs bats.]

*Mitigation Measure Biology-10:* A qualified biologist would conduct pre-staging and pre-excavation surveys for the dusky-footed wood rat when work occurs within areas of dense shrub cover and riparian settings. If pre-staging or pre-excavation surveys determine that woodrat occupies the site just prior to staging, then avoidance measures would be the first choice of action (e.g., do not remove woody vegetation or nesting materials occupied by the species). If avoidance is not feasible, woodrat nests can be moved out of the excavation footprint by a qualified biologist under the guidance of the CDFG

*Mitigation Measure Biology-11:* A qualified biologist would conduct pre-staging and pre-excavation surveys for the western pond turtle. A qualified biologist, under the guidance of the CDFG, may move any individual encountered along excavation footprints, within access routes, or staging areas to suitable habitat away from the work area. Should a pond turtle nest be unearthed during excavation, any viable hatchlings would be placed out of harm's way in the nearest waterway by a qualified biologist. A qualified biomonitor would be on-site during the initiation of excavation out to the perimeter.

*Mitigation Measure Biology-13:* Burrowing owl surveys would follow the survey Protocol and Mitigation Guidelines established by the Burrowing Owl Consortium (1993). When avoidance is impossible, passive relocation of owls in occupied burrows would be performed according to the guidelines.

*Mitigation Measure Biology-23:* If excavation is required for the Snell Pipeline and Cross Valley Pipeline within Critical Habitat Unit 7 area, or any other serpentine soil area that has potential habitat for Bay checkerspot butterfly, a biologist would first survey the pipeline area to determine if Bay checkerspot butterfly could be present (through identification of *Plantago erecta*, Bay checkerspot butterfly host plant. If Bay checkerspot butterfly are not present,

excavation can occur. All spoils removed for excavation would be stored on site and reused to cover the excavation.

The reclaimed area would be revegetated with similar species to the surrounding area. No gravel or fill would be placed within the Bay checkerspot butterfly Critical Habitat area for access or staging. Only temporary or existing roads can be used. If host plants for either species are identified, Mitigation Measure Biology-5, which requires plant and soil preservation and site restoration would be implemented. A biological monitor would also be on site to ensure that work is halted if Bay checkerspot are found within 100 feet of the work site. Work would resume once the individual was more than 100 feet from the work area.

*BMP Noise-3:* The District would implement practices that minimize disturbances to residential neighborhoods surrounding work sites.

- a. Internal combustion engines would be equipped with adequate mufflers.
- b. Excessive idling of vehicles would be prohibited.
- c. All construction equipment would be equipped with manufacturer's standard noise control devices.
- d. The arrival and departure of trucks hauling material would be limited to the hours of construction. The use of jake brakes is prohibited in residential areas. [Source: BMP Handbook BMP NO-2 Residential Noise Management]

*BMP Noise-4:* Workers or contractors shall notify residents through flyers, mailers, or door-to-door notification of any work within 1000 feet of a residence that may cause excessive noise. [Source: PMP]

*BMP Air Quality-1:* The access road and interior circulation routes associated with any project requiring continuous daily access for greater than 1 week shall be treated with a dust suppressant and maintained in such a manner as to insure minimum dust generation subject to the Air Quality Management District's dust regulations. [Source: PMP]

*BMP Air Quality-2:* The following measures shall be implemented for all excavation activities:

- Active maintenance areas shall be watered at least twice per day unless soils are already sufficiently moist to avoid dust.
- Trucks hauling sediments and other loose material shall be covered or shall maintain at least two feet of freeboard.
- Tailgates of trucks shall be sealed.
- Trucks shall be brushed down before leaving the maintenance site.
- Unpaved access roads and staging areas that are being used for the maintenance activity shall be watered three times daily, or non toxic soil stabilizers shall be applied to control dust generation.
- Paved maintenance site access roads shall be swept when visible soil material is carried onto the roadway.
- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph. [Source: SMP Provision numbers 5.1 and 5.2]

*BMP Air Quality-3:* No burning would be allowed on any project. Idling of internal combustion engines shall be held to an absolute minimum. All vehicles with internal combustion engines shall be fitted with spark arresters. [Source: Water Supply Division No. 15.03]

*BMP Air Quality-4:* Rapid-cure asphalt shall not be used in accordance with BAAQMD, Regulations 8, Rule 15. [Source: Water Supply Division No. 15.03]  
No mitigation required

*BMP Air Quality-5:* Some of the sediment removal sites could have sediment that is rich in organic matter decaying in an anaerobic condition, which generates assorted malodorous gases, such as reduced sulfur compounds. These sediments shall be handled in a manner that avoids impacting sensitive receptors.

1. The District shall avoid stockpiling potentially odorous sediments within 1000 feet of residential areas or other odor sensitive land uses.
2. Where appropriate, odorous stockpiles shall be disposed of at an appropriate landfill. [Source: BMP Handbook AQ-4: Avoid Stockpiling Potentially Odorous Sediments]

*Mitigation Measure Cultural Resources-1:* If erosion was identified after a pipeline discharge event (as identified per BMP Hydrology-14), and a cultural or paleontological resource is found, a 50-foot perimeter around the area shall be marked off and the PMP Program Manager shall be contacted to coordinate with a professional archaeologist or paleontologist. If sensitive resources are identified by the archaeologist or paleontologist, the site shall be avoided or data collection shall be implemented, as recommended by an archaeologist or paleontologist, to retain and/or record the information contained in the site. [Source: PMP]

*Mitigation Measure Cultural Resources-2:* The Standard Protocol to Determine Project Potential to Affect Cultural Resources shall be followed for any planned excavation involving hand or mechanical excavation in areas that: 1) more than 1 cubic meter of sediment would be disturbed; 2) have not been previously disturbed; 3) are beyond 3 feet from an existing facility; and 4) have been disturbed but not subject to any formal archaeological inquiry. The Bureau of Reclamation cultural resources specialist shall be notified three months prior to the proposed initiation date if the excavation is on the BOR-owned Santa Clara Conduit or Pacheco Conduit. The protocol is presented below.

