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FINAL ENVIRONMENTAL ASSESSMENT

*SANTA CLARA CONDUIT MAINTENANCE AND REPAIRS*

**Appendix A**

**Summary of SCVWD BMPs and Mitigation Measures**

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February 2011

## Summary of SCVWD BMPs and Mitigation Measures

### **BMPs and Mitigation Measures Unrelated to T&E Species**

The following general measures are incorporated into 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 Santa Clara Valley Water District's (SCVWD) Pipeline Maintenance Program (PMP) Draft Environmental Impact Report (Draft EIR) and the original numbering is preserved (SCVWD 2007).

**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 firefighting 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: Water Utility Discharge Pollution Prevention Plan (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 California Department of Fish and Game (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).

## **BMPs and Mitigation Measures Related to T&E Species**

The following measures are those applicable to the federally Threatened and Endangered species and critical habitats that may be affected by the Proposed Action. As with the measures above, these are incorporated from SCVWD'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).

**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).

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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-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 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. 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 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 willow 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 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

- 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)
- 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

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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.

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 1st and October 31st) 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 firefighting 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).

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FINAL ENVIRONMENTAL ASSESSMENT

*SANTA CLARA CONDUIT MAINTENANCE AND REPAIRS*

**Appendix B**  
**Dewatering Table**

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February 2011



	SANTA CLARA CONDUIT (COYOTE TO SV1) DEWATERING TABLE							
SITE	ASSUMED PUMP/ DRAIN RATE (CFS)	TOTAL DRAINAGE TIME PER SITE (HOURS)	TOTAL DRAINAGE VOLUME PER SITE (GAL)		TOTAL DRAINAGE VOLUME PER SITE (ACRE-FEET)		DISCHARGE TO	PUMP TIME AND VOLUME NOTES
84" Line Valve & 24" Bypass at Bifurcation Structure	NA	NA	NA		NA		NA	
CCP POLYJET DRAINAGE	20.00	4.35	2,343,418		7.19		COYOTE CREEK (As Recharge)	BMPS needed for discharge
DRAINAGE FROM MAIN AVE TURNOUT	4.00	11.75	1,265,923		3.88		MAIN AVE PONDS	
DRAINAGE FROM SAN PEDRO TURNOUT	3.00	40.79	3,295,314		10.11		SAN PEDRO PONDS	
DRAINAGE FROM CFI DISSIPATER	5.00	119.03	15,218,232		46.70		PACHECO CREEK (110' AWAY)	Pump-out Time assumes: - 3 hrs of equipment delivery & set-up - 3 hrs of equipment break-down & removal
SV1 (SCC32) NOZZLE PUMP-OUT	2.00	6.48	25,953		0.08		LLAGAS CREEK (ALAMIAS CREEK) (1,000' AWAY)	Pump-out Time assumes: - 3 hrs of equipment delivery & set-up - 7 hr/day of actual pump time at 2 cfs and - 3 hrs of equipment break-down & removal
SCC35 NOZZLE I.P.O.	2.00	16.96	590,027		1.81		LLAGAS CREEK (2400' AWAY VIA DRAINAGE DITCH)	Pump-out Time assumes: - 3 hrs of equipment delivery & set-up - 7 hr/day of actual pump time at 2 cfs and - 3 hrs of equipment break-down & removal
SCC37 NOZZLE PUMP-OUT	2.00	8.86	137,274	TOTAL VAULT VOLUME IS 154218	0.42	TOTAL VAULT VOLUME IS 0.47	SKILLET CREEK (65' AWAY)	Pump-out Time assumes: - 3 hrs of equipment delivery & set-up - 7 hr/day of actual pump time at 2 cfs and - 3 hrs of equipment break-down & removal
SCC37 NOZZLE I.P.O.			16,944		0.05			
SCC39 NOZZLE PUMP-OUT	2.00	15.25	605,979		1.86		RUCKER CREEK (15' AWAY)	Pump-out Time assumes: - 2 hrs of equipment delivery & set-up - 7 hr/day of actual pump time at 2 cfs and - 2 hrs of equipment break-down & removal
SCC41 NOZZLE PUMP-OUT	2.00	7.93	101,503	TOTAL VAULT VOLUME IS 103916	0.31	TOTAL VAULT VOLUME IS 0.32	CHURCH CREEK (50' AWAY)	Pump-out Time assumes: - 3 hrs of equipment delivery & set-up - 7 hr/day of actual pump time at 2 cfs and - 3 hrs of equipment break-down & removal
SCC41 NOZZLE I.P.O.			2,412		0.01			
SCC43 NOZZLE PUMP-OUT	2.00	10.71	253,843		0.78		0	Pump-out Time assumes: - 3 hrs of equipment delivery & set-up - 7 hr/day of actual pump time at 2 cfs and - 3 hrs of equipment break-down & removal
SCC45 NOZZLE PUMP-OUT	2.00	13.53	405,584		1.24		NEW CREEK (1000' AWAY)???	Pump-out Time assumes: - 3 hrs of equipment delivery & set-up - 7 hr/day of actual pump time at 2 cfs and - 3 hrs of equipment break-down & removal
DRAINAGE FROM SCC47	2.00	7.47	92,761	TOTAL VAULT VOLUME IS 187033	0.28	TOTAL VAULT VOLUME IS 0.57	NEW CREEK (70' AWAY)	Pump-out Time assumes: - 2 hrs of equipment delivery & set-up - 7 hr/day of actual pump time at 2 cfs and - 2 hrs of equipment break-down & removal
SCC47 NOZZLE PUMP-OUT			74,877		0.23			
SCC47 NOZZLE I.P.O.			19,396		0.06			
SCC48 NOZZLE PUMP-OUT	2.00	8.52	132,906	TOTAL VAULT VOLUME IS 135739	0.41	TOTAL VAULT VOLUME IS 0.42	NEW CREEK (110' AWAY VIA CATCH BASIN @ INTERSECTION)	Pump-out Time assumes: - 3 hrs of equipment delivery & set-up - 7 hr/day of actual pump time at 2 cfs and - 3 hrs of equipment break-down & removal
SCC48 NOZZLE I.P.O.			2,833		0.01			
SCC50 NOZZLE PUMP-OUT	2.00	5.05	56,750		0.17		CENTER CREEK (300' AWAY)	Pump-out Time assumes: - 2 hrs of equipment delivery & set-up - 7 hr/day of actual pump time at 2 cfs and - 2 hrs of equipment break-down & removal
SCC51 NOZZLE PUMP-OUT	2.00	7.61	77,240	TOTAL VAULT VOLUME IS 86460	0.24	TOTAL VAULT VOLUME IS 0.27	SAN MARTIN CREEK (60' AWAY)	Pump-out Time assumes: - 3 hrs of equipment delivery & set-up - 7 hr/day of actual pump time at 2 cfs and - 3 hrs of equipment break-down & removal
SCC51 NOZZLE I.P.O.			9,220		0.03			
DRAINAGE FROM SCC53	2.00	51.41	2,009,563	TOTAL VAULT VOLUME IS 2553548	6.17	TOTAL VAULT VOLUME IS 7.84	SAN MARTIN CREEK (110' AWAY VIA DRAINAGE DITCH)	Pump-out Time assumes: - 2 hrs of equipment delivery & set-up - 7 hr/day of actual pump time at 2 cfs and - 2 hrs of equipment break-down & removal
SCC53 NOZZLE PUMP-OUT			543,986		1.67			
DRAINAGE FROM SCC55	2.00	69.78	3,139,289	TOTAL VAULT VOLUME IS 3542730	9.63	TOTAL VAULT VOLUME IS 10.87	CORRALLITOS CREEK (65' AWAY)	Pump-out Time assumes: - 2 hrs of equipment delivery & set-up - 7 hr/day of actual pump time at 2 cfs and - 2 hrs of equipment break-down & removal
SCC55 NOZZLE PUMP-OUT			387,683		1.19			
SCC55 NOZZLE I.P.O.			15,758		0.05			
SCC57 NOZZLE PUMP-OUT	2.00	23.70	1,037,893	TOTAL VAULT VOLUME IS 1060930	3.19	TOTAL VAULT VOLUME IS 3.26	TENNANT CREEK (15' AWAY)	Pump-out Time assumes: - 2 hrs of equipment delivery & set-up - 7 hr/day of actual pump time at 2 cfs and - 2 hrs of equipment break-down & removal
SCC57 NOZZLE I.P.O.			23,037		0.07			
SCC58 NOZZLE I.P.O.	2.00	6.52	135,719		0.42		TENNANT CREEK (25' AWAY)	Pump-out Time assumes: - 2 hrs of equipment delivery & set-up - 7 hr/day of actual pump time at 2 cfs and - 2 hrs of equipment break-down & removal
		SUM=	32,021,315		98.27			

