Chapter 24
Hazards and Hazardous Materials

24.3 Environmental Consequences

24.3.1 Methods for Analysis

24.3.1.3 Construction Effects

Reusable Tunnel Material

Reusable tunnel material (RTM) is the by-product of tunnel excavation using an earth pressure balance tunnel boring machine. RTM from the construction of the proposed water conveyance facilities ~~construction~~ would be a mixture of soil cuttings and soil conditioning agents (water, foaming agents, and/or polymers). Tunnel boring operations would require the use of ~~additives~~ soil conditioners in order to control the behavior of excavated material. Soil conditioners vary and are typically selected by the tunneling contractor. ~~The additives~~ The soil conditioner used would likely include water, surfactant foam, polymers, bentonite, or any combination thereof, although modern practice uses foams and polymers that are more environmentally friendly than bentonite, non-toxic and biodegradable. Surfactant foam is essentially a mixture of air and diluted foaming agent in water. Foam and/or polymers enhance the tunnel boring machine's ability to control face pressure, and~~.~~ ~~They~~ are also used to reduce the level of torque required to cut the ground, which, in turn, reduces the required power input to the motors. Foam makes the cuttings more plastic and less permeable. Polymers are used to condition the soil, either by absorbing water or by affecting the deformation and flow characteristics of the soil. The main purpose of polymers is to help support the face and encourage loose, coarse-grained soils to move smoothly through the excavation chamber. Polymers can also be used to reduce the tendency of soils with large amounts of highly plastic clay to stick to the cutterhead.

RTM may require chemical or physical treatment, in addition to drying, prior to returning to the environment. In this analysis, ~~E~~environmental impacts associated with RTM management were analyzed based on stated toxicity of the additives, estimates of the volume of anticipated residue, ~~and~~ the CERs, and the results of tests done using soil samples from within the proposed tunnel footprint mixed with representative soil conditioners (URS 2014).

In March 2013, a study was conducted on native soil samples collected from several sites along the tunnel footprint. These soil samples were mixed with representative soil conditioner products to mimic RTM. These mixture samples were tested to assess the geotechnical properties to determine if RTM would be suitable as structural fill; the potential toxicity; and the suitability for plant growth for both wildlife habitat and agricultural use (URS 2014)

While the study consisted of a limited number of samples and tests, and does not constitute a complete evaluation of RTM, based on the results DWR concluded that RTM, following storage and drying, is suitable for strengthening Delta levees; habitat restoration; fill on subsiding Delta islands; and as structural fill for construction of conveyance facilities (URS 2014). However, the contractor would need to chemically characterize RTM and associated decant liquid prior to reuse or discharge.

Consultation with governing regulatory agencies would be required to obtain the necessary approvals and permits.

24.3.3 Effects and Mitigation Approaches

24.3.3.2 Alternative 1A—Dual Conveyance with Pipeline/Tunnel and Intakes 1–5 (15,000 cfs; Operational Scenario A)

Impact HAZ-1: Create a Substantial Hazard to the Public or the Environment through the Release of Hazardous Materials or by Other Means during Construction of the Water Conveyance Facilities

Natural Gas Accumulation in Water Conveyance Tunnels

Under Alternative 1A, deep water conveyance tunnels would be constructed. One tunnel would run from south of Scribner Road, east of the Sacramento River in Sacramento County and would run south to the intermediate forebay, south of the community of Hood and northwest of South Stone Lake. Another tunnel would reach from north of Lambert Road (west of South Stone Lake), crossing Pierson District, Grand Island, Brannan-Andrus Island, Tyler Island, Staten Island, Bouldin Island, Venice Island, Mandeville Island, Bacon Island, Woodward Island, Victoria Island, and Coney Island, before ending south of Clifton Court Forebay. For a map of the proposed tunnel alignment, see Figure M3-1 in the Mapbook Volume.

During construction, the potential to encounter gases, which could enter and accumulate to flammable or explosive concentrations in tunnel bores or other excavations, could exist. Were this to occur, it would be considered an adverse effect. These gases could include methane generated by peat and organic soils or other natural gases, which could seep from deep natural gas reservoirs either through improperly sealed boreholes or natural conduits such as faults and fractures. As previously described, the thickness of peat and organic soils increases to the west across the Delta, and approximately 3,400 oil and gas wells are located throughout the study area. Engineering reconnaissance indicates six active and 19 inactive oil or gas wells present within the construction footprint for the Alternative 1A water conveyance alignment (California Department of Water Resources 2010a:13-1); oil and gas wells along the water conveyance facilities alignments are shown in Figure 24-5. Gas fields in the United States are typically located at depths greater than 3,000 feet (U.S. Energy Information Administration 2012). Because the tunnels would be approximately 150 to 160 feet below ground, it is unlikely that a gas field would be encountered during tunneling. However, an evaluation of how these gas fields could affect the constructability of the tunnels would be prepared during the geotechnical investigations performed in the design phase of the water conveyance facilities. For water conveyance facilities construction under Alternative 1A, the water conveyance tunnels may receive a Cal-OSHA classification of "gassy or extrahazardous" due to the presence of natural gas deposits and natural gas wells along the alignment. If the tunnels receive a "gassy or extrahazardous" classification, specialized tunneling equipment, which would need to be approved by the Mine Safety and Health Administration (MSHA), would be required to prevent explosions during tunneling, as would gas detection equipment on the tunnel boring machines, an automatic shutoff of the equipment if gas were detected, and fireproof construction equipment. In addition, the contractor would be required to follow gas monitoring and fire prevention requirements mandated by Cal-O~~H~~SHA based on the tunnel gas classification in accordance with The Tunnel Safety Orders set forth in the California Code

of Regulations (Title 8, Division 1, Chapter 4, Subchapter 20, Article 8, "Tunnel Classifications" [see Section 24.2.2.13]). The tunnel ventilation system would include steel ducts capable of reversing the direction of air in order to help control potential fires in the tunnel. Tunnels would be ventilated according to Cal-OSHA requirements. Cal-OSHA requires providing at least 200 cubic feet per minute (fpm) of fresh air per person working underground. Additionally, a minimum air velocity of 60 fpm is required to dilute any contaminated gas present within the tunnel. Further, ventilation hardware would comply with Cal-OSHA requirements. The hardware would include steel ducts and be capable of reversing the direction of air flow (for fire control within the tunnel). Adherence to these regulations would reduce the potential for hazards related to~~from the~~ accumulation of natural gas in tunnels. Further, the construction contractor would be required to prepare an emergency plan prior to construction of the tunnels (Title 8, Division 1, Chapter 4, Subchapter 20, Article 9, "Emergency Plan and Precautions"). This plan would outline the duties and responsibilities of all employees in the event of a fire, explosion or other emergency. The plan would include maps, evacuation plans, rescue procedures, communication protocol, and check-in/check-out procedures. Copies of the plan would be given to the local fire or designated off-site rescue teams and Cal/OSHA.

Constituents in Reusable Tunnel Material

RTM would consist of materials excavated from the tunnel bore, which would be advanced at a depth of approximately 100 feet below ground surface (bgs) and 160 feet bgs under Delta water channels. As described in Section 24.3~~2~~.1.3, biodegradable soil conditioners or additives would be added during tunneling activities to facilitate the process, and RTM would be transported from the tunnel through the launching shaft to the surface and then by conveyor belt to RTM work areas. At the RTM areas, decant liquids from the RTM would be leached, collected and evaporated. RTM areas would be located just north of Scribner Road, east of the Sacramento River, on northern Brannan-Andrus Island, on southeastern Tyler Island, on eastern Bacon Island, and on northwestern Victoria Island. For a map of proposed RTM areas, see Figure M3-1 in the Mapbook Volume.

As described in Chapter 9, *Geology and Seismicity*, the geologic materials encountered during tunneling are expected to comprise alluvial sediments consisting of a mixture of clay, silt, sand, gravel and minor amounts of organic matter, all deposited prior to the arrival of settlers to California and subsequent mining, agricultural and urban land uses that have produced potential contaminants of concern, as discussed above. Approximately 25 million cubic yards of RTM are expected to be generated during construction of the Alternative 1A water conveyance facilities.

It is anticipated that all tunnel boring additives would be non-toxic and biodegradable. Regardless, before the RTM could be re-used or returned to the environment, it would be managed to comply with NPDES permit requirements, and at a minimum would go through a drying/water-solids separation process and a possible physical or chemical treatment following chemical characterization (including RTM decant liquid). Depending on the composition of the RTM and type of conditioning agents used, there would be many options for management of the RTM prior to reuse. Management could be done in several ways, including chemical flocculation, settlement/sedimentation, handling at a treatment plant, chemical conditioning or controlled storage. The method of controlled storage (described in Appendix 3C, *Details of Water Conveyance Facilities Components*), similar to landfill storage, would be the method with the broadest impacts because a designated area large enough to store the RTM may be required permanently. If controlled storage is necessary, the RTM would be deposited within designated RTM storage areas. To ensure that the RTM is contained within the designated area, a retaining dike would be built around the perimeter of the RTM area. RTM ponds would aid in RTM management and facilitate the

dewatering. Several of the ponds would be designated as leachate ponds. The leachate would be pumped from the drainage system to the leachate ponds for possible additional treatment. To ensure that underlying groundwater is not contaminated, the invert of the RTM pond would be a minimum of 5 feet above the seasonal high groundwater table, and an impervious liner would be placed on the invert of the RTM pond and along the interior slopes of the berms to prevent any contact between the RTM and the groundwater.

Prior to reuse, the RTM would undergo chemical characterization. RTM would be tested in accordance with the methods outlined in EPA publication SW-846, as required by state and federal regulations prior to reuse (e.g., RTM in levee reinforcement) or disposal. Similarly, RTM decant liquid would also require testing prior to discharge to meet NPDES or Construction General Permit (Order 2010-0014-DWQ) requirements. As described in Section 24.3.1.3, preliminary lab tests on an RTM-like substance (native soils mixed with representative soil conditioners) indicate that RTM could be reused to strengthen select Delta levees, for habitat restoration, fill on subsiding islands, or as structural fill for construction of the proposed water conveyance facilities (URS 2014).

Should constituents in RTM or associated decant liquid exceed discharge limits, these tunneling byproducts would be treated to comply with permit requirements. ~~At a minimum, a final clean soil cover would be placed over the dewatered RTM in order to isolate any contaminates in the RTM and then seeded.~~ Decant liquids from RTM may require additional chemical or physical treatment, such as flocculent addition to precipitate suspended sediment, prior to discharging to surface water.

As part of a Material Reuse Plan (MRP), prior to construction, draining, and chemical characterization of RTM, the BDCP proponents would identify sites for reusing this material to the greatest extent feasible, in connection with BDCP construction activities, habitat restoration activities, as well as for potential beneficial uses associated with flood protection and management of groundwater levels within the Plan Area. The BDCP proponent will undertake a thorough investigation to identify sites for the appropriate reuse of RTM, and will consult relevant parties, such as landowners, reclamation districts, flood protection agencies, state agencies with jurisdiction in the Delta, and counties, in developing site-specific material reuse plans, as described in Appendix 3B, *Environmental Commitments*. Following removal of RTM from the temporary RTM areas, stockpiled topsoil would be reapplied, and disturbed areas would be returned, to the extent feasible, to preconstruction conditions. In some instances it may be infeasible to transport and reuse RTM due to factors such as distance and cost, and/or any environmental effects associated with transport (e.g., unacceptable levels of diesel emissions). In such instances, RTM sites would be evaluated for the potential to reapply topsoil over the RTM and to continue or recommence agricultural activities. If, in consultation with landowners and any other interested parties, BDCP proponents determine that continued use of the land for agricultural or habitat purposes would be infeasible, the potential for other productive uses of the land would be examined, as described in Appendix 3B.

Infrastructure Containing Hazardous Materials

Infrastructure in the study area containing hazardous materials (e.g., natural gas pipelines) could pose hazards to the environment and the public if disturbed by construction activities. As described in Section 24.1.2, pipelines carrying fluids with hazardous characteristics (e.g., petroleum products) cross the Alternative 1A conveyance alignment and construction footprint (Figure 24-3). The number of regional pipeline crossings within the construction disturbance footprint of the all conveyance alternatives is provided in Table 24-3. Natural gas pipelines cross the conveyance alignment between Intakes 1 and 2 under a proposed RTM area and concrete batch plant and fuel

station area;~~,~~ near a main tunnel construction shaft and under a proposed RTM area near the southeastern end of~~on~~ Tyler Island~~,~~; and near ~~a main tunnel construction shaft~~proposed temporary and permanent transmission lines, a proposed RTM area, the tunnel, and a proposed barge unloading facility on Bacon Island. Other product pipelines cross the alignment ~~on the northern part~~at the north end of Woodward Island under the proposed tunnel and permanent transmission line, and along the southwestern side of the proposed Byron Tract Forebay and nearby spoil area. Further, hazardous materials storage vessels, such as tanks or other bulk containers used for processing, storage and distribution of fuels, pesticides or other hazardous materials may be present in the Alternative 1A water conveyance facilities construction footprint. Active and inactive oil wells are present throughout the Delta and their locations are shown in Figure 24-5. Several active wells are proximate to the conveyance alignment where it crosses Brannan-Andrus and Tyler Islands.

Table 24-3. Number and Type of Pipelines and Electrical Transmission Lines Crossing All Alignments

Utility Operator and Type	Pipeline/ Tunnel Option (Alt. 1A, 2A, 3, 5, 6A, 7, and 8)	Modified Pipeline Tunnel Option (Alt. 4)	East Option (Alt. 1B, 2B, and 6B)	West Option (Alt. 1C, 2C, and 6C)	Separate Corridor Option (Alt. 9)
Electrical Transmission Lines					
Western Area Power Administration 69 kV	1	1	1	1	0
Western Area Power Administration 230 kV	2	2	2	1	2
Pacific Gas & Electric 115 kV	~~2~~4	2	2	~~2~~3	2
Pacific Gas & Electric 230 kV	0	0	4	2	0
Pacific Gas & Electric 500 kV	3	3	3	4	0
Transmission Agency of Northern California/ Western Area Power Administration for the California-Oregon Transmission Project 500 kV	1	1	1	1	1
Sacramento Municipal Utility District 230 kV	0	3	0	0	0
Pipelines					
Pacific Gas & Electric (size unspecified) Natural Gas	7~~5~~	6	~~3~~5	7~~5~~	0
Chevron Texaco (7” diameter) Petroleum Product	1	~~1~~21	1	~~0~~1	0
Chevron Texaco (9” diameter) Petroleum Product	1~~2~~	~~1~~21	~~2~~1	~~0~~1	0
Chevron Texaco (18” diameter) Petroleum Product	1	0	1	0	0
Kinder Morgan Pacific Region (10”) Petroleum Product	1~~2~~[a]	1~~2~~[a]	1~~2~~[a]	1~~0~~	1~~2~~[a]

kV: kilovolts~~[a] These Kinder Morgan product lines run parallel to one another~~

In addition, certain residential, agricultural, recreational (e.g., pools and docks) and other types of structures (e.g., power/utility structures, bridges, and other types of infrastructure) within the Alternative 1A water conveyance facilities footprint would need to be removed. Approximately 204 permanent structures would be removed or relocated within the water conveyance facility footprint

under this alternative. This includes approximately 59 residential buildings; 15 recreational structures; 120 storage and agricultural support structures; and 10 other types of structures. One fire station in the community of Hood would also be affected. Most of these existing structures fall within the physical footprints of the intake facilities and their associated conveyance pipelines. These structures may contain hazardous materials in the form of building materials containing asbestos or lead-based paint, stored liquid paints and solvents, and household or industrial-strength maintenance chemicals and cleaners. Asbestos-containing material is regulated both as a hazardous air pollutant under the Clean Air Act (Chapter 22, *Air Quality and Greenhouse Gases*) and as a potential worker safety hazard by Cal-OSHA (see Section 24.2.2.13). Were these types of hazardous materials to be encountered during structure demolition, the potential for their release and the consequent adverse effects on the public, construction workers, and the environment would exist. To prevent adverse effects, DWR would implement Mitigation Measure HAZ-1b, which would require that DWR coordinate with existing property owners to identify existing potentially hazardous infrastructure and infrastructure containing potentially hazardous materials, and that DWR perform pre-demolition surveys in order to identify and characterize hazardous materials to ensure the safe and appropriate handling and disposal of these materials.