Standard Protocol to Determine Project Potential to Affect Cultural Resources

Prior to the initiation of a project that involves excavation (as defined above), the District would conduct a records search to determine whether known cultural resources occur within the project area and whether the project area has been previously studied. The record search can be conducted by District personnel through the Northwest Information Center of the California Historical Resource Information System, Sonoma State University, Rohnert Park. The record search would document cultural resources with a 0.25-mile radius of the project boundaries, and would obtain all pertinent cultural resources documents, maps, and records needed to assess the project area's potential to contain significant cultural resources.

A search of the Native American Heritage Commission Sacred Lands Files would also be conducted. The Commission would be asked to provide a list of Tribal Members who have expressed an interest in being consulted about local projects. The District's archaeologist would

contact these individuals to notify them about the project and to request their input regarding potential areas of concern.

A cultural resource inventory (survey of the project area) would then be conducted if the record search results reveal that a survey has not been conducted or was conducted more than 20 years ago. This survey would document whether or not surface cultural materials (historic or prehistoric) are present within the project area. The results of the record search and, if needed, cultural resource inventory then would be presented in a report to the District along with recommendations on how to proceed.

If a project entails excavation of subsurface sediments in an area classified as high-medium for buried cultural resources (see prior sensitivity discussion), then a professional archaeologist would be consulted as to the best course of action. This might entail preemptive backhoe work or monitoring of excavations to determine the presence or absence of buried resources.

If cultural resources are documented in the project area and cannot be avoided by the project, then they must be evaluated to determine whether they are significant and eligible for listing on the National Register of Historic Places or California Register of Historic Places. If an eligible historic property lies within the project area and cannot be avoided, then impacts to the resource must be mitigated. If ineligible historic properties are present in the project area, then no further action is necessary. Avoidance of cultural resources is always the preferred alternative at every stage of the process. [Source: Adaptation of BMP Handbook CU-1: Review of Projects with Native Soil]

*Mitigation Measure Cultural Resources-3:* The Protocol for Unexpected Discovery of Archaeological Cultural Materials or Human Remains shall be followed for any project where an unexpected discovery is made.

In the event that an unanticipated archaeological resource is encountered during construction, work in the immediate vicinity of the find shall be halted until all requirements relating to archaeological discoveries have been satisfied. The construction supervisor must halt ground-disturbing activities in the proximity (100 feet), secure from vandalism or further disturbance a “no work” zone utilizing appropriate flagging, and notify appropriate District staff. A qualified professional archaeologist should then be then notified and asked to evaluate the find and recommend further management actions.

The Consulting Archaeologist shall provide to the District and the Corps (and Bureau of Reclamation if the project is on the BOR-owned pipelines) written and digital photographic documentation of all observed materials. They would also discuss site constituent utilizing the guidelines for evaluating archaeological resources for evaluating the California Register of Historic Places and National Register of Historic Places to make recommendations concerning a site’s eligibility to the State and National Registers. Based on the assessment, the District and Corps shall identify the appropriate CEQA (and potentially NEPA) and Section 106 cultural resources compliance procedure to be implemented.

If the find appears to not meet the California or National Register criteria of significance, and the Corps (and BOR, if applicable) archaeologist concurs with the Consulting Archaeologist’s conclusions, construction shall continue while monitored by the Consulting Archaeologist. The authorized maintenance work shall resume at the discovery site only after the District has

retained a Consulting Archaeologist to monitor and the Water Utilities Manager has received notification from the Corps to continue work.

If the find appears significant, avoidance of additional impacts is the preferred alternative. The Consulting Archaeologist shall determine if adverse impacts to the resources can be avoided. When avoidance is not practical (e.g., maintenance activities cannot be deferred or they must be completed to satisfy the PMP objective), the District shall develop an Action Plan and submit it to the Corps (and BOR if applicable) within 48 hours of Consulting Archaeologist's evaluation of the discovery. The Action Plan is synonymous with a data-recovery plan. It shall be prepared in accordance with the current professional standards and State and Federal guidelines for reporting the results of the work, and shall describe the services of a Native American Consultant and a proposal for curation of cultural materials recovered from a non-grave context. The recovery effort would be detailed in a report prepared by the archaeologist in accordance with current archaeological standards.

In the event of discovery of human remains (or the find consists of bones suspected to be human), the field crew supervisor shall take immediate steps to secure and protect such remains from vandalism during periods when work crews are absent.) A District representative would immediately notify the Santa Clara County Coroner (or the Coroner in San Benito or Merced Counties, as appropriate) and provide any information that identifies the remains as Native American. If the remains are determined to be from a prehistoric Native American, or determined to be a Native American from the ethnographic period, the Coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours of being notified of the remains. The NAHC then designates and notifies within 24 hours a Most Likely Descendant (MLD). The MLD has 24 hours to consult and provide recommendations for the treatment or disposition, with proper dignity, of the human remains and grave goods. Human remains shall be preserved in situ if continuation of the maintenance work, as determined by the Consulting Archaeologist and MLD, would not cause further damage to the remains (this is the preferred alternative). The remains and artifacts shall be documented and the find location carefully backfilled (with protective geo-fabric if desirable) and recorded in District project files.

In the event that human remains or burial associated items are exposed and cannot be protected from further damage, they shall be exhumed by the Consulting Archaeologist at the discretion of the MLD and reburied with the concurrence of the MLD in a place mutually agreed upon by all parties. [Source: SMP Provision No. 7.2]

*Mitigation Measure Paleo-1:* If paleontological resources are discovered during excavation, all work shall be suspended in the immediate area and a qualified paleontologist shall be contacted to investigate and evaluate the discovery. If sensitive resources are identified, the site shall be avoided or data collection shall be implemented, as recommended by a paleontologist, to retain and/or record the information contained in the site. [Source: PMP]

*BMP Aesthetics-1:* Avoid establishing staging areas within 500 feet of any scenic resources such as designated vista points along urban or rural trails, visible rock outcroppings, or designated historic buildings. [Source: PMP]

*Mitigation Measure Aesthetics-1:* Follow-up maintenance shall be performed on sites that have been seeded and planted. [Source: SMP Provision No. 2.9]

1. Maintenance shall include replacing dead or dying plants where appropriate, weeding, removing non-native plant colonizers, and ensuring that all plants receive sufficient water.
2. Irrigation shall be implemented as needed throughout the establishment period.