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FINAL ENVIRONMENTAL ASSESSMENT

*SANTA CLARA CONDUIT MAINTENANCE AND REPAIRS*

**Appendix C**

**National Marine Fisheries Service Concurrence Memo**

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February 2011

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UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
Southwest Region  
501 West Ocean Boulevard, Suite 4200  
Long Beach, California 90802-4213

September 30, 2008

In response refer to:  
2007/05948

Michael Kinsey  
Supervisory Wildlife Biologist  
U. S. Department of the Interior  
Bureau of Reclamation, South-Central California Area Office  
1243 N Street  
Fresno, California 93721-1813

COPY

Dear Mr. Kinsey:

Thank you for your February 29, 2008, letter requesting initiation of consultation pursuant to section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). This response also serves as consultation under the authority of and in accordance with the provisions of the Fish and Wildlife Coordination Act of 1934 (FWCA), as amended. These consultations pertain to the U.S. Department of the Interior's Bureau of Reclamation's (Reclamation) proposed Pacheco and Santa Clara Conduits/Tunnels Pipeline Maintenance Program (PMP) located mostly in Santa Clara County, California (Reclamation File No. SCC-424 ENV 7.00 San Felipe). We received your request on March 10, 2008, which included Reclamation's *Biological Assessment, Santa Clara Valley Water District-Pipeline Maintenance Program for the Pacheco and Santa Clara Conduits and Tunnels, EA-06-110*, and the June 2007 *Santa Clara Valley Water District Pipeline Maintenance Program*, prepared for Santa Clara Valley Water District (District) and Reclamation.