There are ~~five~~ seven natural gas pipelines, ~~five~~ four petroleum product pipelines, 19 known inactive and six active oil or gas wells within the construction footprint of the proposed Alternative 1A water conveyance alignment (Table 24-3, and Figures 24-3 and 24-5). In addition to the regional pipelines in the study area, there are networks of minor oil and gas gathering pipelines, which connect individual oil or gas wells to small storage and preliminary processing facilities operated by the different oil and gas companies working in the study area. Disturbance of this infrastructure during construction of the water conveyance facilities could result in hazards to the environment as well as physical and chemical hazards to the construction workers or the nearby public due to fires, explosions, and release of natural gas or petroleum products. The precise location of pipelines within a tunnel section would be identified prior to construction to avoid conflicts with shaft construction and disposal of reusable tunnel material. Studies will be done prior to construction to identify the minimum allowable distance between existing gas wells and tunnel excavation. Abandoned wells would be tested to confirm that they have been abandoned according to DOGGR well abandonment requirements. Those wells not abandoned according to these requirements will be improved. In addition, to avoid the potential conflicts with shaft construction and disposal areas, the utility and infrastructure relocation will be coordinated with local agencies and owners. The potential for disturbing oil and gas fields during excavation or tunneling activities is minimal because these fields are typically located at depths greater than 3,000 feet (U.S. Energy Information Administration 2012). Effects would be more likely to occur if utilities were not carefully surveyed prior to construction, including contacting ~~with~~ the local utility service providers. California Government Code Sections 4216–4216.9 require that anyone planning to excavate contact the appropriate regional notification center at least two working days (but not more than 14 calendar days) before beginning to excavate. Implementation of pre-construction surveys, and then utility avoidance or relocation if necessary, would minimize any potential disruption and hazardous effects due to disruption. Mitigation Measures UT-6a: Verify locations of utility infrastructure, and UT-6c: Relocate utility infrastructure in a way that avoids or minimizes any effect on worker and public health and safety (described in Chapter 20, *Public Services and Utilities*) address these effects.

Routine Transport of Hazardous Materials via Trucks, Trains, and Ships

Generally, the transportation of hazardous materials via trucks, trains and ships poses potential risks associated with the accidental release of these materials to the environment. Alternative 1A would require a heavy volume of materials to be hauled to the construction work areas, increasing the amount of trucks using the transportation system in the study area. Rerouting vehicular traffic carrying hazardous materials during construction of the water conveyance facilities could increase the risk of accidental release due to inferior road quality or lack of driver familiarity with the modified routes. This includes the risk of release of hazardous products or wastes being transported routinely or specifically for construction of the water conveyance facilities, and the corresponding risk of release of fuels (gasoline and diesel) from vehicular accidents. Three designated hazardous materials transportation routes cross the Alternative 1A alignment—State Highways 4, 12, and Byron Highway (Figure 24-2 and Table 24-4). It is not anticipated that traffic on any of these highways will need to be rerouted. Routes anticipated to be affected during construction of the water conveyance facilities are described in Chapter 19, *Transportation*. As described in Chapter 19, *Transportation*, under Mitigation Measure TRANS-1a, ~~a~~ site-specific construction traffic management plans, taking into account land (including rail) and marine hazardous materials transportation, would be prepared and implemented prior to initiation of water conveyance facilities construction. Mitigation Measure TRANS-1a includes stipulations to avoid or reduce potential circulation effects, such as such as providing signage (including signs warning of roadway surface conditions such as loose gravel), barricades, temporary traffic signals/signage to slow or detour traffic, and flag people around construction work zones; notifying the public, including schools and emergency service providers of construction activities that could affect transportation; providing alternate access routes, if necessary, to maintain continual circulation in and around construction zones; and requiring direct haulers to pull over in the event of an emergency. Many of these traffic management BMPs (e.g., warning signage and temporary traffic signals) are roadway safety measures which would indirectly minimize the potential for accidents involving vehicles transporting hazardous materials routinely or specifically for construction of the BDCP water conveyance facilities, and the corresponding risk of release of fuels (gasoline and diesel) from vehicular accidents.

Table 24-4. Number and Type of Designated Hazardous Materials Routes and Railroads Crossing ~~All~~ Water Conveyance Facilities Alignments

Route or Rail	Pipeline/Tunnel Option (Alt. 1A, 2A, 3, 5, 6A, 7, and 8)	Modified Pipeline Tunnel Option (Alt. 4)	East Option (Alt. 1B, 2B, and 6B)	West Option (Alt. 1C, 2C, and 6C)	Separate Corridor Option (Alt. 9)
Designated Hazardous Materials Routes					
State Highway 4	1	1	1	1	1
State Highway 12	1	1	1	1	0
Byron Highway	1	1	0	1	0
Railroads					
Union Pacific Railroad	2	2	2	2	0
Burlington Northern-Santa Fe Railroad	1	1	1	1	1
Abandoned Railroad	0	0	0	1	0

As described in Chapter 19, *Transportation*, shipping routes to ports in West Sacramento and Stockton are unlikely to be affected by barge traffic transporting equipment and materials for water conveyance facilities construction. However, barges supporting water conveyance facilities construction may also transport hazardous materials such as fuels and lubricants or other chemicals. The potential exists for accidental release of hazardous materials from BDCP-related barges. To avoid effects on the environment related to this issue, BMPs implemented as part of a Barge Operations Plan (for detail see Appendix 3B, *Environmental Commitments*), including the following, would avoid and/or minimize this potential adverse effect.

- All tugboats operating at the intake construction sites and the barge landings will keep an oil spill containment kit and spill prevention and response plan on-board.
- In the event of a fuel spill, report immediately to the California Department of Fish and Wildlife Office of Spills Prevention and Response: 800-852-7550 or 800-OILS-911 (800-645-7911).
- When transporting loose materials (e.g., sand, aggregate), barges will use deck walls or other features to prevent loose materials from blowing or washing off of the deck.

Finally, the proposed Alternative 1A conveyance would cross under the existing BNSF/Amtrak San Joaquin line between Bacon Island and Woodward Island. Maintaining freight and passenger service on the BNSF line is included in the project design, and the effect of this crossing would be minimal to nonexistent because the proposed conveyance would traverse the railroad in a deep bore tunnel. The UPRR Tracy Subdivision (branch line) runs parallel to Byron Highway, between the highway and the proposed new forebay adjacent to the existing Clifton Court Forebay. The construction of the new forebay is unlikely to disrupt rail service because much of this line has not been in service recently. The UPRR may return it to freight service in the future. Any potential effects on rail traffic during construction would be reduced with implementation of Mitigation Measure TRANS-1a, which would include stipulations to coordinate with rail providers to develop alternative interim transportation modes (e.g., trucks or buses) that could be used to provide freight and/or passenger service during any longer term railroad closures and daily construction time windows during which construction would be restricted or rail operations would need to be suspended for any activity within railroad rights of way. This would minimize the potential risk of release of hazardous materials being transported via these railways (see Chapter 19, *Transportation*, for a description).

In summary, during construction of the water conveyance facilities and geotechnical investigations, the potential would exist for direct effects on construction personnel, the public and/or the environment associated with a variety of potentially hazardous conditions because of the intensity of construction activities at the north Delta intakes, forebays, conveyance pipelines, and tunnels, and the hazardous materials that would be used in these areas. Many of these activities (including geotechnical exploration activities such as cone penetration tests and land boring) would occur in close proximity to the towns of Hood and Courtland, and would involve multiple years of use of hazardous construction materials. Additionally, large-scale construction activities involving the use of hazardous materials would be located in and near water bodies. Potential hazards include the routine transport, use or disposal of hazardous materials; natural gas accumulation in water conveyance tunnels; the inadvertent release of existing contaminants in soil and groundwater, or hazardous materials in existing infrastructure to be removed; disturbance of electrical transmission lines; and hazardous constituents present in RTM. Additionally, there is the potential for the construction of the water conveyance facilities to indirectly result in the release of hazardous materials through the disruption of existing road, rail, or river hazardous materials transport routes because construction would occur in the vicinity of three hazardous material transport routes, three

railroad corridors, and waterways with barge traffic and would require construction traffic that could disrupt these routes. Were any of ~~T~~these potential ~~effects~~ hazards to occur, the effect would be ~~are~~ considered adverse because ~~they~~ it would potentially result in direct exposure of the public (including construction personnel), and surface water and groundwater to physical and/or chemical hazards ~~as discussed~~. Mitigation Measures HAZ-1a and HAZ-1b, UT-6a and UT-6c (described in Chapter 20, *Public Services and Utilities)* and TRANS-1a (described in Chapter 19, *Transportation*), combined with the previously described environmental commitments are available to address these effects. Therefore, there would be no adverse effects.

***CEQA Conclusion*:** During construction of the water conveyance facilities and geotechnical investigations, the potential would exist for direct impacts on construction personnel, the public, and/or the environment associated with a variety of hazardous physical or chemical conditions. Such conditions may arise as a result of the intensity and duration of construction activities at the north Delta intakes, forebays, conveyance pipelines, and tunnels and the hazardous materials that would be needed in these areas during construction. Potential hazards include the routine use of hazardous materials (as defined by Title 22 of the California Code of Regulations, Division 4.5); natural gas accumulation in water conveyance tunnels; the inadvertent release of existing contaminants in soil and groundwater, or hazardous materials in existing infrastructure to be removed; disturbance of electrical transmission lines; and hazardous constituents present in RTM. Many of these physical and chemical hazardous conditions would occur in close proximity to the towns of Hood and Courtland during construction of the north Delta intakes and the intermediate forebay.

Additionally, the potential would exist for the construction of the water conveyance facilities to indirectly result in the release of hazardous materials through the disruption of existing road, rail, or river hazardous materials transport routes because construction would occur in the vicinity of three hazardous material transport routes, three railroad corridors, and waterways with barge traffic and would require construction traffic that could disrupt these routes. For these reasons, this is considered a significant impact. However, with the implementation of the previously described environmental commitments (e.g., SWPPPs, HMMPs, SPCCPs, SAPs, and a Barge Operations Plan) and Mitigation Measures HAZ-1a and HAZ-1b, UT-6a and UT-6c (described in Chapter 20, *Public Services and Utilities)*, and TRANS-1a (described in Chapter 19, *Transportation*), construction of the water conveyance facilities would not create a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or the upset/accidental release of these materials.

The severity of this impact would be reduced with the implementation of these environmental commitments and mitigation measures by identifying and describing potential sources of hazardous materials so that releases can be avoided and materials can be properly handled; detailing practices to monitor pollutants and control erosion so that appropriate measures are taken; implementing onsite features to minimize the potential for hazardous materials to be released to the environment or surface waters; minimizing risk associated with the relocation of utility infrastructure; and coordinating the transport of hazardous materials to reduce the risk of spills. Accordingly, these impacts would be less than significant.

Mitigation Measure HAZ-1a: Perform Preconstruction Surveys, Including Soil and Groundwater Testing, at Known or Suspected Contaminated Areas within the Construction Footprint, and Remediate and/or Contain Contamination

BDCP proponents will identify potential areas of hazardous materials and remediate and/or contain contamination in order to reduce the likelihood of hazardous materials being released into the environment. The BDCP proponents will perform preconstruction hazardous waste investigations at properties to be acquired for construction associated with the BDCP. Areas to be excavated as part of construction (e.g., for water conveyance facilities, shaft locations, concrete batch plants, intake locations, RTM areas, staging areas, forebays, borrow and spoil sites, barge unloading, restoration activities, and other appurtenant facilities) where historical contamination has been identified (e.g., SOCs) or where contamination is suspected (e.g., as evidenced by soil discoloration, odors, differences in soil properties, abandoned USTs) will undergo soil and/or groundwater testing at a certified laboratory provided that existing data is not available to characterize the nature and concentration of the contamination. Where concentrations of hazardous constituents, such as fuel, solvents or pesticides in soil or groundwater exceed applicable federal or state thresholds contaminated areas will be avoided or soil and/or groundwater removed from the contaminated area will be ~~or~~ remediated and contained in compliance with applicable state and federal laws and regulations. If hazardous materials are encountered, consultation with the regional DTSC office will be required to establish which permit and subsequent action will be required to appropriately handle those hazardous materials. Groundwater removed with the dewatering system would be treated, as necessary, and discharged to surface waters under an NPDES permit (see Chapter 8, *Water Quality*).

Implementation of this mitigation measure will result in the avoidance, successful remediation or containment of all known or suspected contaminated areas, as applicable, within the construction footprint, which would prevent the release of hazardous materials from these areas into the environment.

Mitigation Measure HAZ-1b: Perform Pre-Demolition Surveys for Structures to Be Demolished within the Construction Footprint, Characterize Hazardous Materials and Dispose of Them in Accordance with Applicable Regulations

BDCP proponents will perform surveys and characterize and dispose of hazardous materials in order to reduce the likelihood that hazardous materials are released into the environment. Where demolition of existing structures is necessary, measures will be implemented to ensure hazards are avoided or minimized and that the release of hazardous materials, such as residual fuel in underground fuel storage tanks, or lead-based paint or asbestos-containing materials in buildings, is avoided. These measures will include the following practices.

- Perform pre-demolition surveys to identify all potentially hazardous materials, including asbestos-containing material and lead-based paint.
- Coordinate with owners of property to be acquired by BDCP proponents to help identify potentially hazardous infrastructure and/or infrastructure containing potentially hazardous materials.

- Characterize and separate hazardous materials from structures before demolition and ensure that such materials are disposed of at an approved disposal site according to applicable regulations.
- Remove underground fuel storage tanks and contents to a licensed disposal site where the tanks will be scraped and the contents disposed of in accordance with applicable regulations.
- Disposal of materials containing PCBs will comply with all applicable regulations, codes, and ordinances. Disposal of large quantities of PCB waste will occur at incinerators approved for burning of PCB-containing waste.
- Implement proper handling and disposal procedures for potentially hazardous materials, such as solvents and household or industrial-strength maintenance chemicals and cleaners in buildings to be demolished.
- As applicable, a Cal-OSHA-certified asbestos and lead-based paint contractor will prepare a site-specific asbestos and/or lead hazard control plan with recommendations for the containment of asbestos and/or lead-based paint materials during demolition activities, for appropriate disposal methods and locations, and for protective clothing and gear for abatement personnel. Site-specific asbestos abatement work would meet the requirements of both the federal Clean Air Act and Cal-OSHA (CCR Title 8, Subchapter 4, Article 4, Section 1529). If asbestos-containing materials are found, contractors licensed to conduct asbestos abatement work will be retained and will direct the abatement. In addition, the applicable Air Quality Management District(s) will be notified 10 days prior to initiation of demolition activities of asbestos-containing materials.
- Containers suspected of, or confirmed as, containing lead-based paint will be separated from other building materials during the demolition process. Separated paint will be classified as a hazardous waste if the lead content exceeds 1,000 parts per million and will be disposed of in accordance with applicable regulations.
- Sewer lines will be plugged with concrete to prevent soil and/or groundwater contamination, and the end of the lines will be flagged above ground for future location and identification.
- Gas lines will be plugged or capped and the end of the lines will be flagged above ground for future location and identification.
- The use of explosives for demolition will not be allowed for any structures that contain asbestos, lead-based paint, or any other hazardous materials in concentrations that would create a substantial hazard to the public or the environment should they become airborne as a result of blasting.
- Hazardous waste, including contaminated soil, generated at demolition sites will be handled, hauled, and disposed of at an appropriately licensed disposal facility under appropriate manifest by a licensed hazardous waste hauler.

Implementation of this mitigation measure will ensure that hazardous materials present in or associated with structures being demolished will not be released into the environment.

Impact HAZ-6: Create a Substantial Hazard to the Public or the Environment through the Release of Hazardous Materials or by Other Means during Operation and Maintenance of the Water Conveyance Facilities

NEPA Effects: During long-term operation and maintenance of the water conveyance facilities, the transport, storage, and use of chemicals or hazardous waste materials may be required. Hazardous waste generated at facility sites will be handled, hauled, and disposed of at an appropriately licensed disposal facility under appropriate manifest by a licensed hazardous waste hauler (see Appendix 3B, *Environmental Commitments)*. Maintenance requirements for ~~several of the water conveyance facilities features (e.g.,~~the tunnels~~)~~ have not yet been finalized (See Chapter 3, Section 3.6.1.2 for a general description of the operation and maintenance requirements for the conveyance facilities). However, the operation and maintenance of certain alternative features, such as the intake pumping plants and the intermediate pumping plant, would require the use of hazardous materials, such as fuel, oils, grease, solvents, and paints. For example, planned maintenance at pumping facilities would include checking oil levels, replacing oil in the pumps and greasing pump bearings. Additionally, routine facility maintenance would involve painting of pumping plants and appurtenant structures, cleaning, repairs, and other routine tasks that ensure the facilities are operated in accordance with design standards.

Facility equipment maintenance would be required for the intake pumping plants, sedimentation basins and solids lagoons, the intermediate forebay and pumping plant, and Byron Tract Forebay. Timing of maintenance activities would be variable and would be dictated by the schedule and day-to-day requirements of specific components being maintained. Maintenance activities at the intakes would include debris and sediment removal, biofouling and corrosion prevention, and repairs following physical impacts to the intake structures. Sediment and solids removal from the sedimentation basins and solids lagoons, respectively, is expected to be an ongoing process during operation of the water conveyance facilities. During operation of the water conveyance facilities, water would enter sedimentation basins at five intakes along the east bank of the Sacramento River in the north Delta. Settled sediment would then be pumped to solids lagoons where it would be dewatered and removed for disposal off site; sediment pore water would be pumped back into the sedimentation basins. The dewatered solids, like sediment dredged at the intakes, may contain pesticides from agricultural and urban areas, metals or organic compounds from urban stormwater runoff and mercury from historic mining upstream of the Delta. The wide variety of pesticides that has been applied, the numerous crops grown in the region, and the fact that predominant land use across the Delta supports agriculture indicate that persistent pesticides that have been widely applied (e.g., organochlorines) and are likely to be found in the soils and potentially sediment throughout the Delta. Because of their relatively low water solubility, persistent pesticides and compounds generally accumulate in the environment in sediment and soil, as well as in the fatty tissue of terrestrial and aquatic animals and humans. Human exposure to organochlorine pesticides is primarily through the diet. No comprehensive area-wide soil or sediment sampling program is known to have been conducted to evaluate pesticide residues from agricultural use. Thus, it is not known if persistent pesticide concentrations in dewatered solids from the solids lagoons, or in dredged sediment from around the intakes would exceed applicable federal or state standards. As previously described, although the concentration of mercury in sediment throughout the study area is not known, one study indicated that the mercury concentration in sediment (suspended) at Freeport, just upstream of the intake locations, was less than 10 ng/l, below the recommended criterion of 50 ng/l (Domagalski 2001).