*Mitigation Measure Aesthetics-3:* Whenever possible, work hours should be limited to 7:00 A.M. to 7:00 P.M. Monday through Saturday. When subtasks such as repair have to be performed 24 hours per day, lighting shall conform to restrictions of the City where they occur (identified from Table 5.9-1). Measures such as directing lighting downward and away from residences, reducing bulb wattage to the minimum required, and utilizing shrouds shall be implemented. [Source: PMP]

*Mitigation Measure Land Use-1:* Prior to conducting maintenance activities that may require staging and access on private grazing lands or lands that support livestock, the District shall contact property owners to ensure that animals are moved or secured, if necessary. If any fences or gates must be utilized, District staff shall secure all gates after access or use temporary fencing and gates for any fences that need to be cut. The District shall repair any damage to fences after access, or renegotiate access with property owners per District easement contracts. [Source: PMP]

*Mitigation Measure Land Use-2:* Prior to maintenance that may require access or staging in agricultural fields, the District shall contact property owners to be sure that access would not damage crops. If possible, access through agricultural fields shall be avoided during the growing season. If access is necessary, the District shall create a path of least effect to the crops and compensate farmers for any damage to crops pursuant to renegotiated terms or contingencies decided prior to work. [Source: PMP]

The following measures are those applicable to the T&E species and critical habitats that may be affected by the Proposed Action. As with the measures above, these are incorporated from the District's Draft EIR for their entire PMP and the original numbers of each measure are preserved. These measures are hereby incorporated into the Proposed Action<sup>1</sup>. Annual reports would be prepared for the first two years to evaluate the PMP; after the first two years, reporting may be biennial.

*BMP Hydrology-1:* Access shall be provided as close to the work area as possible, using existing ramps where available and planning work site access so as to minimize disturbance to the creek bed, creek banks, and the surrounding land uses. [Source: SMP Provision No. 4.3]

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<sup>1</sup> It should be noted that in the EIR, many of these measures are named "mitigation measures." These names are retained in this EA, to maintain consistency between the two documents. However, Section 7 of the ESA requires Federal agencies to avoid and minimize effects and does not require "mitigation" in the form of compensation (such as land acquisition), unless it is necessary to avoid jeopardy or adverse modification or destruction, or if it actually reduces the level of take. Most of the "mitigation measures" listed below do serve to avoid or minimize take, with the exception of those that specify compensation for the loss of critical habitat or for the loss of vernal pool fairy shrimp habitat.

*BMP Hydrology-3:* Erosion control matting or fabric shall be installed if necessary. [Source: SMP Provision No. 2.7]

*BMP Hydrology-4:* Temporary fills, such as for temporary roads, access ramps, diversion structures, or cofferdams, shall be removed upon finishing the work. [Source: SMP Provision No. 3.13]

*BMP Hydrology-5:* Discharge volume reduction options (such as performing maintenance activities with partially full pipelines, employing sectioning valves, and/or opportunities for reuse of water) would be considered prior to draining the pipeline. [Source: PMP]

*BMP Hydrology-6:* Discharge rates would be ramped up slowly such that the increase in flow rate in the receiving water is gradual and scouring of the channel bed and banks does not occur. [Source: PMP].

*BMP Hydrology-7:* Flows would be diverted around sensitive, actively eroding, or extremely steep areas to prevent erosion. Flow diversion methods might include use of flexible piping and/or placement of sandbags to alter flow direction, or equivalent measures. The new flow path and discharge point would be monitored for signs of erosion. [Source: WUDPPP BMP CM-H]

*BMP Hydrology-8:* To protect exposed soil and vegetated surfaces from erosion, erosion control blankets, mats, or geotextiles would be placed over the erodible surface. A number of materials are available ranging from straw blankets to synthetic fiber with netting. The blanket can be removed following completion of the discharge or left in place to provide a more permanent means of erosion control. Instructions for installation can be found in the Construction Volume of the California Stormwater BMP Handbook (CASQA, 2003) or in the WUDPPP. [Source: WUDPPP BMP CM-B and CM-G]

*BMP Hydrology-9:* Velocity dissipation devices can be installed at frequently used discharge sites to reduce flow velocities and capture sediment. These devices typically combine plantings of wuldows with placement of angular stone riprap on top of filter fabric to create an apron at the discharge point. Where this BMP is recommended for permanent stabilization of existing erosion, minor grading may be necessary. Design and layout recommendations that appear in the Construction Volume of the California Stormwater BMP Handbook (CASQA, 2003) would be followed to the extent possible. [Source: SMP Provision 1.5]

*BMP Hydrology-10:* Temporary flow path check filters can be placed at single or multiple locations along the flow path to remove sediment from discharges and slow the rate of flow. Check filters are constructed of rock, sandbags, fiber rolls, or equivalent materials, and would be installed following recommendations in the WUDPPP and Stormwater BMP Handbook (CASQA, 2003). Each check filter would be modified with a notch or low spot to direct the flow path and prevent discharges from flowing around the sides of the check filter. Sediment that becomes trapped behind the check filters would be carefully removed to avoid disturbing the channel or swale and disposed of appropriately. Flow path check filters are typically applied where discharges to upland areas are planned. In channel settings, the temporary installation of flow path check filters would likely require a Streambed Alteration Permit from the California Department of Fish and Game (CDFG) per Fish and Game code section 1602. This permit would



require that certain provisions are followed, such as restricting use to only dry flow conditions. [Source: WUDPPP BMP CM-C]

*BMP Hydrology-11:* Streambank stabilization measures (such as biostabilization with wouldow plantings, hydroseeding, and placement of riprap) would be employed where excavation projects disturb stream channels and their associated riparian areas. Streambank stabilization measures would be site specific and may be described in the Streambed Alteration Permit. Design and installation recommendations for several methods are described in the Stormwater BMP Handbook (CASQA 2003). [Source: SMP Provisions 1.5 and 2.3]

*BMP Hydrology-12:* Existing access ramps and roads to streams shall be used where possible. If temporary access points are necessary, they shall be constructed in a manner that minimizes impacts to streams. [Source: SMP Provision No. 2.2]

*BMP Hydrology-13:* Where practicable, maintain a vegetated buffer strip between staging/excavation areas and receiving waters. [Source: WUDPPP BMP CM-B]