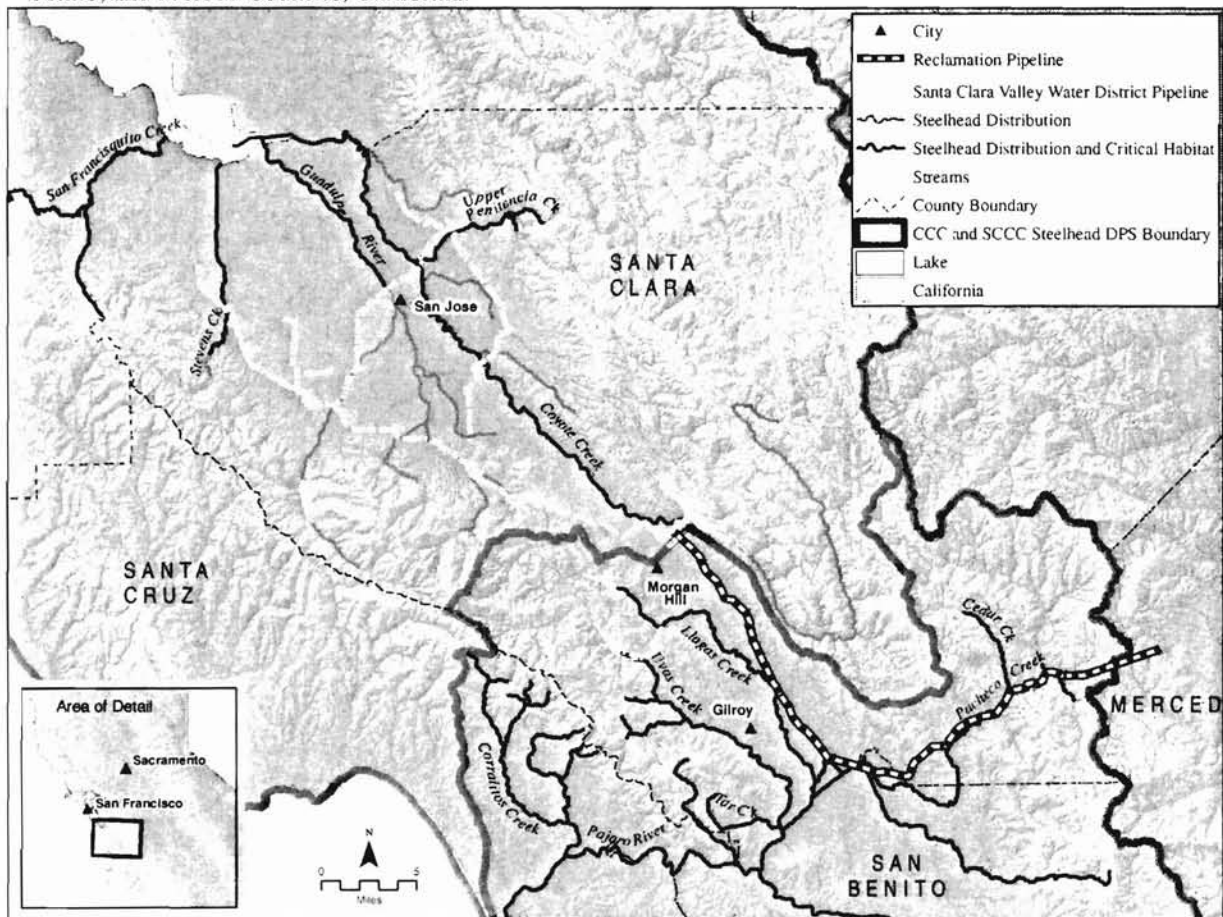
The proposed action is Reclamation's long-term (10-years plus) authorization of the District to perform 11 activities, which are listed below, on the Pacheco and Santa Clara Conduits/Tunnels. These activities are necessary to maintain proper function of the pipelines. Both pipelines and tunnels are owned by Reclamation, but are operated and maintained by the District. The District, designated by Reclamation as the non-federal representative (50 CFR 402.08) for the Pacheco and Santa Clara Conduits/Tunnels PMP, is also proposing to implement the District PMP on 21 pipelines owned by the District. Reclamation's February 29, 2008, letter requesting initiation states they have no authority over the maintenance or operation of those pipelines and therefore are not requesting consultation on District-owned facilities. Although Reclamation has no authority over the District's pipelines, once consultation is triggered (by Reclamation taking a discretionary action), NOAA's National Marine Fisheries Service (NMFS) is required to assess the effects of interrelated and interdependent actions as well (50 CFR 402.02, and 402.14). Given that the maintenance program for the pipeline system maintained by the District depends



on the Pacheco and Santa Clara Conduits/Tunnels PMP as an integral part, NMFS has determined that the District PMP is an interdependent action with the Pacheco and Santa Clara Conduits/Tunnels PMP for purposes of this consultation. Thus, we must analyze the effects of the entire maintenance project (*i.e.*, the Pacheco and Santa Clara Conduits/Tunnels PMP and the District PMP).

For this consultation, we are not analyzing water operations because they have been, or will be, subject to ESA section 7 or section 10 processes. The Pacheco Conduit and Tunnel is 15 miles long and the Santa Clara Conduit and Tunnel is 22.1 miles long. The Pacheco and Santa Clara Conduits/Tunnels lie mostly within Santa Clara County, but part of the Pacheco Conduit is in western Merced County and part of the Santa Clara Conduit is in northern San Benito County (Figure 1).