Based on a worst-case scenario, considering the throughput of the intakes at a maximum flow of 3,000 cfs, an estimated 137,000 dry pounds of solids per day would be pumped to the solids lagoons. During periods of high sediment load in the Sacramento River, the daily mass of solids would be expected to increase to up to 253,000 dry pounds per day. The annual volume of solids is anticipated to be approximately 486,000 cubic feet (dry solids). An anticipated 18,000 cubic yards of dry sediment/solids would be produced annually as a result of maintenance of the solids lagoons. ~~Potentially c~~Contaminated solids could pose a hazard to the environment if improperly disposed of, which would be an adverse effect. Implementation of Mitigation Measure HAZ-6 (described below) would help ensure that there are no adverse effects on soil, groundwater or surface water due to improperly disposed of lagoon solids. Dewatered solids may require special management to meet discharge/disposal requirements. To ensure that potentially contaminated sediment from maintenance dredging activities at the intakes would not adversely affect soil, groundwater or surface water, a SAP would be implemented prior to any dredging activities, as described under Impact HAZ-1 for this alternative. All sediment would be characterized chemically prior to reuse and/or disposal to ensure that reuse of this material would not result in a hazard to the public or the environment.

To the extent practicable, scheduled routine and emergency maintenance activities associated with equipment at the intakes and intermediate pumping plant would be conducted at a permanent maintenance facility at the intakes and intermediate pumping plant. The intake facilities maintenance facility would be located at one of the five intakes locations; the precise location has not yet been determined. The maintenance facility, and activities performed, at the intermediate pumping plant would likely be similar to the maintenance facility at the intakes; however, there would be no sedimentation basin (California Department of Water Resources 2010a:7-24). Replacement of erosion protection on the levees and embankments would also occur periodically.

Some of the materials used in routine facility and equipment maintenance may include hydraulic oil for lubricating machinery, fuel, batteries for vehicles and equipment, nitrogen, carbon dioxide or clear agent fire suppression, paints, cleaning solvents and chemicals, and pesticides and herbicides for grounds maintenance. Some of these materials, for example, bulk fuel and lubricants, would likely be stored in the maintenance facilities. Vehicle fueling that occurs during operations and maintenance activities and could pose the risk of fueling spills and leakage from bulk fuel storage tanks. Accidental release of fuels, lubricants, solvents, grounds care chemicals (e.g., fertilizers, pesticides and herbicides), and other hazardous materials could potentially have adverse effects if not contained or if released in large enough quantities, as described under Impact HAZ-1 above. However, under normal use, the inadvertent release of these types of chemicals would likely only have the potential to result in minor, temporary hazards to workers immediately adjacent to these releases. Because these chemicals would be used in small quantities and inadvertent releases would be localized, and because, as discussed under Impact HAZ-1, environmental commitment measures implemented as part of the HMMPs, SPCCPs, and SWPPPs, including equipping facility buildings with spill containment and cleanup kits; ensuring that hazardous materials containment containers are clearly labeled with identity, handling and safety instructions, and emergency contact information; and requiring that personnel be trained in emergency response and spill containment techniques, would minimize the potential for the accidental release of hazardous materials and would help contain and remediate hazardous spills should they occur, it is unlikely that the general public or the environment would be adversely affected due to these types of activities.

The locations of airports with respect to Alternative 1A are provided in Figure 24-9. The Borges-Clarksburg, Walnut Grove, and Spezia Airports (all private air facilities), and the Byron Airport (a

public airport), are within 2 miles of the Alternative 1A construction footprint (Figure 24-9 and Table 24-6), as discussed under Impact HAZ-1 for this alternative. With the exception of power transmission lines supplying power to pumps, surge towers, and other equipment used for water conveyance facilities operation and maintenance, water conveyance facilities operations and maintenance are not anticipated to require high-profile equipment (i.e., equipment with a vertical reach of 200 feet or more), the use of which near an airport runway could result in an adverse effect on aircraft. DWR would adhere to all applicable FAA regulations (14 CFR Part 77) and coordinate with Caltrans' Division of Aeronautics prior to initiating maintenance activities requiring high-profile equipment to assess whether a site investigation is necessary. If a site investigation is performed, DWR would adhere to Caltrans' recommendations in order to avoid any adverse effects on air safety. Further, compliance with the results of the OE/AAA for Byron Airport would reduce the risk for adverse effects on air traffic safety by implementing recommendations which could include limitations necessary to minimize potential problems, supplemental notice requirements, and marking and lighting high-profile structures.

In summary, during routine operation and maintenance of the water conveyance facilities the potential would exist for the accidental release of hazardous materials and other potentially hazardous releases (e.g., contaminated lagoon solids and sediment), and for interference with air safety should high-profile equipment be required for maintenance of the proposed transmission lines near an airport. Accidental hazardous materials releases, such as chemicals directly associated with routine maintenance (e.g., fuels, solvents, paints, oils), are likely to be small, localized, temporary and periodic; therefore, they are unlikely to result in adverse effects on workers, the public, or the environment. Further, BMPs and measures implemented as part of SWPPPs, SPCCPs, and HMMPs would be developed and implemented as part of the BDCP, as described above under Impact HAZ-1, and in detail in Appendix 3B, which would reduce the potential for accidental spills to occur and would result in containment and remediation of spills, should they occur. Additionally, 18,000 cubic yards of dry sediment/solids would be produced annually as a result of maintenance of the solids lagoons with three intakes operating. Contaminated solids could pose a hazard to the environment if improperly disposed of, which would be considered an adverse effect. ~~In addition,~~ With implementation of ~~under~~ Mitigation Measure HAZ-6, solids from the solids lagoons would be sampled and characterized to evaluate disposal options, and disposed of accordingly at an appropriate, licensed facility. These measures would ensure that this effect would not create a substantial hazard to the public or the environment during operation and maintenance of the water conveyance facilities, and therefore there would be no adverse effect.

***CEQA Conclusion*:** The accidental release of hazardous materials to the environment during operation and maintenance of the water conveyance facilities and the potential interference with air safety through the use of high-profile equipment for maintenance of proposed transmission lines could have impacts on the public and environment. However, implementation of the BMPs and other activities required by SWPPPs, HMMPs, SPCCPs, SAPs~~, and Mitigation Measure HAZ-6, which would ensure that dewatered solids are not reintroduced to the environment and are properly disposed of,~~ as well as adherence to all applicable FAA regulations (14 CFR Part 77) and coordination/compliance with Caltrans' Division of Aeronautics when performing work with high-profile equipment within 2 miles of an airport, which would include implementation of recommendations to provide supplemental notice and/or equip high-profile structures with marking and lighting, would ensure that operation and maintenance of the water conveyance facilities would not create a substantial hazard to the public, environment or air traffic safety. Additionally, 18,000 cubic yards of potentially contaminated dry sediment/solids would be

produced annually as a result of operation and maintenance of the solids lagoons with three intakes operating. Contaminated solids could pose a hazard to the environment if improperly disposed of, which would be considered a significant impact. However, with implementation of Mitigation Measure HAZ-6, solids from the solids lagoons would be sampled and characterized to evaluate disposal and/or reuse options, and would be disposed of accordingly at an appropriate, licensed facility to avoid any significant impacts associated with the improper disposal of potentially contaminated sediment. Therefore this impact would be less than significant.

Mitigation Measure HAZ-6: Test Dewatered Solids from Solids Lagoons Prior to Reuse and/or Disposal

BDCP proponents will ensure that dewatered solids from the solids lagoons are sampled and tested/characterized at a certified laboratory prior to reuse and/or to evaluate disposal options. At minimum, the solids would be tested for hazardous characteristics (i.e., toxicity, corrosivity, ignitability, and reactivity) consistent with federal standards for identifying hazardous waste (40 CFR Part 261). All dewatered solids would be disposed of in accordance with applicable federal, state, and local regulations at a solid waste disposal facility approved for disposal of such material.

Implementation of this measure will ensure that dewatered solids do not reintroduce hazardous constituents to the environment if they are reused, and that they are disposed of properly if they do contain hazardous levels of contaminants such as persistent pesticides and mercury.

24.3.3.9 Alternative 4—Dual Conveyance with Modified Pipeline/Tunnel and Intakes 2, 3, and 5 (9,000 cfs; Operational Scenario H)

Impact HAZ-1: Create a Substantial Hazard to the Public or the Environment through the Release of Hazardous Materials or by Other Means during Construction of the Water Conveyance Facilities

NEPA Effects:

Routine Use of Hazardous Materials

As described in Chapter 3, *Description of Alternatives*, during construction of Alternative 4, ~~four~~ six locations would be designated as ~~fueling~~fuel stations. All ~~fueling~~fuel stations would be located adjacent to a concrete batch plant; both the ~~fueling~~fuel station and the batch plant would be temporary and would only be in place for the duration of construction. Each ~~Three of the fueling~~fuel station~~s~~ would occupy ~~2~~ 1 acre. ~~s each; the fueling station west of Clifton Court Forebay between Byron Highway and Italian Slough would occupy 1 acre within a designated RTM storage site. and would be located adjacent to a concrete batch plant; both the fueling station and the batch plant would be temporary and would only be in place for the duration of construction. Fueling station locations are shown in Figure 24-7 and in Figure M3-4 in the Mapbook Volume.~~ The~~Two~~ ~~fueling~~fuel stations would be established in currently rural areas. ~~on the northern end of the Alternative 4 water conveyance alignment.~~There would be one fuel station at each of the three intakes—one ~~One~~ would be located within the intake work area for Intake 2, just east of SR 160 across the Sacramento River from Clarksburg; one would be located within the intake work area for Intake 3, just north of Hood; and ~~, and~~one ~~the other~~ would be located within the intake work area for Intake 5, approximately 2 miles northeast of Courtland. In addition, two fueling stations would be located

within RTM storage areas; one would be located east of I-5 approximately 4 miles east of Vorden., and the other would located on Byron Tract, between Byron Highway and Italian Slough. The southernmost fuel station would be located on Bouldin Island, just north of an RTM storage area. FuelingFuel station locations are shown in Figure 24-7 and in Figure M3-4 in the Mapbook Volume. It is anticipated that equipment and vehicles would be maintained in the field and at on-site maintenance facilities. Bulk fuel would be stored at fuelingfuel stations and would potentially pose the risk of vehicle fueling spills and leakage from above-ground storage tanks at fuelingfuel stations.

In addition to fuel use and bulk fuel storage, oils, lubricants, and other hazardous materials would be stored onsite and/or used in heavy construction equipment, such as compressors, generators, pile drivers, cranes, forklifts, excavators, pumps, or soil compactors throughout the study area during construction of the conveyance facilities. The presence and use of these hazardous materials would create the potential for accidental spillage and exposure of workers and the public to these substances.Spills and releases could occur during transfer and use of these materials in the field and over water or adjacent to waterways. Similarly, fuels, oil, and lubricants would all potentially be used to operate the heavy equipment necessary for pre-construction geotechnical investigations (i.e., cone penetrometer test rig and drill rig). Detailed subsurface geotechnical investigations will be performed at several locations along the water conveyance alignment and associated appurtenant facilities, including within, and immediately to the north and south of, the town of Hood. The primary exploration methods would include soil borings and cone penetration tests (conventional piezocones and seismic cones). Prior to actual drilling and sampling, each planned boring/cone penetration test location would require field reconnaissance, marking or staking the exploration site, and calling the Underground Service Alert (USA) for utility clearance. Cuttings and excess drilling fluid will be contained in drums, large containers, or vacuum truck and disposed of offsite at an appropriate landfill.

Other types of Hhazardous materials, including paints, solvents, and sealants, would be used in construction of water conveyance facilities features (e.g., intakes, pumping plants, conveyance piping). FuelingFuel and transfer of oils, lubricants and other materials would be performed on work barges and watercraft used for building temporary and permanent in-river facilities, such as intake structures and potentially the operable barrier at the head of Old River, and could be spilled or otherwise released to the environment and result in a hazard.

Construction equipment maintenance is expected to be performed in the field and in central maintenance facilities operated by contractors during construction of the water conveyance facilities. While equipment could be maintained at any work area identified for this alternative, the highest risk of hazards related to equipment maintenance would be anticipated to occur at those sites where the duration and intensity of construction activities would be greatest, including at the intake and intake pumping plant sites along the east bank of the Sacramento River, at the intermediate forebay on Glannvale Tract, and at Clifton Court Forebay. Construction equipment maintenance activities would also be expected to be performed at work areas related to main tunnel construction shaft sites on Byron Tract; southern Bouldin Island; northern southern Staten Island; Glannvale Tract at the intermediate forebay site; and on Bacon Island; and at Clifton Court Forebay. For a map of all permanent facilities and temporary work areas associated with this alternative, see Figure M3-4 in the Mapbook Volume. Equipment maintenance activities at these facilities would likely include rebuilding pumps or motors, maintaining equipment hydraulic systems, minor engine repairs and routine lubrication, and replacing worn parts. Spills and other accidental releases of degreasers, fuels, oils or lubricants could result in minor, temporary hazards to workers immediately adjacent to these releases. However, because these chemicals would be used in small

quantities by trained personnel, and because BMPs to minimize the potential for these types of accidents and to contain and remediate hazardous spills, should they occur, would be implemented, as set forth in Appendix 3B, *Environmental Commitments*, it is unlikely that the general public or the environment would be adversely affected.

As described in Appendix 3B, *Environmental Commitments*, SWPPPs, HMMPs, and SPCCPs would be developed and implemented by the BDCP proponents as part of the construction process for Alternative 4.

The SPCCPs would minimize effects from spills of oil, oil-containing products, or other hazardous chemicals during construction and operation of the project. The plan would be comprehensive in that it would address actions used to prevent spills and specify actions that will be taken should any spills occur, including emergency notification procedures. BMPs to be implemented as part of the SPCCPs include, but would not be limited to the following.

- Personnel will be trained in emergency response and spill containment techniques, and will also be made aware of the pollution control laws, rules, and regulations applicable to their work.
- When transferring oil or other hazardous materials from trucks to storage containers, absorbent pads, pillows, socks, booms or other spill containment material will be placed under the transfer area.
- Absorbent pads, pillows, socks, booms, and other spill containment materials will be maintained at the hazardous materials storage sites for use in the event of spills.
- Contaminated absorbent pads, pillows, socks, booms, and other spill containment materials will be placed in leak-proof sealed containers until transport to an appropriate disposal facility.
- In the event of a spill, personnel will identify and secure the source of the discharge and contain the discharge with sorbents, sandbags, or other material from spill kits. In addition, regulatory authorities (e.g., National Response Center will be contacted if the spill threatens navigable waters of the United States or adjoining shorelines, as well as other response personnel).
- Equipment used in direct contact with water would be inspected daily to prevent the release of oil.
- Oil-absorbent booms would be used when equipment is used in or immediately adjacent to waters.
- All reserve fuel supplies would be stored only within the confines of a designated staging area.
- Fuel transfers would take place a minimum distance from exclusion/drainage areas and streams, and absorbent pads would be placed under the fuel transfer operation.
- Equipment would be refueled only in designated areas.
- Staging areas would be designed to contain contaminants such as oil, grease, and fuel products so that they do not drain toward receiving waters or storm drain inlets.
- All stationary equipment would be positioned over drip pans.

The SWPPP objectives would be to: (1) identify pollutant sources associated with construction activities and operations that could affect the quality of stormwater; and (2) identify, construct, and implement stormwater pollution prevention measures to reduce pollutants in stormwater discharges during and after construction. It is anticipated that multiple SWPPPs will be prepared for

the overall BDCP project construction, with a given SWPPP prepared to cover a particular water conveyance component (e.g., intermediate forebay) or groups of components (e.g., intakes). Generally, the SWPPP would include the provisions listed below.

- A description of potential stormwater pollutants from erosion.
- A description of the management of dredged sediments and hazardous materials present on site during construction (including vehicle and equipment fuels).
- Details of how the sediment and erosion control practices would comply with state and federal water quality regulations.
- A visual monitoring program and a chemical monitoring program for "non-visible" pollutants if the BMPs are breached.

BMPs in the SWPPPs would include but not be limited to the following measures.

- Capture sediment via sedimentation and stormwater detention features.
- Implement concrete and truck washout facilities and appropriately sized storage, treatment, and disposal practices. Clean or replace sanitation facilities (as necessary) and inspect regularly for leaks/spills.
- Cover waste disposal containers during rain events and at the end of every day.
- Store chemicals in watertight containers.
- Reclaim or land-apply construction site dewatering discharges to the extent practicable, or use for other construction purposes (e.g., dust control).
- Implement appropriate treatment and disposal of construction site dewatering from excavations to prevent discharges to surface waters.
- Equipment and materials for cleanup of spills shall be available on site.
- Spills and leaks shall be cleaned up immediately and disposed of properly.
- Ensure that there are trained spill response personnel available.