*BMP Hydrology-14:* Erosion control measures shall be utilized throughout all phases of the operation where sediment runoff from exposed slopes threatens to enter waters of the State. At no time shall silt laden runoff be allowed to enter water of the State. [Source: SMP Provision No. 1.5]

*BMP Hydrology-20:* A trained individual would observe flows in the receiving water. If it appears that discharges are approaching bankfull (associated with the flow that just fills the channel to the top of its banks and at a point where the water begins to overflow onto a floodplain) in the channel or any structure within the channel, discharge rates would be reduced. [Source: PMP]

*BMP Hydrology-15:* RWQCB objectives for temperature change in receiving waters (measured 100 feet downstream of discharge point) shall not be exceeded. Receiving water and discharge water may be monitored for temperature changes after a comparison of ambient temperature to pipeline water temperature suggests the potential for change. [Source: PMP]

*BMP Hydrology-18:* Receiving water may be monitored for dissolved oxygen and pH to ensure that relevant Basin Plan standards are not violated for at least the initial release in each receiving water body or as required in NPDES permits issued by the RWQCB. Data shall be reported to the RWQCB as required. [Source: PMP]

*Mitigation Measure Hydrology-1:* For all exposed earthen areas, once the maintenance activity is complete or during the appropriate time of year, an erosion control seed mix shall be used, compatible with the surrounding environment. The mix would consist of California native grasses (e.g., *Hordeum californicum*, *Elymus glaucus* 'Berkeley', *Bromus carinatus*) on slopes flatter than 3:1. 'Zorro' Annual Fescue would be added to the mix where slopes are steeper (e.g., 2:1). Erosion control matting or fabric shall be installed if necessary. [Source: SMP Provision No. 2.7]

*Mitigation Measure Hydrology-2:* The Water Utility Discharge Pollution Prevention Plan (WUDPPP) Guidance Manual (SCVWD 2001c) shall be followed for all discharges as

appropriate. To minimize erosion, the Erosion Control BMPs shall be implemented as directed by the WUDPPP. [Source: PMP]

*Mitigation Measure Hydrology-3:* The discharge location and receiving water would be observed for signs of erosion by a trained individual. If erosion is evident, flow rates would be reduced. If erosion continues to occur, discharges would be terminated until appropriate erosion control BMPs are installed. Monitoring would be conducted just prior to the start of the discharge and regularly (i.e., every hour, every four hours, every eight hours) during the discharge. Monitoring frequency would depend on the nature of the discharge and the erosion in the area.

*Mitigation Measure Hydrology-4:* An environmental monitor would walk along each discharge drainage to the termination of the drainage or 500 feet downstream to inspect for erosion after a draining is complete. If erosion is detected, reclamation measures should be taken to correct the erosion. Correction measures shall include recontouring the land to its previous state and revegetating with the dominant native grass species in the area, if necessary. [Source: PMP]

*Mitigation Measure Hydrology-5:* Prior to any ground disturbing work the District shall prepare an Erosion Control Plan to be included in the Excavation Plan. At a minimum, the plan shall include: [Source: PMP]

- A proposed schedule of grading activities
- Identification of any critical areas of high erodibility potential and/or unstable slopes
- Contour and spot elevations indicating runoff patterns before and after grading
- Identification of erosion control measures on slopes, lots, and streets. Measures would be based on recommendations contained in the “Erosion and Sediment Control Field Manual” published by the San Francisco RWQCB (SFRWQCB 2002). Erosion control measures such as placement of silt fencing or straw waddles shall be utilized to prevent sedimentation from runoff from graded surfaces into any waterways or wetlands.
- Soil stabilization techniques such as short-term biodegradable erosion control blankets and hydroseeding
- Post excavation inspection and cleaning of drainage facilities for accumulated sediment

*Mitigation Measure Hydrology-6:* RWQCB objectives for turbidity in receiving waters (measured 100 feet downstream of project site in streams and 50 feet downstream in lakes) shall not be exceeded<sup>2</sup>. 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 project activities shall not be discharged into streams, lakes or storm drains. Such water shall be treated prior to release by one of the following methods [Source: WUDPPP BMP SC-1 and SC-2]

- Sprayed over a large area outside of the stream channel to allow for natural filtration of sediments [Source: WUDPPP BMP]

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<sup>2</sup> In the Central Coast (Region 3): where natural turbidity is between 0 and 50 JTU, increases shall not exceed 20 percent; where natural turbidity is between 50 and 100 JTU, increases shall not exceed 10 JTU; and where natural turbidity is greater than 100 JTU, increases shall not exceed 10 percent (CCRWQCB 1994). Turbidity objectives in the Central Coast Basin Plan are expressed in the no longer used Jackson turbidity units (JTU). Nephelometric turbidity units (NTU) are approximately equal (but not identical) to JTU.

- Discharged to the sanitary sewer system (requires approval from local sanitary district) [Source: WUDPPP BMP CM-A]
- Treated with an on-line filter system or storm drain inlet protection [Source: WUDPPP BMP CM-D and CM-E]
- Pumped into a holding facility or into a settling pond located in a flat stable area [Source: PMP]

*BMP Biology-1:* Woody material (including live leaning trees, dead trees, tree trunks, large limbs, and stumps) would be retained unless it is threatening a structure or impedes reasonable access, in which case it would be retained on site but moved to a less threatening position. [Source: PMP]

*BMP Biology-2:* All trash would be removed from the site daily to avoid attracting potential predators to the site. [BMP Source: PMP]

*BMP Biology-3:* Building materials and construction materials would not be stockpiled or stored where they could be washed into the water or where they would cover aquatic or riparian vegetation. [BMP Source: PMP]

*BMP Biology-4:* To prevent inadvertent entrapment of animals during excavation, all excavated, steep-walled holes or trenches more than 2-feet deep would be covered at the close of each working day by plywood or similar materials ensuring no gaps around the edges or contact seam of the board and the earth, or provided with one or more escape ramps constructed of earth fill or wooden planks. In addition, these structures would be thoroughly inspected by properly trained construction personnel each morning for wildlife species. Before such holes or trenches are filled or covered, they would be thoroughly inspected for trapped animals. [Source: PMP]

*Mitigation Measure Biology-1:* If the biologist notes potential wetland areas, placement of fill within the potential wetland areas would be avoided if possible (such as by moving the road, etc.). If avoidance is not possible an ACOE jurisdictional wetland delineation would be performed according to the 1987 wetland delineation manual and the appropriate Section 404 and 401 processes followed. Placing fill within a jurisdictional wetland would require implementation of mitigation as included in the ACOE and RWQCB permits and may include local wetland enhancement, replacement, or creation of wetlands at a location approved by the appropriate regulatory agencies, such as Calero Creek.