Figure 1. Map of Bureau of Reclamation and Santa Clara Valley Water District Pipelines, Santa Clara, San Benito, and Merced Counties, California.



Reclamation has determined the Pacheco and Santa Clara Conduits/Tunnels PMP will not affect the following species or their designated critical habitat: Central California Coast (CCC) Distinct Population Segment (DPS) steelhead (*Oncorhynchus mykiss*), Central Valley DPS steelhead, Central Valley spring-run Evolutionarily Significant Unit (ESU) Chinook salmon (*O. tshawytscha*), or Sacramento River winter-run ESU Chinook salmon. Reclamation has

determined five of the activities' subtasks identified in the PMP may affect Federally threatened South-Central California Coast (S-CCC) DPS steelhead and their critical habitat.

Reclamation's pipelines are only in watersheds supporting S-CCC steelhead (a portion of the Pacheco Tunnel is located in western Merced County which lies outside of any DPS or ESU). Reclamation's pipelines are located in rural environments and cross several creeks and drainage systems. The Pacheco Conduit is crossed by Pacheco Creek and Elephant Head Creek. The conduit has two isolatable sections and water can be drained from the pipeline at 21 different points along the pipeline into either Pacheco Creek or Elephant Head Creek.

The following 11 activities were included in Reclamation's request for consultation:

1. Air Release Valve Maintenance
2. Leak Repair
3. Cathodic Protection/Corrosion Control and Monitoring
4. Internal Inspection
5. Replacement/Repair of Buried Service Valves (including valves within creek embankments)
6. Replacement/Repair of pipeline segments
7. Replacement/Repair of appurtenances, fittings, manholes and meters
8. Vault maintenance
9. Telemetry Cable/Supervisory Control and Data Acquisition (SCADA)
10. Access Road Repairs
11. Bank Stabilization

Each of these activities is comprised of subtasks, which are the individual steps involved in completing the overall activity. Subtasks are common to several of the 11 activities, but only five subtasks – Staging and Access, Draining, Excavation, Repair, and Bank Stabilization (discussed below) – may affect S-CCC steelhead and their critical habitat.

The PMP is anticipated to begin in January 2009 and activities could occur throughout any given year. As described below, Reclamation has proposed minimization measures and best management practices (BMPs) applicable to S-CCC steelhead and critical habitat that may be affected by the proposed action. Because the proposed action is long-term (10-years plus) we have listed the minimization measures and BMPs for easy reference.

#### 1. Maintenance staging and access

Staging areas are project-specific. The District will use previously disturbed areas for staging, such as paved or gravel parking lots and roads, to the greatest extent possible. Site preparation is not usually required, although vegetation may be need to be cut back from existing roads or gravel may be reapplied to the road base.

Excavations of various sizes may be needed to maintain the access roads. This could range from filling pot holes to drainage and erosion control, shoulder and slope repair, or regravelling of existing private access roads. Access road excavations could be very small (*e.g.*, to repair a pot

hole or shoulder slump), or 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.

Off-road vehicle access is sometimes necessary (*e.g.*, to reach pipes, vaults, blow-offs and pipeline structures not located along existing road or access trails). Off-road vehicle access is planned in advance of operations and the route is defined to avoid sensitive resources. A qualified biologist stakes the route in areas of sensitive resources.

Access and staging activities could result in erosion thereby affecting primary constituent elements (PCEs) of critical habitat, including freshwater spawning, rearing and migration habitat. Reclamation proposes the following BMPs and minimization measures to avoid and minimize impacts to S-CCC steelhead and their critical habitat.

- BMP Geology – 1. In considering access routes, slopes of greater than 20 percent will generally be avoided if possible. Subsequent to access, any sloped area will be examined for evidence of instability and either revegetated or filled as necessary to prevent future landslide or erosion.
- Minimization 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, consisting of California native grasses; a sterile form of ‘Zorro’ Annual Fescue, or another sterile form of a quick growing species may be added to the mix where slopes are steeper (*e.g.*, 2:1).
- Minimization Measure Biology – 8. For any staging and access and/or excavation in any critical habitat area, a biological monitor will be present to oversee work and will have the authority to stop operations if any threat to critical habitat is presented. This measure will be implemented to avoid or minimize any potential erosion or sedimentation from staging and access and would avoid critical habitat from those subtasks.
- 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.
- BMP Hydrology – 3. Erosion control matting or fabric shall be installed if necessary.
- BMP Hydrology – 4. Temporary fills, such as for temporary roads, access ramps, diversion structures, or cofferdams, shall be removed upon finishing the work.
- 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.

- BMP Hydrology – 13. Where practicable, a vegetated buffer strip will be maintained between staging/excavation areas and receiving waters.
- 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.
- 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.
- 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.
- BMP Hazards – 6. All equipment will be properly maintained and inspected for leaks daily before start of work. No fueling shall be done in a stream channel or immediate floodplain, unless equipment stationed in these locations is not readily relocated (*i.e.*, pumps, generators). For stationary equipment that must be refueled 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 floodplain. 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.
- 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.
- BMP Hazards – 8. No washing of vehicles shall occur at job sites.
- BMP Hazards – 9. Debris, soil, silt, 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.