The HMMPs would provide detailed information on the types of hazardous materials used or stored at all sites associated with the water conveyance facilities (e.g., ~~intake~~ pumping plants, maintenance facilities); phone numbers of city, county, state, and federal agencies; primary, secondary, and final cleanup procedures; emergency-response procedures in case of a spill; and other applicable information. The HMMPs would include measures to minimize the possible environmental impacts associated with spills or releases of hazardous materials (e.g., solvents, paints) during routine construction and operations and maintenance activities. These measures would include but not be limited to those listed here (see Appendix 3B, *Environmental Commitments* for additional detail).

- Fuel, oil, and other petroleum products will be stored only at designated sites.
- Hazardous materials containment containers will be clearly labeled with the material's identity, handling and safety instructions, and emergency contact information.
- Storage and transfer of hazardous materials will not be allowed within 100 feet of streams or sites known to contain sensitive biological resources except with the permission of Department of Fish and Wildlife.
- The accumulation and temporary storage of hazardous wastes will not exceed 90 days.

- Soils contaminated by spills or cleaning wastes will be contained and removed to an approved disposal site.
- Hazardous waste generated at work sites, such as contaminated soil, will be segregated from other construction spoils and properly handled, hauled, and disposed of at an approved disposal facility by a licensed hazardous waste hauler in accordance with regulations. BDCP proponents will obtain permits required for such disposal.
- Emergency spill containment and cleanup kits will be located at the facility site. The contents of the kit will be appropriate to the type and quantities of chemical or goods stored at the facility.

Development and implementation of these plans would reduce the potential risk of a release of stored fuels, oils, lubricants or other hazardous materials used during construction and construction equipment operation and maintenance, and would ensure that spills are contained and remediated promptly and completely.

Natural Gas Accumulation in Water Conveyance Tunnels

Under Alternative 4, deep water conveyance tunnels would be constructed. Tunnel 1a, a 2~~9~~8-foot (inside diameter [ID]) single-bore tunnel, would connect ~~run south from a pipeline adjacent to~~Intake ~~Pumping Plant~~ 2 to ~~a pipeline adjacent to~~ Intake ~~Pumping Plant~~ 3. From Intake ~~Pumping Plant~~ 3, ~~the~~ a 40-foot (ID~~tunnel~~) tunnel would run south~~west~~ under the town of Hood to the intermediate forebay on Glannvale Tract. Tunnel 1b, a 2~~8~~0-foot (ID) single-bore tunnel would run southeast from Intake ~~Pumping Plant~~ 5 to the intermediate forebay. Tunnel 2, a 40-foot (ID) dual-bore tunnel, would run south from the intermediate forebay to two 4,500 cfs pumping plants~~a culvert siphon, west of Eucalyptus Island on Byron Tract, that~~ and~~leads~~ to the proposed expanded Clifton Court Forebay.~~,~~ For a map of the proposed tunnel alignment, see Figure M3-4 in the Mapbook Volume.

During construction, there would be the potential to encounter gases that could enter and accumulate to flammable or explosive concentrations in tunnel bores or other excavations. Were this to occur, it would be considered an adverse effect. These gases could include methane generated by peat and organic soils or other natural gases, which could seep from deep natural gas reservoirs either through improperly sealed boreholes or natural conduits such as faults and fractures. The thickness of peat and organic soils increases to the west across the Delta, and more than 5,000 oil and gas wells are located throughout the Delta. There are no active and ~~11~~ 815 inactive oil or gas wells present within the construction footprint of the proposed Alternative 4 water conveyance alignment; oil and gas wells along the water conveyance facilities alignments are shown in Figure 24-5. Gas fields in the United States are typically located at depths greater than 3,000 feet (U.S. Energy Information Administration 2012). Because the tunnels would be approximately 150 to 160 feet below ground, it is unlikely that a gas field would be encountered during tunneling. However, an evaluation of how these gas fields could affect the constructability of the tunnels would be prepared during the geotechnical investigations performed in the design phase of the water conveyance facilities. For water conveyance facilities construction under Alternative 4, the water conveyance tunnels may receive a Cal-OSHA classification of "gassy or extrahazardous" due to the presence of natural gas wells along the alignment. If the tunnels receive a "gassy or extrahazardous" classification, specialized tunneling equipment, which would need to be approved by the MSHA, would be required to prevent explosions during tunneling, as would gas detection equipment on the tunnel boring machines, an automatic shutoff of the equipment if gas were detected, and fireproof construction equipment. In addition, the contractor would be required to follow gas monitoring and fire prevention requirements mandated by Cal-O~~H~~SHA based on the tunnel gas classification in

accordance with The Tunnel Safety Orders set forth in the California Code of Regulations (Title 8, Division 1, Chapter 4, Subchapter 20, Article 8, "Tunnel Classifications" [see Section 24.2.2.13). The tunnel ventilation system would include steel ducts capable of reversing the direction of air in order to help control potential fires in the tunnel. Tunnels would be ventilated according to Cal-OSHA requirements. Cal-OSHA requires providing at least 200 fpm of fresh air per person working underground. Additionally, a minimum air velocity of 60 fpm is required to dilute any contaminated gas present within the tunnel. Further, ventilation hardware would comply with Cal-OSHA requirements. The hardware would include steel ducts and be capable of reversing the direction of air flow (for fire control within the tunnel). Adherence to these regulations would reduce the potential for hazards ~~from~~ related to the accumulation of natural gas in tunnels. Further, the construction contractor would be required to prepare an emergency plan prior to construction of the tunnels (Title 8, Division 1, Chapter 4, Subchapter 20, Article 9, "Emergency Plan and Precautions"). This plan would outline the duties and responsibilities of all employees in the event of a fire, explosion or other emergency. The plan would include maps, evacuation plans, rescue procedures, communication protocol, and check-in/check-out procedures. Copies of the plan will be given to the local fire or designated off-site rescue teams and the Division.

Existing Contaminants in Soil, Groundwater, or Sediment

There may be contaminated areas within the study area that have not been previously identified because of inadequate or missing data, or poor record keeping. During construction of Alternative 4, contaminated soils, sediments and groundwater may be encountered where historical releases have occurred, such as at former storage and distribution facility locations.

The lateral and vertical extent of any historical soil-, sediment-, or water-based contamination within or near the construction footprint is unknown. Although soil contamination, where it exists, is likely to be highly localized, groundwater contamination could have migrated substantial distances and therefore be more widespread than soil contamination. Locations of known oil and gas processing facilities (Figure 24-1) are considered a separate category of SOC due to the potential for spills and leaks at these locations. The lateral and vertical extent of any existing contamination that may be present at these sites is unknown. The number of SOCs may change during right-of-way evaluation, land acquisition, and preconstruction site-clearance investigations or during construction. Additional SOCs may be identified during these activities, and currently identified SOCs may be determined innocuous after site-specific field investigation and testing.

It is likely that contaminated sediments (e.g., persistent pesticide- and mercury-contaminated sediments) will be resuspended during sediment-disturbing activities related to in-river construction (e.g., cofferdam construction at intake sites, operable barrier) and dredging of Clifton Court Forebay for the proposed expansion. Because only Intakes 2, 3, and 5 would be built under this alternative, implementation would avoid any site-specific contaminants or hazardous materials associated with the construction of Intakes 1 and 4. Additionally, water conveyance facilities construction would require in-channel dredging (e.g., for construction of the operable barrier at the head of Old River), which would result in the temporary resuspension of potentially contaminated sediments. Additionally, stored bulk quantities of hazardous materials that have been released to soils and groundwater could be rereleased during construction, also posing a potential hazard.

Concentrations of potential contaminants in Clifton Court Forebay sediment and in the sediment where in-river construction activities would be taking place are not known; therefore, the associated risk cannot be identified. In general, sediment-bound pesticide concentrations in rivers and

estuaries vary by season (with rain and the seasonal variation in pesticide applications) and are episodic; pesticide concentrations in sediment are generally higher during rainy season at the onset of winter rains (Bergamaschi et al. 2007). One study suggests that the mercury concentration in suspended sediment at Freeport, just upstream of the intake locations, is less than 10 ng/l, below the recommended criterion of 50 ng/l (Domagalski 2001). Also, mobilization of potentially contaminated sediments would be directly related to levels of turbidity and suspended sediments resulting from construction activities. Although resulting turbidity has not been modeled, it is anticipated to be low given the permit requirements for controls stipulating that dredging activities be conducted and monitored such that turbidity not increase in receiving waters, measured 300 feet downstream; or that silt curtains be used to control turbidity and reduce the associated mobilization of potentially contaminated sediments.

Mobilization of potentially contaminated sediments is unlikely to be a hazard concern for construction workers because it is not expected that workers would be in direct contact with sediment. Similarly, resuspension of potentially contaminated sediment is unlikely to pose a hazard to the general public or the environment because it would be confined to a relatively small area during construction and would be temporary (e.g., occurring during in-river work and potentially for a few hours following cessation of in-river construction activities). Further, as described in Appendix 3B, *Environmental Commitments,* for any BDCP dredging activity, the BDCP proponents would prepare and implement a ~~pre-dredge sampling and analysis plan (~~SAP~~)~~, which would be developed and submitted by the contractors required per standard DWR contract specifications Section 01570. As part of the SAP, prior to any dredging activities, sediment would be evaluated for contaminants that may impact water quality from the following discharge routes from the following discharge routes.

- In-stream discharges during dredging.
- Direct exposure to contaminants in the material through ingestion, inhalation or dermal exposure.
- Effluent (return flow) discharge from an upland disposal site.
- Leachate from upland dredge material disposal that may affect groundwater or surface water.

Additionally, BMPs, including those listed below, would be implemented during in-river construction activities to ensure that disturbed sediment was contained, thus reducing the risk of sediment dispersal away from the immediate area (see Appendix 3B, *Environmental Commitments*).

- Conduct dredging activities in a manner that will not cause turbidity increases in the receiving water, as measured in surface waters 300 feet down-current from the project, to exceed the Basin Plan objectives beyond an averaging period approved by the RWQCB and Department of Fish and Wildlife.
- If turbid conditions generated during dredging exceed the agreed-upon implementation requirements for compliance with the Basin Plan objectives, silt curtains will be utilized to control turbidity.
- Conduct in-river construction activities during low-flow periods to the extent practicable.

To the extent feasible, action alternative design would minimize the need to acquire or traverse areas where the presence of hazardous materials is suspected or has been verified. In addition, under Mitigation Measure HAZ-1a, remediation and/or containment prior to discharge or disposal of contaminated soil and groundwater, as identified in preconstruction surveys, would be performed

prior to construction of the proposed water conveyance facilities at known contaminated sites or in areas where contamination is suspected.

Constituents in Reusable Tunnel Material

RTM would consist of materials excavated from the tunnel bore, which would be advanced at a depth of approximately 100 feet bgs and 160 feet bgs under Delta water channels. As described in Section 24.2.1.3, soil conditioners would be added during tunneling activities to facilitate the process, and RTM would be transported from the tunnel through the launching shaft to the surface and then by conveyor belt to RTM areas. At the RTM areas, decant liquids from the RTM would be leached, collected and evaporated. RTM areas would be located just southeast of Scribner Road adjacent to Intake 2; just south of Lambert Road in Elk Grove, approximately 1.5 miles west of I-5; just north of Dierrsen Road in Elk Grove; west of the proposed intermediate forebay adjacent to the Sacramento River; east of the proposed intermediate forebay both north and south of Twin Cities Road; ~~on the northern and southern end of Staten Island;~~ on southeastern~~western~~ Bouldin Island; and northwest of Clifton Court Forebay on Byron Tract. For a map of proposed RTM areas, see Figure M3-4 in the Mapbook Volume.

As described in Chapter 9, *Geology and Seismicity*, the geologic materials encountered during tunneling are expected to comprise alluvial sediments consisting of a mixture of clay, silt, sand, gravel and minor amounts of organic matter, all deposited prior to the arrival of settlers to California and subsequent mining, agricultural and urban land uses that have produced potential contaminants of concern, as discussed above.

It is anticipated that all tunnel boring additives would be non-toxic and biodegradable. Regardless, before the RTM could be re-used or returned to the environment, it would be managed to comply with NPDES permit requirements, and at a minimum would go through a drying/water-solids separation process and a possible physical or chemical treatment following chemical characterization (including RTM decant liquid). Depending on the composition of the RTM and type of conditioning agents used, there would be many options for management of the RTM. Management could be done in several ways, including chemical flocculation, settlement/sedimentation, handling at a treatment plant, chemical conditioning or controlled storage. The method of controlled storage (described in Appendix 3C, *Details of Water Conveyance Facilities Components*), similar to landfill storage, would be the method with the broadest impacts because a designated area large enough to store the RTM may be required permanently. If controlled storage is necessary, the RTM would be deposited within designated RTM storage areas. To ensure that the RTM is contained within the designated area, a retaining dike would be built around the perimeter of the RTM area. RTM ponds would aid in RTM management and facilitate the dewatering. Several of the ponds would be designated as leachate ponds. The leachate would be pumped from the drainage system to the leachate ponds for possible additional treatment. To ensure that underlying groundwater is not contaminated, the invert of the RTM pond would be a minimum of 5 feet above the seasonal high groundwater table, and an impervious liner would be placed on the invert of the RTM pond and along the interior slopes of the berms to prevent any contact between the RTM and the groundwater, as described in Appendix 3B, *Environmental Commitments*. Further, as part of the project, RTM would be tested in accordance with the methods outlined in EPA publication SW-846, as required by state and federal regulations prior to reuse (e.g., RTM in levee reinforcement) or disposal. RTM decant liquid would also require testing prior to discharge to meet NPDES or Construction General Permit (Order 2010-0014-DWQ) requirements. As described in Section 24.3.1.3, preliminary lab tests indicate that RTM could potentially be reused to strengthen select

Delta levees, for habitat restoration, fill on subsiding islands, or as structural fill for construction of the proposed water conveyance facilities (URS 2014).

Should constituents in RTM or associated decant liquid exceed discharge limits, these tunneling byproducts would be treated to comply with permit requirements. ~~At a minimum, a final clean soil cover would be placed over the dewatered RTM in order to isolate any contaminates in the RTM and then seeded.~~ Decant liquids from RTM may require additional chemical or physical treatment, such as flocculent addition to precipitate suspended sediment, prior to discharging to surface water.

As part of a Material Reuse Plan, prior to construction, draining, and chemical characterization of RTM, the BDCP proponents would identify sites for reusing this material to the greatest extent feasible, in connection with BDCP construction activities, habitat restoration activities, as well as for potential beneficial uses associated with flood protection and management of groundwater levels within the Plan Area. The BCP proponent will undertake a thorough investigation to identify sites for the appropriate reuse of RTM, and will consult relevant parties, such as landowners, reclamation districts, flood protection agencies, state agencies with jurisdiction in the Delta, and counties, in developing site-specific material reuse plans, as described in Appendix 3B, *Environmental Commitments*. Following removal of RTM from the temporary RTM areas, stockpiled topsoil would be reapplied, and disturbed areas would be returned, to the extent feasible, to preconstruction conditions. In some instances it may be infeasible to transport and reuse RTM due to factors such as distance and cost, and/or any environmental effects associated with transport (e.g., unacceptable levels of diesel emissions). In such instances, RTM sites would be evaluated for the potential to reapply topsoil over the RTM and to continue or recommence agricultural activities. If, in consultation with landowners and any other interested parties, BDCP proponents determine that continued use of the land for agricultural or habitat purposes would be infeasible, the potential for other productive uses of the land would be examined, as described in Appendix 3B. Under Alternative 4, the dual-bore tunnel conveyance between the intermediate forebay, surge shafts and two 4,500 cfs pumping plants ~~and a culvert siphon~~ leading to the expanded Clifton Court Forebay would be larger than under other pipeline/tunnel alternatives. Each bore would have an internal diameter of 40 feet and an external diameter of 44 feet, and the distance between the two bores would increase. Consequently, the amount of RTM would be greater than the other pipeline/tunnel alternatives. There would be approximately 27 million cubic yards of RTM generated during construction of Alternative 4. Although additional footprints for RTM are not anticipated, the larger amount of RTM produced relative to the other pipeline/tunnel alternatives could correspondingly increase the hazards associated with disturbing and handling it. RTM management practices and environmental commitments would minimize the potential hazards from RTM.

Electrical Transmission Lines

There are ~~nine twelve~~12 overhead power/electrical transmission lines ~~along~~ crossing the proposed Alternative 4 water conveyance facilities alignment (Table 24-3 and Figure 24-6). Disturbance of this infrastructure during construction activities that employ high-profile equipment, such as cranes, could result in safety hazards for construction workers in the immediate vicinity of an energized line. The most significant risk of injury from any power line is the danger of electrical contact between an object on the ground and an energized conductor. Generally, there is less risk of contact with higher voltage lines as opposed to low-voltage lines because of the height of the conductors. When work is performed near transmission lines, electrical contact can occur even if direct physical contact is not made, because electricity can arc across an air gap. The BDCP proponents would be required to comply with Title 8 CCR, Section 2300 ("Low Voltage Electrical Safety Orders") and

Section 2700 ("High Voltage Electrical Safety Orders") so that worker and public safety is ensured during work on or in immediate proximity to low- and high-voltage transmission lines. Other hazards associated with electrical transmission lines include potential health risks exposure to EMFs. These potential effects are described and assessed in Chapter 25, *Public Health*.