*Mitigation Measure Biology-2:* All potential excavation (for pipeline components or for access roads) would be detailed in the project specific Excavation Plan as described in the PMP. All proposed excavation areas for either pipeline component repairs/replacements, bank stabilizations or access road repairs or reconstructions would be surveyed by a qualified biologist for potential wetland areas.

*Mitigation Measure Biology-3:* In defining laydown areas and access, the District shall use its GIS database to identify serpentine areas near work areas and avoid and minimize impacts to all stands of native vegetation that may provide suitable habitat for special-status plants and invertebrates to the greatest extent possible. No staging shall occur on open soils known to be serpentine and operation of maintenance equipment should be limited to established roads whenever possible. [BMP Source: Best Management Practices Handbook BI-4]

*Mitigation Measure Biology-7:* All off-road access routes to vaults or other service areas would be surveyed and delineated by a biologist prior to use. The access roads would be flagged such that sensitive plant species, vernal pools (potentially occurring in rural areas), and animal burrows are avoided. Routes would be limited to not more than 15 feet wide. Personnel would be required to adhere to marked paths. No other off-road travel would be allowed.

*Mitigation Measure Biology-8:* For any staging and access and/or excavation in any critical habitat area, a biological monitor would be present to oversee work. The monitor would have the authority to stop operations if any threat to critical habitat is presented.

*Mitigation Measure Biology-12:* For any staging, access, and excavation activity, the District would implement the District's Nesting Bird Procedures, (included in the PMP). The Nesting Bird Procedures ensure no adverse impacts to any migratory bird species as protected under the Migratory Bird Treaty Act of 1918, including all federal and state listed sensitive bird species. The Nesting Bird Procedures are summarized below:

- a. Migratory bird surveys would be performed prior to any project-related activity that could pose the potential to affect migratory birds. Affected areas would be inspected/monitored prior to commencement of the nesting season, and as frequently as necessary thereafter, to provide deterrence measures and prevent nesting by birds. Inactive bird nests may be removed, with the exception of raptor nests.

During the nesting season, all project areas that may be impacted by construction, including all vegetation, grounds, and bridge(s), would be inspected with sufficient frequency as needed, to identify any new and partially-built nests. No birds, nests with eggs, or nests with hatchlings shall be disturbed.

- b. Vegetation can be cleared and maintained to prevent migratory bird nesting. All necessary vegetation clearing would be performed prior to the nesting season, if at all possible. No vegetation would be trimmed back unnecessarily, including trees and/or shrubs growing near the right of way, which overhang onto the work site.
- c. Nesting exclusion devices may be installed to prevent potential establishment or occurrence of nests in areas where construction activities would occur. All nesting exclusion devices would be maintained throughout the nesting season, or until completion of work in an area makes the devices unnecessary. All exclusion devices would be removed and disposed of when work in the area is complete.

*Mitigation Measure Biology-14:* This BMP would be implemented for any staging and off-road access, and excavation within San Joaquin kit fox habitat (along the Santa Clara Conduit and Pacheco Conduit) (adopted from Reclamation's O&M BO and the *Standardized Kit Fox Construction Practices* developed by the Service (1997), except that the 20-mph speed limit is changed to 15 mph, the standard for District unpaved roads.

- A qualified biologist would conduct pre-construction presence/absence surveys for kit fox no less than 14 days and no more than 30 days prior to any construction-related activities. The primary objective is to identify kit fox habitat features (potential dens and refugia) on the project site and evaluate them sufficiently to ascertain if they are in use by a kit fox. If an active kit fox den is detected within (or immediately adjacent

- to) the area of work, the Service would be contacted immediately to determine the best course of action. If no kit fox activity is detected, the work shall continue as planned and a written report would be submitted to the Service within five days after completion of the surveys.
- All construction-related activities should be preceded by a tail-gate training session, the primary purpose of which would be to describe to construction workers the importance of implementing construction related activities that would minimize potential construction related impacts to kit foxes.
  - Project-related vehicles should observe a 15-mph speed limit in all project areas, except on city or county roads; this is particularly important at night when kit foxes are most active. To the extent possible, nighttime construction and traffic should be avoided. Off-road traffic outside of designated project areas is unacceptable.
  - To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of the project, all excavated, steep-walled holes or trenches more than 2-feet deep would be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. In addition, these structures would be thoroughly inspected by properly trained construction personnel each morning for kit fox or other species. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals.
  - All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods would be thoroughly inspected by properly trained construction personnel for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If a kit fox is discovered inside a pipe, that section of pipe would not be moved until the Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity.
  - All food related trash items such as wrappers, cans, bottles, food scraps would be disposed of in a closed container and removed at least once a week from a construction or project site and signs would be placed at the construction site that prohibit feeding wildlife.
  - No firearms would be allowed on the project site.
  - To prevent harassment, mortality of kit foxes or destruction of dens by dogs or cats, no pets would be permitted on project sites.
  - Use of rodenticides and herbicides in project areas would be restricted.
  - A representative would be appointed by the project proponent who would be the contact person for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped individual (the representative's name and address shall be provided to the Service).
  - Upon completion of the project, all areas subject to temporary ground disturbance, including storage and staging areas, temporary roads, pipeline corridors, etc. would be re-contoured if necessary, and revegetated to pre-project conditions.

- In the case of trapped animals, escape ramps or structures would be installed immediately to allow the animal(s) to escape, or the Service should be contacted for advice.
- Any contractor, employee(s), or military or agency personnel who inadvertently kill or injures a San Joaquin kit fox would immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured, or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045.