- **BMP Hazards – 10.** All equipment shall be stored in a secure area away from the channel. Quantities greater than 55 gallons will 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 will be provided with an impermeable cover to prevent contact with storm water.

## 2. Draining (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-offs 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. Waters 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. According to Reclamation's biological assessment, discharge into percolation ponds is conditionally exempt under the Municipal Stormwater National Pollution Discharge Elimination System (NPDES) permit (Order No. 01-124) for Santa Clara County and planned and unplanned discharges from potable water sources are allowable under the District's Water Utility Discharge Pollution Prevention Plan, Provision C.8.a.

Discharge into Local Waterways. Discharge into local waterways occurs after discharge to turnouts, such as groundwater recharge facilities (*i.e.*, percolation ponds). 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. Once gravity flow is complete, submersible pumps are used to completely empty the pipelines. Pump-out locations are geographically located between gravity flow blow-off locations, although pump-out also occurs at the blow-off locations once water levels become low enough that gravity flow halts. Maximum pump capacities range from 3.3 cubic feet per second (cfs) to 11 cfs.

The amount of discharge depends on the season, length of pipe isolated, the topography of the pipeline, and the amount of water that can be discharged into recharge facilities or turnouts. Flow rates are pulsed (valves are opened and closed to limit the amount of water flowing out) so as to minimize scouring and effects of rapid water level increase and decrease. Flow rates can be controlled manually to between 0-20 cfs out of gravity flow blow-offs by manipulating valves. Discharge water passes through underground and above-ground energy dissipaters in order to further reduce velocity. The discharge rate is ramped up slowly such that the buildup of water in any streams or rivers is gradual and scouring of the channel bed and ground surface does not occur.

Discharge into Open Fields and Wetlands. Discharge can occur onto open areas (such as fields) and to seasonal wetlands (under conditions of the Environmental Impact Report, Regional Water



Quality Control Board [RWQCB], and California Department of Fish and Game [DFG]). 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 drips under roads or other structures, are sometimes drained through pumping out of water by removing air release valves or blind flanges.

**Water Quality Testing.** Turbidity testing is performed for all discharges into streams or other water channels. The turbidity analysis is conducted within 100 feet upstream and downstream of the discharge location according to the following protocol (with some permitted exceptions in which this may be relaxed, such as during overnight discharge):

- Discharge through 60 minutes – turbidity reading every 15 minutes.
- Greater than one hour – turbidity reading every hour

If readings downstream of the discharge point are over five nephelometric turbidity units (NTUs) above background levels measured upstream of the discharge point, discharge flow velocity and/or volume is reduced to lower readings or discharge is discontinued by closing the blow-off valves and notifying supervisors. In situations where upstream turbidity is already above 50 NTUs, downstream readings should be within 10 percent of the upstream reading.

Drainage schedule. Total drainage time is a function of the discharge water volume and the flow rate at which it is expelled. Discharge can last from a few hours to a few days. Flow rates are pulsed so as to minimize scouring and effects of rapid water level increase and decrease. The discharge rate is ramped up slowly such that the buildup of water in the channel is gradual and scouring of the channel bed or ground surfaces, or flooding of stormwater drains does not occur. Occasionally, active pump-out may be necessary throughout the inspection process if any isolation valves have leaks in order to maintain safe working conditions within the pipeline. Discharge would preferentially be performed during the winter months.

Draining could affect steelhead and PCEs of critical habitat, including freshwater spawning, rearing and migration habitat. Reclamation proposes the following BMPs and minimization measures to avoid and minimize impacts to S-CCC steelhead and their critical habitat.

- Minimization Measure Biology – 16. Pipeline discharge for maintenance work would preferentially be performed during winter months, when storm events are more common and when stream flow is naturally highest. Discharge flows are then a minimal portion of overall stream or river flow. If draining must occur during the summer or fall, a slow release is mandatory to ensure receiving waters do not experience a temperature change greater than two degrees Fahrenheit in either direction, and overall receiving water does not exceed 68 degrees Fahrenheit in streams supporting steelhead.
- BMP Hydrology – 15. Regional Water Quality Control Board objectives for temperature change in receiving waters (measured 100 feet downstream of discharge point) shall not be exceeded. Receiving water and discharge water will be monitored for temperature

changes if a comparison of ambient temperature to pipeline water temperature suggests the potential for change.