Alternative 4 will include the construction of a "split" transmission line system that would connect to the existing grid in two different locations. The northern point of interconnection would be located north of Lambert Road and west of Highway 99. From here, a 230 kV transmission line would run west along Lambert Road, where one segment would run south to the intermediate forebay ~~and then on to tunnel shaft locations on Staten Island~~, and one segment would run north to connect to a substation, where temporary 69 kV lines would connect to substations at each of the three ~~the~~ intake~~s pumping plants~~. At the southern end of the alignment for Alternative 4, the point of interconnection may be located in one of two possible locations: southeast of Brentwood or adjacent to the Jones pumping plant. A 230 kV transmission line would run from one of these locations to a tunnel shaft north~~west~~east of Clifton Court Forebay, and would continue north, following tunnel shaft locations to Bouldin Island~~, where a 34.5 kV line would continue to a tunnel construction shaft the southern end~~on of Staten Island~~. Because the power required during operation of the water conveyance facilities would be much less than that required during construction, and because it would largely be limited to the ~~intake~~ pumping plants and intermediate forebay, the "split" system would enable all of the power lines extending from the southern point of interconnection to be temporary, limited to the construction schedule for the relevant tunnel reaches and features associated with Clifton Court Forebay. ~~Additionally, those segments extending south of the intermediate forebay on McCormack-Williamson Tract and Staten Island would also be removed following construction of associated tunnel facilities.~~ In addition to construction of a "split" transmission line system, an existing 230 kV and 500 kV transmission line, which run parallel south of Clifton Court Forebay, would be relocated to an area further south/southeast within 0.5 mile of their original location. Erecting/relocating ~~the~~ power poles would not involve extensive excavation or material transport~~,~~ and each pole would occupy a small footprint. Accordingly, the transmission lines (temporary and permanent) would not create an adverse effect related to the release of hazardous materials.

Infrastructure Containing Hazardous Materials

Infrastructure in the study area containing hazardous materials (e.g., natural gas pipelines) could pose hazards to the environment and the public if disturbed by construction activities or geotechnical investigations. As described in Section 24.1.2, pipelines carrying fluids with hazardous characteristics (e.g., petroleum products) cross the Alternative 4 conveyance alignment and construction footprint (Figure 24-3). The number of regional pipeline crossings within the construction disturbance footprint of the all conveyance alternatives is provided in Table 24-3. Natural gas pipelines cross the conveyance alignment near Intake 2 at a proposed borrow/spoils area, within the construction footprint of the proposed east/west transmission line east of Courtland, on Staten Island within the proposed tunnel footprint between a safe haven area and a RTM area, and near a main tunnel construction shaft on Bacon Island. Other product pipelines cross the alignment on the northern part of Woodward Island and along the southwestern side of the proposed Clifton Court Forebay expansion and nearby RTM area. Further, hazardous materials storage vessels, such as tanks or other bulk containers used for processing, storage and distribution of fuels, pesticides or other hazardous materials may be present in the Alternative 4 water

conveyance facilities construction footprint. Active and inactive oil wells are present throughout the Delta and their locations are shown in Figure 24-5.

In addition, certain residential, agricultural and commercial structures within the Alternative 4 water conveyance facilities footprint would need to be removed. Under Alternative 4, approximately 8~~1~~5 existing structures are within the construction footprint, including an estimated 19 residential structures. Other existing structures within the construction footprint would consist primarily of storage or agricultural support facilities (~~4~~50); recreational structures (~~8~~7); and other types of structures (e.g., power/utility structures~~, bridges,~~ and other types of infrastructure). These structures may contain hazardous materials such as asbestos or lead-based paint, stored liquid paints and solvents, and household or industrial-strength maintenance chemicals and cleaners. Asbestos-containing material is regulated both as a hazardous air pollutant under the Clean Air Act (Chapter 22, *Air Quality and Greenhouse Gases*) and as a potential worker safety hazard by Cal-OSHA (see Section 24.2.2.13). Were these types of hazardous materials to be encountered during structure demolition, the potential for their release and the consequent adverse effects on the public, construction workers, and the environment would exist. To prevent adverse effects, BDCP proponents would implement Mitigation Measure HAZ-1b, which would require that BDCP proponents coordinate with property owners to identify existing potentially hazardous infrastructure and infrastructure containing potentially hazardous materials, and that BDCP proponents perform pre-demolition surveys to identify and characterize hazardous materials to ensure the safe and appropriate handling and disposal of these materials. Direct impact to buildings will be avoided during geotechnical exploration activities.

There are six natural gas pipelines, ~~four six~~three petroleum product pipelines, and 11 known inactive and no active oil or gas wells within the construction footprint for the proposed Alternative 4 water conveyance alignment (Table 24-3, and Figures 24-3 and 24-5). In addition to the regional pipelines in the study area, there are networks of minor oil and gas gathering pipelines, which connect individual oil or gas wells to small storage and preliminary processing facilities operated by the different oil and gas companies working in the study area. Disturbance of this infrastructure during construction of the water conveyance facilities could result in hazards to the environment as well as physical and chemical hazards to the construction workers or the nearby public due to fires, explosions, and release of natural gas or petroleum products. The potential for disturbing oil and gas fields during geotechnical investigations, excavation or tunneling activities is minimal because these fields are typically located at depths greater than 3,000 feet (U.S. Energy Information Administration 2012). Effects would be more likely to occur if utilities were not carefully surveyed prior to construction, including contacting ~~with~~ the local utility service providers (e.g., contacting USA). California Government Code Sections 4216–4216.9 require that anyone planning to excavate contact the appropriate regional notification center at least two working days (but not more than 14 calendar days) before beginning to excavate. The precise location of pipelines within a tunnel section would be identified prior to construction to avoid conflicts with shaft construction and disposal of RTM. Studies will be done prior to construction to identify the minimum allowable distance between existing gas wells and tunnel excavation. Abandoned wells would be tested to confirm that they have been abandoned according to DOGGR well abandonment requirements. Those wells not abandoned according to these requirements will be improved. In addition, to avoid the potential conflicts with shaft construction and disposal areas, the utility and infrastructure relocation will be coordinated with local agencies and owners. Implementation of pre-construction surveys, and ~~then~~ utility avoidance or relocation, if necessary, would minimize any potential disruption and hazardous effects due to disruption. Mitigation Measures UT-6a: Verify locations of

utility infrastructure, and UT-6c: Relocate utility infrastructure in a way that avoids or minimizes any effect on worker and public health and safety (described in Chapter 20, *Public Services and Utilities*) address these effects.

Routine Transport of Hazardous Materials via Trucks, Trains, and Ships

Generally, the transportation of hazardous materials via trucks, trains and ships poses potential risks associated with the accidental release of these materials to the environment. Alternative 4 would require a heavy volume of materials to be hauled to the construction work areas, increasing the amount of trucks using the transportation system in the study area. Rerouting vehicular traffic carrying hazardous materials during construction of the water conveyance facilities could increase the risk of accidental release due to inferior road quality or lack of driver familiarity with the modified routes. This includes the risk of release of hazardous products or wastes being transported routinely or specifically for construction of the water conveyance facilities, and the corresponding risk of release of fuels (gasoline and diesel) from vehicular accidents. Hazardous materials transportation routes are presented in Figure 24-2 and in Table 24-4. Three designated hazardous materials transportation routes cross the Alternative 4 alignment—State Highways 4, 12, and Byron Highway (Figure 24-2 and in Table 24-4). It is anticipated that traffic on Byron Highway would need to be temporarily rerouted during construction of the siphon at the southwest end of the proposed expanded Clifton Court Forebay. Other routes anticipated to be affected during construction of the water conveyance facilities under this alternative are described in Chapter 19, *Transportation*. As described in Chapter 19, under Mitigation Measure TRANS-1a, a site-specific construction traffic management plan, taking into account land (including rail) and marine hazardous materials transportation, would be prepared and implemented prior to initiating water conveyance facilities construction. Mitigation Measure TRANS-1a includes stipulations to avoid or reduce potential circulation effects, such as such as providing signage (including signs warning of roadway surface conditions such as loose gravel), temporary traffic signals/signage to slow or detour traffic, barricades, and flag people around construction work zones; notifying the public, including schools and emergency service providers of construction activities that could affect transportation; providing alternate access routes, if necessary, to maintain continual circulation in and around construction zones; and requiring direct haulers to pull over in the event of an emergency. Many of these traffic management BMPs (e.g., warning signage and temporary traffic signals) are roadway safety measures which would indirectly minimize the potential for accidents involving vehicles transporting hazardous materials routinely or specifically for construction of the BDCP water conveyance facilities, and the corresponding risk of release of fuels (gasoline and diesel) from vehicular accidents.

As described in Chapter 19, *Transportation*, shipping routes to ports in West Sacramento and Stockton are unlikely to be affected by barge traffic transporting equipment and materials for water conveyance facilities construction. However, barges supporting water conveyance facilities construction may also transport hazardous materials such as fuels, lubricants, or other chemicals. The potential exists for accidental release of hazardous materials from BDCP-related barges. To avoid effects on the environment related to this issue, BMPs implemented as part of a Barge Operations Plan (for detail see Appendix 3B, *Environmental Commitments*), including the following, would avoid and/or minimize this potential adverse effect:

- All tugboats operating at the intake construction sites and the barge landings will keep an oil spill containment kit and spill prevention and response plan on-board.

- In the event of a fuel spill, report immediately to the California Department of Fish and Wildlife Office of Spills Prevention and Response: 800-852-7550 or 800-OILS-911 (800-645-7911).
- When transporting loose materials (e.g., sand, aggregate), barges will use deck walls or other features to prevent loose materials from blowing or washing off of the deck.

Finally, under this alternative, the proposed conveyance crosses under the existing BNSF/Amtrak San Joaquin line between Bacon Island and Woodward Island. Maintaining freight and passenger service on the BNSF line is included in the project design, and the effect of this crossing would be minimal to nonexistent because the proposed conveyance would traverse the railroad in a deep bore tunnel (see Chapter 19, *Transportation*, for discussion). The UPRR Tracy Subdivision (branch line) runs parallel to Byron Highway, between the highway and the proposed expanded Clifton Court Forebay. The proposed conveyance includes a siphon that would cross the railroad at the southwest corner of Clifton Court Forebay. However, construction is unlikely to disrupt rail service because much of this line has not been in service recently. Moreover, if the line were to come back in service, a temporary stretch of track would be installed to take trains around the siphon construction site. The temporary track would be removed once siphon construction was completed. Any potential effects on rail traffic during construction would be reduced with implementation of Mitigation Measure TRANS-1a, which would include stipulations to coordinate with rail providers to develop alternative interim transportation modes (e.g., trucks or buses) that could be used to provide freight and/or passenger service during any longer term railroad closures, and daily construction time windows during which construction would be restricted or rail operations would need to be suspended for any activity within railroad rights of way. This would minimize the potential risk of release of hazardous materials being transported via these railways (see Chapter 19, *Transportation,* for a description).

In summary, during construction of the water conveyance facilities, the potential would exist for direct effects on construction personnel, the public and/or the environment associated with a variety of potentially hazardous conditions because of the intensity of construction activities at the north Delta intakes, forebays, conveyance pipelines, and tunnels, and because of the hazardous materials that would be used in these areas. Many of these physical and chemical hazardous conditions would occur in close proximity to the towns of Hood and Courtland during construction of the north Delta intakes and geotechnical investigations. This is particularly true for the town of Hood because a temporary~~permanent~~ 69 kV transmission line would be constructed ~~in~~ around the town to the north, east and south~~Hood~~, a 111-acre temporary intake work area would be potentially be located immediately south of the town, ~~and~~ the town is located between Intakes 3 and 5, and geotechnical investigation activities (e.g., land boring and cone penetration) would be implemented within the town, as well as to the immediate north and south. It is expected that the temporary intake work area would likely be used for offices, equipment staging, delivery, parking, and it is not anticipated that heavy-duty construction activities would occur there. Additionally, large-scale construction activities involving the use of hazardous materials would be located in and near water bodies. Potential hazards include the routine transport, use or disposal of hazardous materials; natural gas accumulation in water conveyance tunnels; the inadvertent release of existing contaminants in soil and groundwater, or hazardous materials in existing infrastructure to be removed; disturbance of existing electrical transmission lines; and hazardous constituents present in RTM. Additionally, there is the potential for the construction of the water conveyance facilities to indirectly result in the release of hazardous materials through the disruption of existing road, rail, or river hazardous materials transport routes because construction would occur in the vicinity of three hazardous material transport routes, three railroad corridors, and waterways with barge traffic and

would require construction traffic that could disrupt these routes. Were any of these potential hazards to occur the effect would be ~~These potential effects are~~ considered adverse because ~~they~~ it would potentially result in direct exposure of the public (including construction personnel), and surface water and groundwater to physical and/or chemical hazards as discussed. Mitigation Measures HAZ-1a and HAZ-1b, UT-6a and UT-6c (described in Chapter 20, *Public Services and Utilities*) and TRANS-1a (described in Chapter 19, *Transportation*), combined with the previously described environmental commitments are available to address these effects. As such, construction of the water conveyance facilities would not create a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or the upset/accidental release of these materials. Accordingly, this would not be an adverse effect.

CEQA Conclusion: During construction of the water conveyance facilities, the potential would exist for direct impacts on construction personnel, the public and/or the environment associated with a variety of hazardous physical or chemical conditions. Such conditions may arise as a result of the intensity and duration of construction activities at the north Delta intakes, forebays and conveyance pipelines and tunnels, and the hazardous materials that would be needed in these areas during construction. Potential hazards include the routine use of hazardous materials (as defined by Title 22 of the California Code of Regulations, Division 4.5); natural gas accumulation in water conveyance tunnels; the inadvertent release of existing contaminants in soil, sediment, and groundwater, or hazardous materials in existing infrastructure to be removed; disturbance of electrical transmission lines; and hazardous constituents present in RTM. Many of these physical and chemical hazardous conditions would occur in close proximity to the towns of Hood and Courtland during construction of the north Delta intakes. This is particularly true for the town of Hood because a ~~permanent~~ temporary 69 kV transmission line would be constructed around the town ~~in Hood~~ of Hood, the town is located between Intakes 3 and 5, and a 111-acre temporary intake work area would potentially be located immediately south of the town, and geotechnical investigation activities (e.g., land boring and cone penetration) would be implemented within and to the immediate north and south of the town. ~~While~~ Although the implementation of environmental commitments ~~would be implemented as previously described~~ (e.g., SWPPPs, HMMPs, SPCCPs, SAPs, and a Barge Operations Plan) would help minimize the severity of this impact~~Additionally~~, the potential would still exist for the construction of the water conveyance facilities to indirectly result in the release of hazardous materials through the disruption of existing road, rail, or river hazardous materials transport routes because construction would occur in the vicinity of three hazardous material transport routes, three railroad corridors, and waterways with barge traffic and would require construction traffic that could disrupt these routes. For these reasons, this is considered a significant impact. However, with the implementation of ~~the previously described environmental commitments (e.g., SWPPPs, HMMPs, SPCCPs, SAPs, and a Barge Operations Plan) and~~ Mitigation Measures HAZ-1a and HAZ-1b, UT-6a and UT-6c (described in Chapter 20, *Public Services and Utilities*), and TRANS-1a (described in Chapter 19, *Transportation*), construction of the water conveyance facilities would not create a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or the upset/accidental release of these materials. These mitigation measures would reduce the severity of this impact to a less-than-significant level by identifying, avoiding, containing, and remediating suspected contaminated areas and structures containing hazardous material, and thereby preventing the release of hazardous materials into the environment; verifying the location of utility infrastructure prior to construction and relocating this infrastructure, as necessary, to minimize or avoid effects on worker and public health safety; reducing the potential for hazardous materials releases from trains within BDCP construction areas by coordinating with rail providers to develop alternative interim transportation

modes, and daily construction time windows during which construction would be restricted or rail operations would need to be suspended for any activity within railroad rights of way. Accordingly, these mitigation measures would reduce the severity of this impact to a less-than-significant level.

Mitigation Measure HAZ-1a: Perform Preconstruction Surveys, Including Soil and Groundwater Testing, at Known or Suspected Contaminated Areas within the Construction Footprint, and Remediate and/or Contain Contamination

BDCP proponents will identify potential areas of hazardous materials and remediate and/or contain contamination in order to reduce the likelihood of hazardous materials being released into the environment. The BDCP proponents will perform preconstruction hazardous waste investigations at properties to be acquired for construction associated with the BDCP. Areas to be excavated as part of construction of (e.g., for water conveyance facilities, shaft locations, concrete batch plants, intake locations, RTM storage areas, staging areas, forebays, borrow and spoil sites, barge unloading, restoration activities, and other appurtenant facilities) where historical contamination has been identified (e.g., SOCs) or where contamination is suspected (e.g., as evidenced by soil discoloration, odors, differences in soil properties, abandoned USTs) will undergo soil and/or groundwater testing at a certified laboratory provided that existing data is not available to characterize the nature and concentration of the contamination. Where concentrations of hazardous constituents, such as fuel, solvents or pesticides in soil or groundwater, exceed applicable federal or state thresholds, contaminated areas will be avoided or soil and/or groundwater removed from the contaminated area will be remediated and contained in compliance with applicable state and federal laws and regulations. If hazardous materials are encountered, consultation with the regional DTSC office will be required to establish which permit and subsequent action will be required to appropriately handle those hazardous materials. Groundwater removed with the dewatering system would be treated, as necessary, and discharged to surface waters under an NPDES permit (see Chapter 8, *Water Quality*).