*Mitigation Measure Biology-15:* Discharges that must occur into a seasonal wetland during the dry season (between May 1<sup>st</sup> and October 31<sup>st</sup>) would be conducted after the area is surveyed by a qualified biologist for evidence of desiccated or active vernal pools. The surveys would be conducted within one week of scheduled discharge. If the discharge area is identified as a desiccated vernal pool with potential for fairy shrimp cysts, the water would not be discharged into the pool. The pump-out discharge point would either not be utilized or an alternative method or areas for discharge would be implemented. Options such as using a hose to transfer the discharge water to another location would be implemented.

*Mitigation Measure Biology-16:* Pipeline discharge for maintenance work would preferentially be performed during winter months, when storm events are more common and when water is naturally highest. Discharge flows are then a minimal portion of overall stream or river flow. If draining must occur during summer or fall, a slow release is mandatory to ensure receiving waters do not experience a temperature change greater than 2 degrees (Jennings, personal communication 2006). Fahrenheit in either direction, and overall receiving water does not exceed 68 degrees Fahrenheit in steelhead and Chinook salmon inhabited streams.

*Mitigation Measure Biology-17:* Temporary fish screens shall be applied to any secondary or side channel that could uptake pipeline flows, causing attractant flows that would subside once draining is complete. The key locations include along Ross Creek at the Almaden Valley Pipeline, along the Guadalupe secondary channel along the Central Pipeline. Flows from the Cochrane channel to Coyote Creek should be directed into the creek and controlled during high flow conditions when secondary channels may occur or can form easily. Screens would be periodically monitored for debris, and constructed with a second layer of plastic construction fencing on the side exposed to the fish. Exotic species trapped by the screening would be removed from the wild.

*Mitigation Measure Biology-18:* In areas where temporary velocity dissipation devices or temporary spreader dams are proposed for installation, the area would first be surveyed by a qualified biologist to ensure that no steelhead or Chinook salmon fry or eggs; no California red-legged frog eggs or larvae; and no California tiger salamander eggs or larvae are present within 500 feet upstream and downstream of the proposed structure (within the stream channel). If fry or eggs are found and could be impacted by placement of flow dissipation BMPs, then the discharge point would either not be used, be redirected upstream in a cleared area (such as with a hose), or discharge would not occur until the eggs and/or fry have moved from the area. [Source: PMP]

*Mitigation Measure Biology-19:* If a pipeline water discharge is scheduled to occur from January through August along any of the pipelines where there is potential California tiger salamander, California-red legged frog, and/or foothill yellow legged frog habitat, a survey for the species with potential to occur would be performed by a qualified biologist within 1 week prior to release. If California tiger salamander, California red-legged frog, or foothill yellow-legged frog eggs or larvae are not found within 500 feet upstream or downstream of the release point, absence would be re-verified within 24 hours of installation of BMP's and commencement of release. Release can commence if no eggs or larvae are found 500 feet upstream or downstream during the second survey. BMPs that control velocity (velocity dissipation) and flow rate would be implemented in any area with potential Special-Status amphibian habitat. If eggs or larvae are found within 100 feet downstream of a release point, the discharge point would not be utilized, if possible. Velocity reduction can be accomplished either by slowing release, decreasing release volume at the point, and/or applying dissipation in the immediate area of the discharge point as long as dissipation devices would not affect any adult Special-Status amphibians, their eggs, or larvae.

A qualified biologist would oversee implementation of Mitigation Measure Biology-19.

*Mitigation Measure Biology-20:* During pipeline draining, mesh screens, adhering to Fish Screen Criteria (Appendix G of the PMP), which list specific mesh sizes, would 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 species, if the water is discharged to a stream that does not regularly receive imported water directly for recharge. It may be necessary to place fish containment screens in side channels that are examined throughout the draining process to remove introduced fish and maintain function against debris clogging. Structures that have historically discharged reservoir water imported from the Delta are exempt from this measure. [Source: San Felipe Preventative Maintenance Shutdown IS/EA 2003, Mitigation Measure 4.3-4]

*Mitigation Measure Biology-21:* A qualified biologist would survey the excavation construction area for vernal pools within 30 days of excavation. If vernal pools are located within the project footprint, the footprint would be adjusted to exclude the vernal pool area, if possible. Construction or reconstruction of an access road would be routed completely around the vernal pool by at least 100 feet. The vernal pool outer boundary would be flagged with pin flags and posted (outside the pool area) as an exclusion area. No activity (including walking through the area) would be permitted.

*Mitigation Measure Biology-22:* If a pipeline segment or feature (such as a vault) is located under a vernal pool and requires excavation through the vernal pool, compensation would be provided for following the standard mitigations 2:1 preservation and 1:1 creation, or the protocol in use at the time. [Source: PMP]

*BMP Hazards-4:* Measures shall be implemented to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means.

- Prior to entering the work site, all field personnel shall know how to respond when toxic materials are discovered.

- The discharge of any hazardous or non hazardous waste as defined in Division 2, Subdivision 1, Chapter 2 of the California Code of Regulations shall be conducted in accordance with applicable State and federal regulations.

*Mitigation Measure Biology-24:* If excavation were to occur along any pipeline within potential California tiger salamander or California red-legged frog habitat the area would be surveyed, according to current agency protocols by a qualified biologist, for presence of California tiger salamanders and California red-legged frogs prior to excavation, including excavation within stream banks, and excavation for laying or filling road material. Any burrows within the construction footprint of areas that are determined to have suitable habitat and potential for occurrence of California tiger salamanders or California red-legged frogs as determined through habitat reconnaissance surveys shall be examined for individuals following recommendations of the CDFG and/or USFWS or protocol surveys, as appropriate. If any individuals are found, a qualified biologist would remove them to suitable habitat outside of the project limits. Moving animals would be consistent with applicable Fish and Wildlife Service and Fish and Game permits.

*Mitigation Measure Biology-25:* If access road reconstruction or repair is necessary within any critical habitat area for California tiger salamander the amount and type of area that must be filled would be quantified to determine if the area supports the primary constituent elements. If the impact is temporary then restoration measures would be used to restore the value of the temporarily disturbed area. If the impact is permanent and impacts to critical habitat (i.e., presence of the primary constituent elements) are to occur then a similarly valued area at a 3:1 ratio would be preserved within a critical habitat unit. The District would 1) avoid road reconstruction or repair, whenever feasible, in areas with known estivation habitat. Roads would be moved to a new alignment or decommissioned if the option is feasible. If avoidance is not feasible, compensation as described above would be implemented; 2) minimize impacts by conducting any such work during times the species is least likely to be negatively impacted, and/or using fencing to keep the species away from the construction zone; 3) restore impacted areas to pre-work conditions; and finally 4) if unable to accomplish 1 thru 3; any residual effect would be compensated for following the above approach.