- BMP Hydrology – 6. Discharge rates will be ramped up slowly (estimated ramping rate of 0.25-0.50 cfs) such that the increase in flow rate in the receiving water is gradual and scouring of the channel bed and banks does not occur.<sup>1</sup>
- Minimization Measure Hydrology – 3. The discharge location and receiving water will be observed by an individual trained to detect signs of erosion. If erosion is evident, flow rates will be reduced. If erosion continues to occur, discharges will be terminated until appropriate erosion BMPs are installed. Monitoring will 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 will depend on the nature of the discharge and the erosion in the area.
- Minimization Measure Biology – 17. Temporary fish screens shall be applied to any primary or secondary or side channel that could receive pipeline flows, causing attractant flows that will subside once draining is complete. Screen designs will be approved by a qualified biologist to ensure that appropriate material is used so as not to injure fish. Screen design and construction will depend upon the channel and available technology/techniques, but could consist of nylon mesh in a wooden frame, a triangular frame with a soft nylon or wire mesh placed in the water, *etc.* Screens will be periodically monitored for debris and removed after project completion and stabilization of water levels.
- 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 planting 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. Design and layout recommendations in the Construction Volume of the California Stormwater BMP Handbook<sup>2</sup> will be followed to the extent possible. Preference will be given to use of bioengineered devices whenever possible. Gabions shall not be used in salmonid streams.
- 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 will be installed following recommendations in the Water Utility Discharge Pollution Prevention Plan (WUDPPP) and the California Stormwater BMP Handbook. Each check filter will 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

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<sup>1</sup> As a general rule, initial discharge rates are 1 cfs. Discharge rates are then ramped up 0.25-0.50 cfs every 10 minutes. Discharge rates are not expected to reach 10 cfs where the bed or bank is not armored with a concrete apron or a similar protection measure.

<sup>2</sup> California Stormwater Quality Association. 2003. <http://www.cabmphandbooks.com/Construction.asp>.

that becomes trapped behind the check filters will 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 will likely require a Streambed Alteration Agreement from California Department of Fish and Game and a Section 401 Clean Water Act certification, both likely requiring that certain provisions are followed (*i.e.*, use of check path filters restricted to use when there is no flow in a creek).

- 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) will be considered prior to draining the pipeline.
- BMP Hydrology – 20. An individual trained in monitoring water levels will observe flows in the receiving waters. If it appears that discharges are approaching channel capacity in the channel or any structure within the channel, discharge rates will be reduced.
- Minimization Measure Biology – 18. In areas where temporary velocity dissipators are proposed for installation, the area will first be surveyed by a qualified biologist to ensure that no steelhead fry or eggs are present with 500 feet upstream and downstream of the proposed structure. 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 will not occur until the eggs and/or fry have moved from the area.
- Minimization Measure Hydrology – 2. The WUDPPP Guidance Manual shall be followed for all discharges as appropriate. To minimize erosion, the Erosion Control BMPs shall be implemented as directed by the WUDPPP.
- Minimization Measure Hydrology – 4. An environmental monitor will 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, restoration measures will be taken to correct the erosion. Correction measures shall include recontouring the land to its previous state and revegetating with the appropriate native grass species in the area, if necessary.
- BMP Hydrology – 7. Flows will 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 will be monitored for signs of erosion.
- BMP Hydrology – 8. To protect exposed soil and vegetated surfaces from erosion, erosion control blankets, mats, or geotextiles will 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. If netted material is used, it would be removed immediately after use.

- Minimization Measure Hazards – 1. The District uses herbicides as part of their Stream Maintenance Program. 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 will be included in the project-specific plan.
- Minimization Measure Biology – 20. During pipeline draining, wedge wire screens will be placed over the discharge openings of gravity drain gates and on the suction and discharge piping of any submersible pumps used for pipeline discharge to minimize discharge of non-native species.
- “New BMP”. In cases where sections of stream that would receive discharge are dry, receiving waters will be monitored to quantify distance of re-watering. In order to avoid steelhead stranding, discharge rates will be implemented to avoid hydrologic connectivity; monitoring will be conducted to ensure there is no connectivity.

### 3. Excavation

Steelhead and their habitat could be affected by excavation activities that cause sedimentation in nearby waterways. Reclamation proposes the following minimization measures and BMPs to avoid and minimize impacts to S-CCC steelhead and their critical habitat.

- Minimization 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.
- Minimization 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: 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 will be based on recommendations contained in the 2002 “Erosion and Sediment Control Field Manual” published by the San Francisco RWQCB. 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; and post excavation inspection and cleaning of drainage facilities for accumulated sediment.

- BMP Hydrology – 18. Receiving water will 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 RWQCB. Data shall be reported to the RWQCB as required.
- BMP Hydrology – 11. Streambank stabilization measures (such as biostabilization with willow plantings, hydroseeding, and placement of riprap) will be employed where excavation projects disturb stream channels and their associated riparian areas. Streambank stabilization measures will be site specific and may be described in the DFG Streambed Alteration Agreement. Design and installation recommendations for several methods are described in the California Stormwater BMP Handbook. Preference will be given to use bioengineered techniques whenever possible.

#### 4. Repair

Repair work will only occur within the pipelines themselves or in excavated areas. Steelhead and their habitat could be affected by repair activities that cause sedimentation in nearby waterways. Reclamation proposes the minimization measures listed above under 3. *Excavation* to avoid and minimize impacts to S-CCC steelhead and their critical habitat.

#### 5. Bank Stabilization

Bank stabilization activities will be conducted pursuant to NMFS' February 14, 2007, concurrence letter to the U.S. Army Corps of Engineers (Corps) for eight categories of actions regularly permitted by the Corps (NMFS File No. 151422SWR2007PR00054). The requirements listed below are expected to avoid and minimize impacts to steelhead and critical habitat.