Implementation of this mitigation measure will result in the avoidance, successful remediation or containment of all known or suspected contaminated areas, as applicable, within the construction footprint, which would prevent the release of hazardous materials from these areas into the environment.

Mitigation Measure HAZ-1b: Perform Pre-Demolition Surveys for Structures to Be Demolished within the Construction Footprint, Characterize Hazardous Materials and Dispose of Them in Accordance with Applicable Regulations

BDCP proponents will perform surveys and characterize and dispose of hazardous materials in order to reduce the likelihood that hazardous materials are released into the environment. Where demolition of existing structures is necessary, measures will be implemented to ensure hazards are avoided or minimized and that the release of hazardous materials, such as residual fuel in underground fuel storage tanks, or lead-based paint or asbestos-containing materials in buildings, is avoided. These measures will include the following practices.

- Perform pre-demolition surveys to identify all potentially hazardous materials, including asbestos-containing material and lead-based paint.

- Coordinate with owners of property to be acquired by BDCP proponents to help identify potentially hazardous infrastructure and/or infrastructure containing potentially hazardous materials.
- Characterize and separate hazardous materials from structures before demolition and ensure that such materials are disposed of at an approved disposal site according to applicable regulations.
- Remove underground fuel storage tanks and contents to a licensed disposal site where the tanks will be scraped and the contents disposed of in accordance with applicable regulations.
- Disposal of materials containing PCBs will comply with all applicable regulations, codes, and ordinances. Disposal of large quantities of PCB waste will occur at incinerators approved for burning of PCB-containing waste.
- Implement proper handling and disposal procedures for potentially hazardous materials, such as solvents and household or industrial-strength maintenance chemicals and cleaners in buildings to be demolished.
- As applicable, a Cal-OSHA-certified asbestos and lead-based paint contractor will prepare a site-specific asbestos and/or lead hazard control plan with recommendations for the containment of asbestos and/or lead-based paint materials during demolition activities, for appropriate disposal methods and locations, and for protective clothing and gear for abatement personnel. Site-specific asbestos abatement work would meet the requirements of both the federal Clean Air Act and Cal-OSHA (CCR Title 8, Subchapter 4, Article 4, Section 1529). If asbestos-containing materials are found, contractors licensed to conduct asbestos abatement work will be retained and will direct the abatement. In addition, the applicable Air Quality Management District(s) will be notified 10 days prior to initiation of demolition activities of asbestos-containing materials.
- Containers suspected of, or confirmed as, containing lead-based paint will be separated from other building materials during the demolition process. Separated paint will be classified as a hazardous waste if the lead content exceeds 1,000 parts per million and will be disposed of in accordance with applicable regulations.
- Sewer lines will be plugged with concrete to prevent soil and/or groundwater contamination, and the end of the lines will be flagged above ground for future location and identification.
- Gas lines will be plugged or capped and the end of the lines will be flagged above ground for future location and identification.
- The use of explosives for demolition will not be allowed for any structures that contain asbestos, lead-based paint, or any other hazardous materials in concentrations that would create a substantial hazard to the public or the environment should they become airborne as a result of blasting.
- Hazardous waste, including contaminated soil, generated at demolition sites will be handled, hauled, and disposed of at an appropriately licensed disposal facility under appropriate manifest by a licensed hazardous waste hauler.

Implementation of this measure will ensure that hazardous materials present in or associated with structures being demolished will not be released into the environment.

Mitigation Measure UT-6a: Verify Locations of Utility Infrastructure

Please see Mitigation Measure UT-6a under Impact UT-6 in the discussion of Alternative 1A in Chapter 20, *Public Services and Utilities*.

Mitigation Measure UT-6c: Relocate Utility Infrastructure in a Way That Avoids or Minimizes Any Effect on Worker and Public Health and Safety

Please see Mitigation Measure UT-6c under Impact UT-6 in the discussion of Alternative 1A in Chapter 20, *Public Services and Utilities*.

Mitigation Measure TRANS-1a: Implement Site-Specific Construction Traffic Management Plan

Please see Mitigation Measure TRANS-1a under Impact TRANS-1 in the discussion of Alternative 1A in Chapter 19, *Transportation*.

Impact HAZ-2: Expose Sensitive Receptors Located within 0.25 Mile of a Construction Site to Hazardous Materials, Substances, or Waste during Construction of the Water Conveyance Facilities

NEPA Effects: An adverse effect may occur if a construction work site is located within 0.25 mile of an existing or proposed school, or other sensitive receptor, and releases hazardous materials that pose a health hazard. There are no hospitals or parks located within 0.25 mile of Alternative 4. However, as shown in Figure 24-8, Excelsior Middle School in Byron would be within 0.25 mile of the construction footprint for Alternative 4. The school would be near a proposed ~~temporary~~ permanent 230 kV transmission line running to the southeast and northwest. Construction of the transmission line would require the use of heavy equipment, such as dozers, cranes, and off-road work trucks, which would require the routine use of hazardous materials (e.g., fuels, solvents, oil and grease). Consequently, there would be the risk of accidental spills or equipment leaks of these types of hazardous materials, as discussed under Impact HAZ-1.

Although there would be a risk of accidental spills of hazardous materials (e.g., fuels, solvents, paints) during the construction of the proposed ~~temporary~~ transmission line, and generally where heavy construction equipment is operated, the quantities of hazardous materials likely to be used during construction activities are likely to be small. Were hazardous materials to be released inadvertently, spills or equipment leaks would be localized and minimal, and thus there would be no risk to anyone not in immediate proximity to these releases spills. Further, as discussed under Impact HAZ-1, BMPs to minimize the potential for the accidental release of hazardous materials and to contain and remediate hazardous spills, as part of the SWPPPs, SPCCPs, and HMMPs, would be implemented, as set forth in Appendix 3B, *Environmental Commitments.* Therefore, the students and staff at Excelsior Middle School would not be exposed to hazardous materials, substances, or waste during construction of the water conveyance facilities. As such, there would be no adverse effect. Potential air quality effects on sensitive receptors are discussed in Chapter 22, *Air Quality and Greenhouse Gases.*

In addition, under this alternative, an operable barrier would be constructed at the head of Old River near the Mossdale Village area of Lathrop, adjacent to land designated for public use and which could include future schools or parks. If a school or park were built prior to the completion of construction of the operable barrier, sensitive receptors would be in close proximity to BDCP construction activities, creating the potential for an adverse effect. However, because there is currently no school or park within 0.25 mile of the operable barrier site, and because no school or park is currently proposed within 0.25 mile of that site, there would be no adverse effect on sensitive receptors at this site.

CEQA Conclusion: A significant impact may occur if a construction work site is located within 0.25 mile of an existing or proposed school, or other sensitive receptor, and releases hazardous materials that pose a health hazard. There are no parks or hospitals located within 0.25 mile of the Alternative 4 water conveyance facilities alignment. However, Excelsior Middle School is located within 0.25 mile of the proposed construction footprint of a proposed ~~temporary~~ permanent 230 kV transmission line. Additionally, under this alternative, an operable barrier would be constructed at the head of Old River near the Mossdale Village area of Lathrop, adjacent to land designated for public use and which could include future schools or parks. If a school or park were built prior to the completion of construction of the operable barrier, sensitive receptors would be in close proximity to BDCP construction activities, creating the potential for an impact on those types of sensitive receptors. However, no school or park is currently proposed within 0.25 mile of the proposed operable barrier site.

Construction of the 230 kV ~~temporary~~ transmission line would require the routine use of hazardous materials (e.g., fuels, solvents, oil and grease) because heavy machinery such as cranes, off-road work trucks, and dozers would be required. Consequently, there would be the risk of accidental spills and equipment leaks of these types of hazardous materials during construction of the transmission line. However, the quantities of hazardous materials likely to be used during construction activities are likely to be small. Were hazardous materials to be released inadvertently, spills or equipment leaks would be localized and minimal, and thus there would be no risk to anyone not in immediate proximity to these releases. Further, BMPs to minimize the potential for the accidental release of hazardous materials and to contain and remediate hazardous spills, as part of the SWPPPs, SPCCPs, and HMMPs, would be implemented. Therefore, staff and students at Excelsior Middle School would not be at risk or adversely affected by exposure to hazardous materials, substances, or waste during construction of the water conveyance facilities. As such, this impact would be less than significant. No mitigation is required.

Potential air quality effects on sensitive receptors are discussed in Chapter 22, *Air Quality and Greenhouse Gases.*

Impact HAZ-3: Potential to Conflict with a Known Hazardous Materials Site and, as a Result, Create a Significant Hazard to the Public or the Environment

NEPA Effects: As described in Section 24.1, the storage and use of bulk quantities of hazardous materials, such as pesticides, fuels, and solvents, is common throughout the study area. The locations of known or suspected SOCs that may have contaminated soils and/or groundwater were identified in the study area during the ISA and are presented in Figure 24-4. SOCs within 0.5 mile of the construction footprint, as well as those within the construction footprint, for this alternative are identified in Table 24-5. The number of SOCs may change during right-of-way evaluation, land acquisition and preconstruction site-clearance investigations or during construction. Additional

SOCs may be identified during these activities, and currently identified SOCs may be determined innocuous after site-specific field investigation and testing.

California Government Code 65962.5 directs DTSC to compile a list, known as the "Cortese List," of hazardous materials sites. These sites consist of leaking underground storage tanks, solid waste facilities, landfills and sites with potential or confirmed hazardous substance releases. Although this list is no longer updated by the state, it nonetheless provides valuable information to developers to prevent the re-release of hazardous materials resulting from excavation or disturbance of hazardous materials by preventing unanticipated disturbance of these sites. "Cortese List" sites make up a subset of the mapped SOCs.

There are no "Cortese List" sites or known SOCs within the construction footprint of Alternative 4 (Table 24-5 and Figure 24-4). As such, there would be no conflict pertaining to a known hazardous materials site during construction, including for either the north-south or east-west transmission line option, for this alternative of the water conveyance facilities, and thus, no related hazard to the public or the environment. For those hazardous materials sites identified within the 0.5-mile radius but which are not within the construction footprint, there would be no potential for construction of the water conveyance facilities to disturb those sites such that there would be a re-release of hazardous materials that would create a hazard for the public or environment. As such, there would be no effect. The potential for encountering unknown hazardous materials sites during the course of construction is discussed under Impact HAZ-1.

CEQA Conclusion: Because there are no known SOCs within the construction footprint of the water conveyance facility for Alternative 4 there would be no conflict with known hazardous materials sites during construction of the water conveyance facilities, and therefore, no related hazard to the public or the environment. Accordingly, there would be no impact. No mitigation is required. The potential for encountering unknown hazardous materials sites during the course of construction is discussed under Impact HAZ-1.

Impact HAZ-4: Result in a Safety Hazard Associated with an Airport or Private Airstrip within 2 Miles of the Water Conveyance Facilities Footprint for People Residing or Working in the Study Area during Construction of the Water Conveyance Facilities

NEPA Effects: Development around an airport, particularly in the approach and departure paths, can create obstructions in the airspace traversed by an approaching or departing aircraft. Additionally, certain land uses have the potential to create hazards to aircraft such as a distracting glare, smoke, steam, or invisible heat plumes. Safety impacts from aircraft accidents near airports are typically avoided by specifying the types of land uses allowed, and thereby limiting the number of people who would be exposed to the risk of an accident, and avoiding land uses that could create hazards to air traffic. Airspace protection primarily involves limitations on the height of objects on the ground near airports.

High-profile construction equipment, such as tall cranes for installation of pipelines, placement of concrete fill in intake piles, and removal of cofferdam sheet piles, for example, and pile drivers, such as would be used during the construction of the intakes, have the potential to result in safety hazards to aircraft during takeoff and landing if the equipment is operated too close to runways. It is not yet known what the maximum height of the high-profile construction equipment that would be used would be. Tower cranes, for example, may be required, and a typical tower crane can have a total height greater than 200 feet—a height that could be considered an obstruction or hazard to

navigable air space if located near an airport. ~~Similarly, tall structures, such as the surge tower at the pumping plant for Intake 2, could also pose a risk to air safety.~~

As shown in Figure 24-9 and Table 24-6, three private airports (Borges-Clarksburg Airport, Spezia Airport, and Flying B Ranch Airport) and two public airports (Byron Airport and Franklin Field Airport) are located within 2 miles of the water conveyance facilities for Alternative 4. The Borges-Clarksburg Airport, located 2 miles northeast of the town of Clarksburg, is within 2 miles of ~~several proposed water conveyance facilities features —~~a ~~fueling station~~tunnel work area~~;~~, a temporary access road, and a RTM area~~,; a concrete batch plant; a borrow and/or spoils area; a temporary work area; and permanent and temporary access roads.~~ Spezia Airport, on Tyler Island, is within 2 miles of ~~a proposed temporary 230 kV transmission line~~two ventilation/access shafts, a tunnel work area, and a permanent access road. Flying B Ranch Airport, in Elk Grove, is within 2 miles of a proposed temporary~~permanent~~ 230 kV transmission line. Byron Airport, less than 1.5 miles west of Clifton Court Forebay, is within 2 miles of a proposed RTM area; a proposed permanent access road, as well as a temporary access road; a proposed permanent 230 kV ~~temporary~~ transmission line; temporary work areas; and a siphon and a canal related to the proposed expansion of Clifton Court Forebay. Franklin Field Airport, approximately 4 miles southeast of Franklin, is less than 1 mile from ~~the~~ a proposed ~~permanent~~ temporary 230 kV transmission line. In addition, an existing 230 kV and 500 kV transmission line, both located south of Clifton Court Forebay, would be relocated to an area further south/southeast within 0.5 mile of their original location. However, because the nearest airport, Byron Airport, is over 3 miles away, this work is not expected to pose an air safety hazard. With the exception of the proposed transmission lines, construction of these features or work in these areas would not require the use of high-profile construction equipment. Because construction of the proposed transmission lines would potentially require high-profile equipment (e.g., cranes), and because construction of the proposed 230 kV transmission lines would require the use of helicopters during the stringing phase, the safety of air traffic arriving or departing from either of these airports could be compromised during construction of the proposed transmission lines.

To help ensure protection of airspace, under 14 CFR Part 77, the FAA requires project proponents to inform them about proposed construction or alteration of objects within 20,000 feet of a public-use or military runway and having a height exceeding a 100:1 imaginary surface (1 foot upward per 100 feet horizontally) beginning at the nearest point of the runway for runways greater than 3,200 feet in length. For shorter public-use or military runways, the notification surface has a 50:1 slope and extends 10,000 feet from the runway. Exceptions to this notification requirement are made for "any object that would be shielded by existing structures of a permanent and substantial character or by natural terrain or topographic features of equal or greater height, and would be located in the congested area of a city, town, or settlement where it is evident beyond all reasonable doubt that the structure so shielded would not adversely affect safety in air navigation." Notice must be provided for temporary objects such as construction cranes and any object more than 200 feet in height above ground level or above the established airport elevation. Notification of the FAA enables them to evaluate the effect of the proposed object on air navigation through an aeronautical study (OE/AAA). The OE/AAA will indicate whether the project would have a "substantial adverse effect" on air safety. If it is determined that the proposed structure or structures exceeds obstruction standards or will have an adverse effect on navigable airspace, the project proponent is given the opportunity to amend the project proposal to avoid the impact; adjustments to aviation requirements that would accommodate the project are investigated as well. As described in Section 24.2.2.17, *State Aeronautics Act*, ~~The State Aeronautics Act (Public Utilities Code, Section 21001 et seq.) authorizes Caltrans and local governments to protect navigable airspace and prohibits the construction of any~~

~~structure or permitting any natural growth of a height which would constitute a hazard to air navigation unless Caltrans first issues a permit (Public Utilities Code, Section 21659). The permit is not required if the FAA has determined that the structure or growth does not constitute a hazard to air navigation or would not create an unsafe condition for air navigation.~~ Caltrans requires notification, in writing, for proposed construction of any state building or enclosure within 2 miles of any airport before an agency acquires title to the property for the building or enclosure or for an addition to an existing site (Public Utilities Code, Section 21655). Caltrans would respond with a written investigation report of the proposed site and provide recommendations, as necessary, to reduce potential hazards to air navigation. As part of an environmental commitment pursuant to the State Aeronautics Act (see Section 24.2.2.17), DWR would adhere to these recommendations (e.g., recommendations for the marking and/or lighting of temporary or permanent structures exceeding an overall height of 200 feet above ground level), which would reduce the potential for adverse effects on air safety, as would compliance with the recommendations of the OE/AAA. Accordingly, this would not be an adverse effect (see Appendix 3B, *Environmental Commitments*).