*Mitigation Measure Biology 26:* If the District were to shut down a pipeline during a drought year, or during a time period when pipeline flows are necessary to augment stream flows, then an alternative source of water would be identified before shutdown commences. Alternative sources of water would come from the following locations, in order of priority :

- 1) Other raw water sources, such as another pipeline
- 2) Well water from a retailer
- 3) Dechlorinated municipal water piped to the site from the nearest hydrant or other repository

The alternative water source must provide sufficient flows to keep water flowing within the creek. The volume and rate of alternative flow necessary for any given project would depend on the receiving creek morphology, the weather, and the fishery, if any. Qualified District personnel (biologists, civil engineers, etc.) would determine the necessary alternative flow volume and rate depending on the stream channel size, the existing flow, and the fishery. Creeks would likely require a minimum of 1 cfs flowing in them (either with natural flows, with augmented flows, or a combination of natural and augmented flows), although some creeks may require more.



If natural flows increase during the shutdown period and can provide the determined necessary minimum channel flow (as previously defined by a District biologist and/or civil engineer), then the District can terminate the alternative source.

If dechlorination of municipal water is used, the District shall make agreements with the municipality prior to pipeline shutdown, with the estimated maximum flow and volume that could be needed to ensure flow can be sustained throughout the shutdown. Water would be dechlorinated following BMP Hydrology 16, BMP Hydrology-17, and BMP Hydrology-18.

*Mitigation Measure Biology-27:* The District would follow all BMPs outlined in their 2003 Comprehensive List that pertain to the San Jose Riparian Corridor Policy. [Source: PMP]

Additionally, pursuant to the District's Comprehensive BMPs:

- The District would strive to minimize vegetation removal and would revegetate sites as appropriate to provide erosion control and restore riparian habitat value.

If removal of trees cannot be avoided, then these additional mitigations would be implemented:

- A qualified botanist would conduct a pre-staging tree survey in order to identify species and circumference at appropriate heights, of all trees to be removed or impacted by staging and/or access activities. Once the survey is completed, a restoration plan would be developed that indicates the ratio, location, and species of trees to be planted.
- Trees would be replaced at acceptable ratios set forth by the appropriate agency. Planting stock would be collected locally (within a 5-mile radius of the project site) to the extent possible in order to maintain genetic integrity of the species to be replaced and planting would be completed during the period between November and January. New plantings would be installed in an environment suitable for their establishment and growth and would be maintained, including protection from invasive species and deer browsing, and irrigated for a period of not less than three years.
- For trees remaining in the vicinity of the project site, problems of soil compaction resulting from project maintenance activities need to be prevented. In order to minimize impacts to remaining trees, fencing would be installed around the edge of the tree canopy or at the edge of the construction areas.

*BMP Hazards-1:* Smoking shall be prohibited except in designated staging areas and at least 20 feet from any combustible chemicals, dry grass, or vegetation. Smoking shall be prohibited in pipeline or near the repair surface.

*BMP Hazards-2:* All heavy equipment and rubber-tired construction vehicles used for off-road access in rural environments shall be equipped with fire extinguishers. All rubber-tired construction vehicles used for off-road access in rural environments shall be equipped with appropriate fire fighting equipment, such as shovels and axes or pulaskis, to aid in the prevention

or spread of fires. All construction equipment shall be equipped with the appropriate spark arrestors and functioning mufflers.

*BMP Hazards-3:* An extinguisher shall be available at the project site at all times when welding or other repair activities that can generate sparks (such as metal grinding) is occurring.

*BMP Hazards-5:* Spill prevention kits shall always be in close proximity when using hazardous materials (e.g., crew trucks and other logical locations).

- Prior to entering the work site, all field personnel shall know the location of spill kits on crew trucks and at other locations within District facilities.
- All field personnel shall be advised of these locations and trained in their appropriate use.

[Source: Best Management Practices Handbook HM-14 Spill Kit Location]

*BMP Hazards-6:* All equipment would be properly maintained and inspected for leaks daily before start of work.

No fueling shall be done in a stream channel or immediate flood plain, unless equipment stationed in these locations is not readily relocated (i.e., pumps, generators).

- For stationary equipment that must be fueled on-site, containment shall be provided in such a manner that any accidental spill of fuel shall not be able to enter the water or contaminate sediments that may come in contact with water.
- Any equipment that is readily moved out of the channel shall not be fueled in the channel or immediate flood plain.
- All fueling done at the job site shall provide containment to the degree that any spill shall be unable to enter any channel or damage stream vegetation.

[Source: BMP Handbook HM-10 Vehicle and Equipment Fueling]

*BMP Hazards-7:* The District shall prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water into channels. District vehicles shall be washed only at the approved area in the corporation yard.

- Field personnel shall be appropriately trained in spill prevention, hazardous material control, and clean up of accidental spills.
- No fueling, repair, cleaning, maintenance, or vehicle washing shall be performed in a creek channel or in areas at the top of a channel bank that may flow into a creek channel

[Source: Best Management Practices Handbook: HM-13 Spill Prevention]

*BMP Hazards-8:* No washing of vehicles shall occur at job sites. [Source: Best Management Practices Handbook HM-9 Vehicle and Equipment Cleaning]

*BMP Hazards-9:* Debris, soil, silt, bark, rubbish, creosote-treated wood, raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances which could be hazardous to aquatic life, shall be prevented from contaminating the soil and/or entering the waters of the state. Any of these materials, placed within or where

they may enter a stream or lake shall be removed immediately. [Source: CFI/CFO 1600 Permit Provision 24]

*BMP Hazards-10:* All equipment shall be stored in a secure area away from the channel. Quantities greater than 55 gallons would be provided with a secondary containment capable of containing 110 percent of the primary container. During the period between October 15 and April 15 (and depending on rain patterns, could include before and after these dates as well), all equipment fluid storage areas would be provided with an impermeable cover to prevent contact with storm water. [Source: PMP]