- General Requirements: In general, the streambed within the work area and access routes must be outside of flowing or standing water. With prior NMFS approval (see special notification requirements), projects that are proposed to occur in flowing or standing water in streams where listed salmonids are likely to be absent during the construction period may proceed if the project area can be isolated by placing silt fences and sand bags between the repair and live stream in order to prevent sediment input to the stream. Operations shall cease if flows rise above the silt fence levels. Dewatering shall not be used to obtain dry conditions. Except for project footprint and access routes, the bed and banks shall be undisturbed.
- New Bank Stabilization: New bank stabilization refers to areas that did not previously contain any type of manmade structure designed to stabilize the bank or protect against erosion. Projects shall not exceed 200 linear feet of stream bank or 1,000 square feet in area.

i. Work Window: June 15 through October 15

ii. **Specific Requirements:** Only bioengineering techniques intended to create shaded riverine aquatic habitat, accumulate sediments, and increase in-stream habitat complexity may be used. Bio-technical projects emphasize the use of live plant material in the construction of durable erosion control structures. Projects should be designed to begin the process of naturally restoring the streambank's plant and animal community. Approaches that widen the floodplain area or the margin of the river channel near the low flow water surface and at the toe of the bank are encouraged. Design should emphasize the use of natural and local building materials, *e.g.*, stone, gravel, sand, soil, wood, branched logs, and native plants. Rock rip rap may be used in limited and discrete areas such as fill in a toe trench at the base of the bank and further up the bank where shear stress during high stream flow events are greatest (not to exceed bankfull level). Any rock used should have as small a diameter as possible, be used sparingly, and be capped with sediment and native vegetation as part of the design. Projects that rely solely on rock rip rap for bank protection are not allowed. Gabions, concrete mats, tires, and rubble may not be used. Cables may be used to anchor large woody debris. Natural drainage patterns should be considered and incorporated into the design where appropriate.

iii. **Special Notification/Assistance:** Projects that are proposed to occur in flowing or standing water based on the absence of listed salmonids must provide the rationale for species' absence and to obtain concurrence from NMFS.

If grade control structures on salmonid streams are included, technical assistance from NMFS is required.

- **Repair, Replacement, or Maintenance of Existing Bank Stabilization:** Replacement of failing or damaged bank stabilization with rip-rap (no grouting or concrete mats) is allowed. Replacement with gabions, grouted rip-rap, debris (car bodies, pipe and tire revetments, *etc.*) is not allowed. The footprint of the repaired, replaced, or maintained bank stabilization must not exceed existing footprint.

i. **Work Window:** June 15 through October 15

ii. **Specific Requirements:** Replacement with bioengineering techniques is encouraged. Rock rip-rap may be replaced with ungrouted rip-rap only. No new gabions, concrete mats, tire walls, car bodies, *etc.* are allowed. Rock rip-rap must include planting of native vegetation. Willow cuttings or other native plants shall be placed in spaces between rocks/boulders – an average of one plant per square meter of bank stabilization. Rip-rap must be adequately sized for a 100-year flow event. Toe trenches may be used.

iii. **Special Notification/Assistance:** If grade control structures on salmonid streams are included, technical assistance from NMFS is required.



### District PMP

The District's pipelines are located in watersheds supporting CCC and S-CCC steelhead and their respective critical habitat. The District maintains 14 raw water pipelines and 9 treated water pipelines, which includes the 2 raw water pipelines under ownership of Reclamation. The District's pipelines are located in Santa Clara County.

The District conducts routine maintenance on several different water conveyance pipeline systems. The District's PMP identifies the range of maintenance activities and provides protocols and procedures for carrying out these activities; including conveyance system inspection, repair, and preventative and corrective maintenance.

The PMP is designed to provide long-term (10-year) guidance to the District staff to implement routine and preventative maintenance on its water conveyance systems. The maintenance is required to meet the District's obligations of reliable water service and delivery. The routine and preventative maintenance activities addressed in the PMP address both raw and treated water conveyance systems. Treated water includes chlorinated, post-process water from treatment facilities that is distributed to retailers at turnouts. Raw water sourced from reservoirs is transferred to water treatment facilities and is also transported to groundwater recharge facilities (such as percolation ponds) throughout Santa Clara County.

Age, wear, corrosion, leaks, and integrity loss due to seismic activity and other geologic processes all contribute to the degradation of the systems as time progresses. Preventative and corrective maintenance is performed to maintain adequate system functionality and to ensure safe, reliable water delivery. A number of different maintenance activities must be performed on the facilities, both on a defined schedule as preventative maintenance and on an as-needed basis as corrective maintenance. Maintenance can include inspections, replacement of pipeline or other components, leak repairs, replacement of appurtenances, and often requires isolation and draining of sections of pipeline to allow for this work. Pipelines were designed with special blow-off structures to allow for draining in order to do maintenance work. The discharge structures vary from location to location but usually occur near an existing waterway or drainage facility (such as a storm drain).

Under the District's PMP, they will be conducting the same 11 activities, with the same subtasks, on their pipelines as they would be conducting on Reclamation's pipelines (see above). The District's BMPs and minimization measures applicable to CCC and S-CCC steelhead and their critical habitat are the same as Reclamation's and include treated water pipelines.

Treated water pipelines carry potable water that has been disinfected with chloramines. Discharge of water from treated water pipelines could introduce chloramines, chlorine, ammonia or trihalomethanes (THMs) into waterways if proper procedures are not used. THMs form when water high in organic carbon is treated with chlorine; use of chloramines reduces the potential for THMs to form.