CEQA Conclusion: The use of helicopters for stringing the proposed 230 kV transmission lines and relocating the existing 230 kV and 500 kV transmission lines, and of high-profile construction equipment (200 feet or taller), such as cranes, for installation of pipelines, and potentially pile drivers, such as would be used during the construction of the intakes, have the potential to result in safety hazards to aircraft during takeoff and landing if the equipment is operated too close to runways. Three private airports (Borges-Clarksburg Airport, Spezia Airport, and Flying B Ranch Airport) and two public airports (Byron Airport and Franklin Field Airport~~)are~~) are located within 2 miles of the construction footprint of several features of the water conveyance facilities for Alternative 4, including temporary and permanent transmission lines. Relocation of the existing 230 kV and 500 kV transmission lines is not expected to result in an air safety hazard because the nearest airport to the new location is greater than 3 miles away.

DWR would coordinate with Caltrans' Division of Aeronautics prior to initiating construction and comply with its recommendations based on its investigations and compliance with the recommendations of the OE/AAA (for Byron and Franklin Field Airports). These recommendations, which could include limitations necessary to minimize potential problems such as the use of temporary construction equipment, supplemental notice requirements, and marking and lighting high-profile structures, would reduce potential impacts on air safety. Accordingly, this impact would be less than significant. No mitigation is required.

Impact HAZ-5: Expose People or Structures to a Substantial Risk of Property Loss, Personal Injury or Death Involving Wildland Fires, Including Where Wildlands Are adjacent to Urbanized Areas or Where Residences Are Intermixed with Wildlands, as a Result of Construction, and Operation and Maintenance of the Water Conveyance Facilities

NEPA Effects: As shown in Figure 24-10, no portion of Alternative 4 is located in or near an area designated as a High or Very High Fire Hazard Severity Zone. The northernmost and southernmost portions of Alternative 4, where intake facilities and ~~fuelingfuel~~ stations, and the expanded Clifton Court Forebay, respectively, would be located, are near Moderate Fire Hazard Severity Zones (Figure 24-10), as is the site of the operable barrier at the head of Old River. Construction, operation, and maintenance of the water conveyance facilities would involve the use of equipment and ignitable materials, and would involve activities that could potentially start fires. For example, as discussed in Chapter 3, *Description of Alternatives,* facility maintenance would consist of activities such as painting, cleaning, repairs, and other routine tasks. Some of these activities would involve

the use of flammable chemicals, such as fuels and solvents, which could be inadvertently ignited by sparks from equipment/machinery if proper safety measures were not employed. Further, during construction, fires could be caused by a variety of factors, including vehicle exhaust, welding activities, parking on dry grass, and accidental ignition of fuel. However, as previously discussed, the study area mainly consists of agricultural lands with pockets of rural residential land uses that are not adjacent to wildlands, as well as residential areas that are intermixed with wildlands. The potential for construction or operation and maintenance activities to generate hazards associated with wildland fires would be minimal. Further, as described in Appendix 3B, *Environmental Commitments*, measures to prevent and control wildland fires would be implemented by DWR during construction, operation, and maintenance of the water conveyance facilities in full compliance with Cal-OSHA standards for fire safety and prevention. These measures would include, but not be limited to, the following.

- Construction sites will have an adequate onsite supply of water and all-weather access for firefighting equipment and emergency vehicles.
- A list of all major fire hazards, proper handling and storage procedures for hazardous materials, potential ignition sources and their control, and the type of fire protection equipment necessary to control each major hazard.
- ~~No fires will be allowed at work sites.~~ Smoking will be allowed only in areas designated for smoking, and these areas will be cleared of vegetation, or in enclosed vehicles. Cigarette butts are to be disposed of in car ashtrays or other approved disposal containers and dumped daily in a proper receptacle off the work site.
- The contractor will be responsible for maintaining appropriate fire suppression equipment at the work site including an all-wheel drive water truck or fire truck with a water tank of at least 3,000 gallon capacity. Fire extinguishers, shovels and other firefighting equipment will be available at work sites and on construction equipment. Each vehicle on the ROW will be equipped with a minimum 20 pound (or two 10 pound) fire extinguisher(s) and a minimum of 5 gallons of water in a fire fighting apparatus (e.g., bladder bag).
- At the work site, a sealed fire toolbox will be located at a point accessible in the event of fire. This fire toolbox will contain: one back-pack pump-type extinguisher filled with water, two axes, two McLeod fire tools, and enough shovels so that each employee at the work site can be equipped to fight fire.
- Gasoline-powered construction equipment with catalytic converters will be equipped with shielding or other acceptable fire prevention features. Internal combustion engines will be equipped with spark arrestors.
- Welding sites will include fire prevention provisions.
- The contractor will maintain contact with local firefighting agencies throughout the fire season for updates on fire conditions, and such fire conditions will be communicated to the contractor's employees daily.
- Vehicles will be restricted to the work site unless otherwise allowed for fire control procedures.
- Depending on the characteristics of the construction site, the dimensions and use of the rooms, the on-site equipment, the physical and chemical properties of the substances present and the maximum potential number of workers present, an adequate number of appropriate basic fire-

fighting devices and, where required, automatic fire extinguishing systems shall be provided at the site.

- Basic fire-fighting devices and automatic fire extinguishing systems shall be regularly maintained, checked and tested.
- Basic fire-fighting devices shall be positioned in a visible place which is free from obstruction.
- The location of fire-fighting equipment shall be indicated by fire safety signs. The signs shall be sufficiently resistant and placed at appropriate points.
- If substances which can cause combustion or substances the use of which may produce explosive dust or gas are used or preserved on a construction site, special protective measures (ventilation, prohibition on the use of open fire, etc.) shall be applied in order to prevent the risk of fire and explosion.
- Every person at work on a construction site shall, so far as is reasonably practicable, be instructed in the correct use of any fire-fighting equipment which it may be necessary for him to use.

These measures and potentially others will be guided by implementation of a FPCP in coordination with federal, state, and local agencies, as part of the project as an environmental commitment (Appendix 3B, *Environmental Commitments*). Because development and implementation of measures under the FPCP would help ensure that people or structures would not be subject to a substantial risk of loss, injury or death involving wildland fires and because the proposed water conveyance facilities would not be located in a High or Very High Fire Hazard Severity Zone, this effect would not be adverse.

CEQA Conclusion: People or structures would not be subject to a significant risk of loss, injury or death involving wildland fires during construction or operation and maintenance of the water conveyance facilities because the alternative would comply with Cal-OSHA fire prevention and safety standards; DWR would implement standard fire safety and prevention measures as part of an FPCP (Appendix 3B, *Environmental Commitments*); and because the water conveyance facilities would not be located in a High or Very High Fire Hazard Severity Zone. Therefore, this impact would be less than significant. No mitigation is required.

Impact HAZ-6: Create a Substantial Hazard to the Public or the Environment through the Release of Hazardous Materials or by Other Means during Operation and Maintenance of the Water Conveyance Facilities

NEPA Effects: During long-term operation and maintenance of the water conveyance facilities, the transport, storage, and use of chemicals or hazardous waste materials may be required. Hazardous waste generated at facility sites will be handled, hauled, and disposed of at an appropriately licensed disposal facility under appropriate manifest by a licensed hazardous waste hauler (see Appendix 3B, *Environmental Commitments*). Maintenance requirements for the tunnels ~~several of the water conveyance facilities features (e.g., tunnels)~~ have not yet been finalized (See Chapter 3, Section 3.6.1.2, for a general description of the operation and maintenance requirements for the water conveyance facilities). However, the operation and maintenance of certain alternative features, such as the ~~intake~~ pumping plants, would require the use of hazardous materials, such as fuel, oils, grease, solvents, and paints. For example, planned maintenance at pumping facilities would include checking oil levels, replacing oil in the pumps, and greasing pump bearings. Additionally, routine facility maintenance would involve painting ~~of~~ the pumping plants and appurtenant structures,

cleaning, repairs, and other routine tasks that ensure the facilities are operated in accordance with design standards.

Under this alternative, in which only three intake facilities would be operated and maintained, the potential for hazards associated with the two~~intake~~ pumping plants and sediment basins would be less widespread than under alternatives with five intake facilities. Furthermore, Alternative 4 does not involve an intermediate pumping plant at the intermediate forebay; the relatively smaller, control structure that would replace it would potentially have fewer or less intense hazards associated with its operation and maintenance. However, the operation and maintenance of an operable barrier under this alternative would expand the potential for hazards. Solids collected at the solids lagoons, and sediment dredged during periodic maintenance dredging at the intakes and operable barrier at the head of Old River may contain hazardous constituents (e.g., persistent pesticides, mercury, PCBs). Sediment accumulation in both the northern and southern portion of the expanded Clifton Court Forebay is expected to be minimal over the 50-year permit period. However, it is anticipated that there may be some sediment accumulation at the inlet structure of the northern portion of Clifton Court Forebay. Therefore, while overall sediment accumulation in this forebay is not expected to be substantial, some dredging may be required at the inlet structure to maintain an even flow path.

Facility equipment maintenance would be required for the ~~intake~~ two pumping plants near Clifton Court Forebay, the sedimentation basins and solids lagoons, the intermediate forebay, the control structure at the proposed expanded Clifton Court Forebay and at the operable barrier and boat lock at the head of Old River. Timing of maintenance activities would be variable and would be dictated by the schedule and day-to-day requirements of specific components being maintained. Maintenance activities at the intakes would include debris and sediment removal, biofouling and corrosion prevention, and repairs following physical impacts to the intake structures. Sediment and solids removal from the sedimentation basins and solids lagoons, respectively, is expected to be an ongoing process during operation of the water conveyance facilities. During operation of the water conveyance facilities, water would enter sedimentation basins at three intakes along the east bank of the Sacramento River in the north Delta. Settled sediment would then be pumped to solids lagoons where it would be dewatered and removed for disposal off site; sediment pore water would be pumped back into the sedimentation basins. The dewatered solids, like sediment dredged at the intakes, may contain pesticides from agricultural and urban areas, metals or organic compounds from urban stormwater runoff, and mercury from historic mining upstream of the Delta. The wide variety of pesticides that has been applied, the numerous crops grown in the region, and the fact that predominant land use across the Delta supports agriculture indicate that persistent pesticides that have been widely applied (e.g., organochlorines) and are likely to be found in the soils and potentially sediment throughout the Delta. Because of their relatively low water solubility, persistent pesticides and compounds generally accumulate in the environment in sediment and soil as well as in the fatty tissue of terrestrial and aquatic animals and humans. Human exposure to organochlorine pesticides is primarily through the diet. No comprehensive area-wide soil or sediment sampling program is known to have been conducted to evaluate pesticide residues from agricultural use. Thus, it is not known if persistent pesticide concentrations in dewatered solids from the solids lagoons, or in dredged sediment from around the intakes, would exceed applicable federal or state standards. As previously described, although the concentration of mercury in sediment throughout the study area is not known, one study indicated that the mercury concentration in sediment (suspended) at Freeport, just upstream of the intake locations, was less than 10 ng/l, below the recommended criterion of 50 ng/l (Domagalski 2001).

Based on a worst-case scenario for alternatives with three intakes, considering the throughput of the intakes at a maximum flow of 3,000 cfs, less than 100,000 dry pounds of solids per day would be pumped to the solids lagoons. During periods of high sediment load in the Sacramento River, the daily mass of solids would be expected to increase to up to approximately 152,000 dry pounds per day. The annual volume of solids is anticipated to be less than 300,000 cubic feet (dry solids). An anticipated 10,800 cubic yards of dry sediment/solids would be produced annually as a result of maintenance of the solids lagoons with three intakes operating. Potentially contaminated solids could pose a hazard to the environment if improperly disposed of, which would be considered an adverse effect. However, with ~~I~~implementation of Mitigation Measure HAZ-6-, solids from the solids lagoons would be sampled and characterized to evaluate disposal options, and disposed of accordingly at an appropriate, licensed facility. Implementation of the mitigation measure would help ensure that there are no adverse effects on soil, groundwater or surface water due to improperly disposed of solids from the solids lagoons. Dewatered solids may require special management to meet discharge/disposal requirements.

To ensure that potentially contaminated sediment from maintenance dredging activities would not adversely affect soil, groundwater or surface water, a SAP would be implemented prior to any dredging activities, as described under Impact HAZ-1 for this alternative. All dredged sediment would be characterized chemically prior to reuse to ensure that reuse of this material would not result in a hazard to the public or the environment. To the extent practicable, scheduled routine and emergency maintenance activities associated with equipment at the intakes would be conducted at a permanent maintenance facility located at one of the three intakes sites; the precise location has not yet been determined. Replacement of erosion protection on the levees and embankments would also occur periodically.

The operable barrier at the head of Old River would require control gate maintenance every 5 to 10 years; and annual maintenance of the motors, compressors, and control systems. The site would also include a boat lock operator's building and a control building, which would both require periodic routine maintenance. All these would involve potentially hazardous fluids, as described below. Maintenance dredging around the gate to clear out sediment deposits could occur every 3 to 5 years, and spoils would be dried in adjacent areas. Implementation of a SAP prior to any dredging activities would help ensure that there are no adverse effects on soil, groundwater or surface water due to improperly disposed of or reused sediment.

Some of the materials used in routine facility and equipment maintenance may include hydraulic oil for lubricating machinery, fuel, batteries for vehicles and equipment, nitrogen, carbon dioxide or clear agent fire suppression, paints, cleaning solvents and chemicals, and pesticides and herbicides for grounds maintenance. Some of these materials, for example, bulk fuel and lubricants, would likely be stored in the maintenance facilities. Vehicle fueling that occurs during operations and maintenance activities and could pose the risk of fueling spills and leakage from bulk fuel storage tanks. Accidental release of fuels, lubricants, solvents, grounds care chemicals (e.g., fertilizers, pesticides and herbicides), and other hazardous materials could potentially have adverse effects if not contained or if released in large enough quantities, as described under Impact HAZ-1 above. However, under normal use, the inadvertent release of these types of chemicals would likely only have the potential to result in minor, temporary hazards to workers immediately adjacent to these releases. Because these chemicals would be used in small quantities and inadvertent releases would be localized, and because, as discussed under Impact HAZ-1, environmental commitments implemented as part of the HMMPs, SPCCPs, and SWPPPs, including equipping facility buildings with spill containment and cleanup kits; ensuring that hazardous materials containment containers are

clearly labeled with identity, handling and safety instructions, and emergency contact information; and requiring that personnel be trained in emergency response and spill containment techniques, would minimize the potential for the accidental release of hazardous materials and would help contain and remediate hazardous spills should they occur, it is unlikely that the general public or the environment would be adversely affected due to these types of activities.

Although Excelsior Middle School is within 0.25 mile of the construction footprint for Alternative 4, no hazards would be expected to potentially affect school children or staff at this school as a result of operations and maintenance of the water conveyance facility. The school is located within 0.25 miles of a proposed ~~temporary~~ permanent 230 kV transmission line~~,~~ the maintenance of which would not pose a hazard to the school children or staff given that the school would be approximately 0.25 miles from the proposed transmission line. ~~which would only be necessary during construction of the water conveyance facility; this feature would be removed once construction was completed, and therefore no operation or maintenance of that feature would be required~~ There are no hospitals or parks located within 0.25 mile of the construction footprint.

The locations of airports with respect to the pipeline/tunnel alignment are provided in Figure 24-9. The Borges-Clarksburg, Flying B Ranch, and Spezia Airports (private air facilities), and Byron and Franklin Field Airports (public air facilities) would be within 2 miles of this alternative's construction footprint (Figure 24-9 and Table 24-6), as described under Impact HAZ-4 for this alternative. With the exception of power transmission lines supplying power to pumps, ~~surge towers, and other equipment used for water conveyance facilities operation and maintenance,~~ water conveyance facilities operations and maintenance are not anticipated to require high-profile equipment (i.e., equipment with a vertical reach of 200 feet or more), the use of which near an airport runway could result in an adverse effect on aircraft. DWR would adhere to all applicable FAA regulations (14 CFR 77) and coordinate and comply with Caltrans' Division of Aeronautics when performing work with high-profile equipment within 2 miles of an airport to avoid adverse effects on air safety. Compliance with these recommendations, which could include limitations necessary to minimize potential problems, such as the use of temporary construction equipment, supplemental notice requirements, and marking and lighting high-profile structures would reduce the potential for impacts on air safety.

In summary, during routine operation and maintenance of the water conveyance facilities the potential would exist for the accidental release of hazardous materials and other potentially hazardous releases (e.g., contaminated solids and sediment), and for interference with air safety should high-profile equipment be required for maintenance of the proposed transmission lines near an airport. Accidental hazardous materials releases, such as chemicals directly associated with routine maintenance (e.g., fuels, solvents, paints, oils), are likely to be small, localized, temporary and periodic; therefore, they are unlikely to result in adverse effects on workers, the public, or the environment. Further, BMPs and measures implemented as part of SWPPPs, SPCCPs, SAPs and HMMPs would be developed and implemented as part of the BDCP, as described under Impact HAZ-1, and in detail in Appendix 3B, which would reduce the potential for accidental spills to occur and would result in containment and remediation of spills should they occur. Approximately 10,800 cubic yards of dry sediment/solids would be produced annually as a result of maintenance of the solids lagoons with three intakes operating. Potentially contaminated solids could pose a hazard to the environment if improperly disposed of, which would be considered an adverse effect. ~~In addition, u~~Under Mitigation Measure HAZ-6, solids from the solids lagoons would be sampled and characterized to evaluate disposal options, and disposed of accordingly at an appropriate, licensed facility to ensure that there would be no adverse effect.