*Mitigation Measure Hazards-1:* During the planning phase for activities that involve discharge, project coordinators shall contact the group implementing the pesticide application to verify that no temporal or spatial overlap in discharge and pesticide application would occur. Information on pesticide application should be included in the project-specific draining plan. [Source: PMP]

*BMP Noise-1:* Workers or contractors shall carry noise abatement devices or equipment to construct a noise abatement device for work that must be performed outside of normally allowed operating hours, either between 7:00 a.m. and 7:00 p.m. or as dictated by local code. Equipment to construct a noise abatement device could include large pieces of plywood, insulating material, egg carton material, etc. [Source: PMP]

*BMP Noise-2:* District staff shall keep noise from construction activities as low as possible. In no case shall noise levels produced by the Contractor exceed any of the following maximums:

- No individual piece of equipment shall produce a noise level exceeding 83 dbA at a distance of 25 feet. [Source: BMP Water Supply Division No. 15.02]
- The noise level at any point outside of the property line or temporary construction area shall not exceed 86 dbA during work hours or 60 dbA during nonworking hours. No equipment violating these standards would be allowed to operate. [Source: BMP Water Supply Division No. 15.02]

The District staff shall contact the local jurisdiction to determine what, if any, additional noise or equipment limitations apply and shall conform to those regulations as well. [Source: PMP]

*Mitigation Measure Noise-1:* Work shall not be conducted between the hours of 7:00 p.m. and 7:00 a.m. or on Sundays, except when/where the nature of the activity requires work beyond this timeframe or where a local jurisdiction has more stringent work hour requirements. Activities shall comply with any additional requirements of the local jurisdiction regarding hours of construction. Permits for exceptions to noise ordinances shall be obtained as appropriate. [Source: PMP]

*Mitigation Measure Aesthetics-2:* The District shall replace trees as follows:

- Native trees that are lost to bank protection impacts shall be replaced at a 3:1 ratio and non-native trees that are lost shall be replaced at a 2:1 ratio.
- Trees removed for any maintenance work shall be replaced at the site, if feasible.
- Replacement of heritage-sized trees (greater than 18 inches dbh) would be consistent with local ordinances.

[Source: SMP Provision No. 2.8]

# Appendix C - Federal Endangered and Threatened Species List

## Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 070730031604  
Database Last Updated: June 9, 2007

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### Quad Lists

#### Listed Species

##### Invertebrates

- *Euphydryas editha bayensis*
  - bay checkerspot butterfly (T)
  - Critical habitat, bay checkerspot butterfly (X)

##### Fish

- *Hypomesus transpacificus*
  - delta smelt (T)
- *Oncorhynchus mykiss*
  - Central California Coastal steelhead (T) (NMFS)
  - Central Valley steelhead (T) (NMFS)
  - Critical habitat, Central California coastal steelhead (X) (NMFS)
  - South Central California steelhead (T) (NMFS)
- *Oncorhynchus tshawytscha*
  - Central Valley spring-run chinook salmon (T) (NMFS)
  - winter-run chinook salmon, Sacramento River (E) (NMFS)

##### Amphibians

- *Ambystoma californiense*
  - California tiger salamander, central population (T)
  - Critical habitat, CA tiger salamander, central population (X)
- *Rana aurora draytonii*
  - California red-legged frog (T)
  - Critical habitat, California red-legged frog (X)

##### Reptiles

- *Gambelia (=Crotaphytus) sila*
  - blunt-nosed leopard lizard (E)

##### Birds

- *Brachyramphus marmoratus*
  - marbled murrelet (T)
- *Sternula antillarum (=Sterna, =albifrons) browni*
  - California least tern (E)
- *Vireo bellii pusillus*
  - Least Bell's vireo (E)

##### Mammals

- *Vulpes macrotis mutica*
  - San Joaquin kit fox (E)

[http://www.fws.gov/sacramento/es/spp\\_lists/auto\\_list.cfm](http://www.fws.gov/sacramento/es/spp_lists/auto_list.cfm) (1 of 4) [7/30/2007 2:16:58 PM]

## Plants

- . *Castilleja affinis ssp. neglecta*
  - o *Tiburon paintbrush (E)*
- . *Ceanothus ferrisae*
  - o *Coyote ceanothus (E)*
- . *Dudleya setchellii*
  - o *Santa Clara Valley dudleya (E)*
- . *Streptanthus albidus ssp. albidus*
  - o *Metcalf Canyon jewelflower (E)*

## Candidate Species

### Fish

- . *Oncorhynchus tshawytscha*
  - o *Central Valley fall/late fall-run chinook salmon (C) (NMFS)*

## Quads Containing Listed, Proposed or Candidate Species:

THREE SISTERS (385A)

SAN FELIPE (385B)

CHITTENDEN (386A)

PACHECO PASS (404C)

GILROY HOT SPRINGS (405C)

PACHECO PEAK (405D)

MT. SIZER (406A)

MORGAN HILL (406B)

GILROY (406D)

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## County Lists

No county species lists requested.

### Key:

- . (E) *Endangered* - Listed as being in danger of extinction.
- . (T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
- . (P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
- . (NMFS) Species under the jurisdiction of the [National Oceanic & Atmospheric Administration Fisheries Service](#). Consult with them directly about these species.
- . *Critical Habitat* - Area essential to the conservation of a species.
- . (PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
- . (C) *Candidate* - Candidate to become a proposed species.
- . (V) *Vacated* by a court order. Not currently in effect. Being reviewed by the Service.
- . (X) *Critical Habitat* designated for this species

## Important Information About Your Species List

### How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

### Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online [Inventory of Rare and Endangered Plants](#).

### Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

For plant surveys, we recommend using the [Guidelines for Conducting and Reporting Botanical Inventories](#). The results of your surveys should be published in any environmental documents prepared for your project.

### Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal [consultation](#) with the Service.
- During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.
- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.
- Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental

[http://www.fws.gov/sacramento/es/spp\\_lists/auto\\_list.cfm](http://www.fws.gov/sacramento/es/spp_lists/auto_list.cfm) (3 of 4) [7/30/2007 2:16:58 PM]

documents you file.

### Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as [critical habitat](#). These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our [critical habitat page](#) for maps.

### Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

### Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. [More info](#)

### Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U. S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

### Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be October 28, 2007.