The District uses either sodium bisulfite or calcium thiosulfate to dechlorinate discharges from treated water pipelines. If applied in too high concentrations, these chemicals could deplete

dissolved oxygen or alter pH levels in receiving waters and cause violations of standards. Effects to fish and other aquatic species could result from depleted dissolved oxygen or large changes in pH. The District proposes to implement the following measures to reduce or avoid potential impacts to water quality during the draining of treated water pipelines:

- District BMP Hyrdology – 16. To control chlorine in discharges of potable water, neutralization chemicals will be added to the discharged water prior to release to the storm drain or creek. Guidelines pertaining to the amount of neutralization chemical required are provided in the PMP and in the WUDPPP. A Refilling Plan that includes procedures for disinfection will be developed prior to conducting maintenance activities on treated water pipelines.
- District BMP Hydrology – 17. Chlorine and ammonia levels in both the discharge water and receiving water will be monitored by a trained individual to verify that no residual disinfection chemicals remain in excess of standards established in the San Francisco Bay Basin Plan. Monitoring will be performed in the receiving water 100 feet downstream of the project site in streams and 50 feet downstream in lakes. It will take place immediately prior to the discharge and periodically through the discharge. If at any time monitoring indicates standards are being exceeded, discharge would be halted to determine the reason for exceedance and adjustments would be made to ensure that standards are not exceeded.
- District BMP Hydrology – 18. Receiving water will be monitored for dissolved oxygen and pH to ensure that relevant Basin Plan standards are not violated in each receiving water body or as required in NPDES permits issued by RWQCB. Data shall be reported to the RWQCB as required.

### Conclusion

Reclamation proposes a long-term (10-years plus) authorization of the District to perform 11 activities on the Pacheco and Santa Clara Conduits/Tunnels which are owned by Reclamation, but are operated and maintained by the District. The District also proposes a PMP that is designed to provide long-term (10-year) guidance to the District staff to implement routine and preventative maintenance on its water conveyance systems. We have analyzed the effects of Reclamation's PMP and the interdependent District's PMP on listed species and critical habitat.

Primary constituent elements of designated critical habitat in the project area include freshwater spawning and rearing sites, water quality and quantity, cover, shelter, and migration corridors free of obstruction. Potential effects to designated critical habitat include short-term disturbance to the bed and bank resulting in erosion, changes in stream temperatures, turbidity and sedimentation. Based on BMPs and minimization measures that will be implemented (*e.g.*, flows will be diverted around sensitive, actively eroding, or extremely steep areas to prevent erosion), the level of disturbance to the streambed, bank and water quality is expected to be minor and the project is not expected to degrade PCEs of critical habitat.

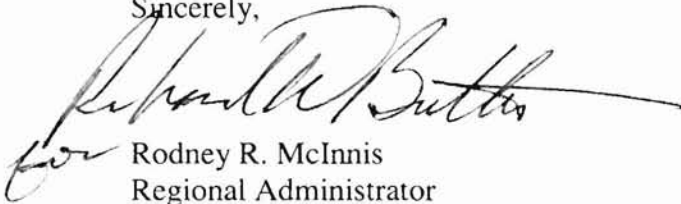


Adult and juvenile steelhead may be present during project activities. Based on BMPs and minimization measures that will be implemented (*e.g.*, to protect exposed soil and vegetated surfaces from erosion, erosion control blankets, mats, or geotextiles will be placed over the erodible surface), turbidity and sedimentation that may be caused by this project are expected to have insignificant impacts to steelhead. Any changes in stream temperature are expected to be minor and temporary and are expected to have insignificant impacts to steelhead (*e.g.*, if draining must occur during the summer or fall, a slow release is mandatory to ensure receiving waters do not experience a temperature change greater than two degrees Fahrenheit in either direction, and overall receiving water does not exceed 68 degrees Fahrenheit in streams supporting steelhead).

Based on the best available scientific information, and considering the effects of the Reclamation's Pipeline Maintenance Program together with the effects of the interdependent District Pipeline Maintenance Program, NMFS has determined Reclamation's Pipeline Maintenance Program and the District's Pipeline Maintenance Program are not likely to adversely affect threatened S-CCC and CCC steelhead or their designated critical habitat. This concludes consultation in accordance with 50 CFR 402.13(a) for the proposed Pacheco and Santa Clara Conduits/Tunnels Pipeline Maintenance Program. Further consultation regarding the proposed project may be required if: (1) new information becomes available indicating that listed species may be adversely affected by the project in a manner or to an extent not previously considered, (2) current project plans change in a manner that affects listed species or critical habitat that was not previously considered, or (3) a new species is listed or critical habitat designated that may be affected by the action. Pursuant to FWCA, NMFS has no comments to provide.

Please contact Mr. Bill Stevens at (707) 575-6066, or via e-mail at William.Stevens@noaa.gov, if you have any questions concerning this consultation.

Sincerely,



Rodney R. McInnis  
Regional Administrator

cc: Russ Strach, NMFS, Sacramento  
Shauna McDonald, Reclamation, Fresno  
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Chuck Armor, California Department of Fish and Game, Yountville  
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