Therefore, with implementation of BMPs as part of environmental commitments and Mitigation Measure HAZ-6, operation and maintenance of the water conveyance facilities would not create a substantial hazard to the public or the environment ~~These measures would ensure that this effect would not create a substantial hazard to the public or the environment during operation and maintenance of the water conveyance facilities,~~ and, ~~therefore~~accordingly, there would be no adverse effect.

***CEQA Conclusion*:** The accidental release of hazardous materials (including contaminated solids and sediment) to the environment during operation and maintenance of the water conveyance facilities and the potential interference with air safety through the use of high-profile equipment for maintenance of proposed transmission lines could ~~have~~ result in significant impacts on the public and environment. However, implementation of the BMPs and other activities required by SWPPPs, HMMPs, SAPs, SPCCPs~~, and Mitigation Measure HAZ-6, which would ensure that potentially contaminated dewatered solids are not reintroduced to the environment and are properly disposed of~~, as well as adherence to all applicable FAA regulations (14 CFR Part 77) and coordination/compliance with Caltrans' Division of Aeronautics when performing work with high-profile equipment within 2 miles of an airport, which would include implementation of recommendations to provide supplemental notice and/or equip high-profile structures with marking and lighting, would ensure that operation and maintenance of the water conveyance facilities would not create a substantial hazard to the public, environment or air traffic safety. 10,800 cubic yards of dry sediment/solids would be produced annually as a result of maintenance of the solids lagoons with three intakes operating. Contaminated solids could pose a hazard to the environment if improperly disposed of, which would be considered a significant impact. However, with implementation of Mitigation Measure HAZ-6, solids from the solids lagoons would be sampled and characterized to evaluate disposal options, and would be disposed of accordingly at an appropriate, licensed facility to avoid any significant impacts associated with the improper disposal of potentially contaminated sediment. Therefore, this impact would be less than significant.

Mitigation Measure HAZ-6: Test Dewatered Solids from Solids Lagoons Prior to Reuse and/or Disposal

BDCP proponents will ensure that dewatered solids from the solids lagoons are sampled and tested/characterized at a certified laboratory prior to reuse and/or to evaluate disposal options. At minimum, the solids would be tested for hazardous characteristics (i.e., toxicity, corrosivity, ignitability, and reactivity) consistent with federal standards for identifying hazardous waste (40 CFR Part 261). All dewatered solids would be disposed of in accordance with applicable federal, state, and local regulations at a solid waste disposal facility approved for disposal of such material.~~All dewatered solids would be disposed of in accordance with applicable regulations.~~

Implementation of this measure will ensure that dewatered solids do not reintroduce hazardous constituents to the environment if they are reused, and that they are disposed of properly if they do contain hazardous levels of contaminants such as persistent pesticides and mercury.

Impact HAZ-7: Create a Substantial Hazard to the Public or the Environment through the Release of Hazardous Materials or by Other Means as a Result of Implementing ~~Conservation Measures~~ CM2~~–~~-CM11, CM13, CM14, CM16, and CM18

NEPA Effects: Construction, and operation and maintenance of ~~the proposed conservation measures (~~CM2–CM11, CM13, CM14, CM16, and CM18~~)~~ as part of Alternative 4 could have effects related to hazardous materials and potential hazards that are similar in nature to those discussed for construction, and operation and maintenance of proposed water conveyance facilities. Although similar in nature, the potential intensity of any effects would likely be substantially lower because the nature of the activities associated with implementing the conservation measures would be different (e.g., deep excavation for pipelines and tunnels would not be required), less heavy construction equipment would be required, and the activities would be implemented in a shorter time frame. Further, potential effects from implementation of the conservation measures would be dispersed over a larger area and would generally involve substantially fewer construction and operation effects associated with built facilities.

Implementing habitat restoration and enhancement projects in conservation zones that have proposed restoration opportunity areas would require use of construction equipment necessary to excavate restoration sites, and to construct or modify levees on and adjacent to Delta waterways. Use and maintenance of this equipment is expected to result in the potential for hazards related to the transport, use, and disposal of hazardous materials, such as fuels, oils, lubricants, paints and other hazardous substances. Other activities, including the intentional demolition of existing structures (e.g., buildings) and reuse of spoil, dredged material and/or RTM, would also present the potential to generate hazards or release hazardous materials, or activities resulting in the damage or disruption of existing infrastructure such that hazardous conditions were created.

Some of the proposed restoration activities that would occur under CM2 – CM11 could involve the conversion of active or fallow agricultural lands to natural landscapes, such as vernal pools, floodplains, grasslands, and wetlands. As described in Section 24.1.2.2, a wide variety of pesticides has been used throughout the study area for decades, and may be present in agricultural lands (e.g., in the soil). As described in Chapter 8, *Water Quality*, in the short-term, tidal and non-tidal wetland restoration, as well as seasonal floodplain restoration (i.e., CM4, CM5, and CM10) over former agricultural lands may result in contamination of water in these restored areas with pesticide residues contained in the soils or other organic matter. Present use pesticides typically degrade fairly rapidly, and in such cases where pesticide containing soils are flooded, dissipation of those pesticides would be expected to occur rapidly. Additionally, significant increases in organochlorine and other persistent legacy pesticides are not expected in the water column because these lipophilic chemicals strongly partition to sediments. Also, concentrations in the water column should be relatively short-lived because these pesticides settle out of the water column via sediment adsorption in low-velocity flow. Accordingly, restoration activities on former agricultural lands, particularly tidal and non-tidal wetland restoration, and seasonal floodplain restoration, would not create a substantial hazard to the public or environment through pesticide release.

In addition, certain operations and maintenance activities, such as controlling for terrestrial and aquatic nonnative vegetation will require the use of potentially hazardous herbicides, for example. These activities would occur in sensitive Delta waterways and upland areas or could occur in and around areas potentially hazardous for construction workers and operations and maintenance workers. Reasonably foreseeable upset and accident conditions related to these materials would also create a potential hazard to the public or environment.

As discussed in Chapter 8, *Water Quality*, Chapter 11, *Fish and Aquatic Resources*, and Chapter 25, *Public Health*, Alternative 1A habitat restoration actions (particularly CM2*, Yolo Bypass Fisheries Enhancement;* CM4*, Tidal Natural Communities Restoration;* CM5*, Seasonally Inundated Floodplain Restoration;* CM6, *Channel Margin Enhancement; and* CM,7 *Riparian Natural Community Restoration*) are likely to result in increased production, mobilization, and bioavailability of methylmercury in the aquatic system due to biogeochemical processes. CM12, *Methylmercury Management* provides for site-specific assessment of restoration areas, integration of design measures to minimize methylmercury production, and site monitoring and reporting.

Additionally, construction of other conservation measures related to reducing ecosystem stressors could result in the unintended release of hazardous materials as a result of constructing facilities near Delta waterways. For example, under CM16 and CM18, non-physical fish barriers and fish hatchery facilities, respectively, would be constructed and could result in effects associated with use of materials during construction that could create hazardous conditions for construction workers and affect sensitive habitat in Delta waterways or on agricultural land. Further, operations and maintenance of CM14 would require the transport, storage and use of liquid oxygen for the existing Stockton Deep Water Ship Channel aeration facility. BMPs already in place for the existing transport, storage and use of liquid oxygen would continue. Thus, no adverse effects related to this aspect of CM14 are anticipated.

The potential also exists for release of hazardous substances within 0.25 mile of a school or other sensitive receptors (i.e., hospitals and parks) depending on the selected locations for implementing the conservation measures. Potential effects would vary according to the equipment used in construction and/or operation and maintenance of a specific conservation measures (i.e., whether hazardous materials are necessary on site), the location and timing of the actions called for in the conservation measure, and the air quality conditions at the time of implementation. Proposed conservation measures would be designed to avoid sensitive receptors, and BMPs to minimize the potential for the accidental release of hazardous materials and to contain and remediate hazardous spills, as part of the SWPPPs, SPCCPs, and HMMPs, should they occur, would be implemented, as set forth in Appendix 3B, *Environmental Commitments*, and therefore, it is unlikely that school children and staff would be at risk or adversely affected.

Constructing conservation measures that could result in a physical change in the environment could also create conflicts or encounters with known or unknown hazardous materials sites located on or in the vicinity of conservation component construction sites. For example, implementing CM2–CM11 for habitat restoration and enhancement purposes could potentially result in effects associated with agricultural and industrial-type hazardous materials at known sites that are listed on the "Cortese List." However, because locations within the eleven conservation zones (described in Chapter 3, *Description of the Alternatives*) for implementing most of the conservation measures have not yet been determined, it is not known if the conservation measures would be implemented on or near "Cortese List" sites. Project design would minimize, to the extent feasible, the need to acquire or traverse areas where the presence of hazardous materials is suspected or has been verified. Implementation of conservation measures could also involve dredging Delta waterways and other activities that could disturb contaminated sediments that hold mercury, pesticides, or other constituents. Concentrations capable of posing hazards or exceeding regulatory thresholds could present a hazard to the construction workers and any contaminated soil, sediment or groundwater would require proper handling or treatment prior to discharge or disposal. Chapter 8, *Water Quality*, provides further discussion of these potential contaminants.

Other potential hazards that could result from implementing conservation measures involve the potential for safety hazards related to construction in the vicinity of a public or private airport, and the potential for wildfire hazards in the vicinity of construction sites. As shown in Figure 24-9 and Table 24-6, there are 11 airports within the study area. With the exception of the Lost Isle Seaplane Base, Franklin Field Airport, and Byron Airport, these are private facilities. The Garibaldi Brothers Airport is located within the Suisun Marsh ROA, just south of Fairfield. Additionally, the Delta Air Park is proximate to the West Delta ROA east of Oakley. Because locations for some of the habitat restoration and enhancement activities have not yet been determined, the potential exists for some of these activities to occur at locations within 2 miles of a private or public airport. High-profile construction equipment (i.e., 200 feet or taller), such as cranes, could result in potential safety hazards to aircraft if operated in the vicinity of a runway; however, it is unlikely that this type of equipment would be employed in the types of habitat restoration, enhancement and protection activities that would be implemented as part of the conservation measures. As described for Impact HAZ-4, effects on air safety due to BDCP implementation would be avoided because BDCP proponents would adhere to all applicable FAA regulations (14 CFR Part 77) and would coordinate with Caltrans' Division of Aeronautics prior to initiating maintenance activities requiring high-profile equipment to assess whether a site investigation is necessary. If a site investigation is performed, BDCP proponents would adhere to Caltrans' recommendations in order to avoid any adverse effects on air safety. Finally, construction occurring within 10,000 feet of a public airport may be subject to an OE/AAA to be performed by the FAA. Compliance with the results of the OE/AAA would reduce the risk for adverse effects on air traffic safety. Potential safety hazards to air traffic related to the potential for increased bird-aircraft strikes as a result of creating or enhancing wildlife habitat are discussed under Impact HAZ-8.

The potential for conservation component implementation to result in or be subject to substantial risk of wildfires is possible, but the risk is expected to be low because many of the activities would be located in or near Delta waterways and adjacent to managed agricultural land. Additionally, construction activities would be managed using standard construction practices to reduce the potential for creating wildfires. Precautions would be taken to prevent wildland fires during construction, and operation and maintenance of the conservation measures would be done in full compliance with Cal-OSHA standards for fire safety and prevention. Additionally, in an effort to reduce the potential for fire hazards, the BDCP proponents would develop and implement BMPs (described under Impact HAZ-5 for this alternative and in Appendix 3B, *Environmental Commitments*) under a FPCP, in coordination with federal, state, and local agencies, as part of the environmental commitments.

In summary, as described above, implementation of CM2–CM11, CM13, CM14, CM16, and CM18 could result in multiple potentially hazardous effects related to the release of or exposure to hazardous materials or other hazards including increased production, mobilization and bioavailability of methylmercury; release of existing contaminants (e.g., pesticides in agricultural land); air safety hazards; and wildfires. These effects, were they to occur, would be considered adverse. However, this alternative has incorporated environmental commitments (as described above) to avoid, reduce and/or minimize these potential hazardous effects on the public and the environment. Further, implementation of Mitigation Measures HAZ-1a, HAZ-1b, UT-6a, UT-6c, and TRANS-1a are available to further reduce/minimize many of these potential effects, such that there would be no adverse effect.~~The potential exists for CM2–CM11, CM13, CM14, CM16, and CM18 to result in effects related to the release of or exposure to hazardous materials or other hazards. The potential for these kinds of effects is considered adverse because implementation of these~~

~~conservation measures would involve extensive use of heavy equipment that could unintentionally result in the release of hazardous substances or that could expose construction workers or members of the public to hazards. Construction of restoration projects on or near existing agricultural and industrial land may result in a conflict or exposure to known hazardous materials.~~

~~In summary, this alternative has incorporated environmental commitments (as described under Impacts HAZ-1 through HAZ-6 for this alternative) and Mitigation Measures HAZ-1a, HAZ-1b, UT-6a, UT-6c, and TRANS-1a are available to reduce these potential effects so that they are not adverse.~~

***CEQA Conclusion*:** A significant impact could occur if Alternative 4 created a substantial hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials to the environment. The potential for impacts related to the release and exposure of workers and the public to hazardous substances or conditions during construction, operation, and maintenance of CM2–CM11, CM13, CM14, CM16, and CM18 could be significant. Conservation component implementation would involve extensive use of heavy equipment during construction, and/or the use and/or transport of hazardous chemicals during operations and maintenance (e.g., herbicides for nonnative vegetation control). These chemicals could be inadvertently released, exposing construction workers or the public to hazards. Construction of restoration projects on or near existing agricultural and industrial land and/or SOCs may result in a conflict or exposure to known hazardous materials, and the use of high-profile equipment (i.e., 200 feet or higher) in close proximity to airport runways could result in safety hazards to air traffic. These effects, were they to occur, would be considered a significant impact. However in addition to implementation of SWPPPs, HMMPs, SPCCPs, SAPs, and fire prevention and fire control BMPs as part of a FPCP, Mitigation Measures HAZ-1a, HAZ-1b, UT-6a, UT-6c, and TRANS-1a would be implemented, all of which would ensure that there would be no substantial hazards to the public or the environment due to implementation of the conservation measures. As such, this impact would be less than significant.

Mitigation Measure HAZ-1a: Perform Preconstruction Surveys, Including Soil and Groundwater Testing, at Known or Suspected Contaminated Areas within the Construction Footprint, and Remediate and/or Contain Contamination

Please refer to Mitigation Measure HAZ-1a under Impact HAZ-1 in the discussion of Alternative 4. Implementation of this mitigation measure will result in the avoidance, successful remediation or containment of all known or suspected contaminated areas, as applicable, within the construction footprint, which would prevent the release of hazardous materials from these areas into the environment.

Mitigation Measure HAZ-1b: Perform Pre-Demolition Surveys for Structures to Be Demolished within the Construction Footprint, Characterize Hazardous Materials and Dispose of Them in Accordance with Applicable Regulations

Please refer to Mitigation Measure HAZ-1b under Impact HAZ-1 in the discussion of Alternative 4. Implementation of this measure will ensure that hazardous materials present in or associated with structures being demolished will not be released into the environment.

Mitigation Measure UT-6a: Verify Locations of Utility Infrastructure

Please see Mitigation Measure UT-6a under Impact UT-6 in the discussion of Alternative 1A in Chapter 20, *Public Services and Utilities*.

Mitigation Measure UT-6c: Relocate Utility Infrastructure in a Way That Avoids or Minimizes Any Effect on Worker and Public Health and Safety

Please see Mitigation Measure UT-6c under Impact UT-6 in the discussion of Alternative 1A in Chapter 20, *Public Services and Utilities*.

Mitigation Measure TRANS-1a: Implement Site-Specific Construction Traffic Management Plan

Please see Mitigation Measure TRANS-1a under Impact TRANS-1 in the discussion of Alternative 1A in Chapter 19, *Transportation*.

Impact HAZ-8: Increased Risk of Bird–Aircraft Strikes during Implementation of Conservation Measures tThat Create or Improve Wildlife Habitat

NEPA Effects: Implementation of CM2–CM11, measures which would create or improve wildlife habitat and therefore, potentially attract waterfowl and other birds to areas in proximity to existing airport flight zones, could increase the opportunity for bird-aircraft strikes, which could result in impacts on public safety. The following airports, because they are in relatively close proximity (within 2 miles) to the ROAs and/or conservation zones could potentially be affected: Travis Air Force Base; Rio Vista Municipal Airport; Funny Farm Airport; Sacramento International Airport, and Byron Airport.

The FAA funds research and mitigation development, including a bird strike database managed by the Wildlife Services Program of the U.S. Department of Agriculture under terms of an interagency agreement. The database currently contains data from January 1990 through August 2008, recording over 100,000 wildlife strikes. Based on these data, most bird strikes occur during daylight hours between July and October when aircraft are approaching and landing. Most bird strikes (92%) occur at or below 3,000 feet altitude. Since 1990, 52 U.S. civil aircraft were either destroyed or damaged beyond repair due to wildlife strikes, accounting for 23 fatalities. The FAA discourages the improvement of wildlife habitat in proximity to public-use airports to lessen the risk of bird-aircraft strikes. If restoration actions are located within 5,000 feet of airports used by propeller-driven aircraft or within 10,000 feet of those used by jet-driven aircraft (known as the Critical Zone), the risk of bird-aircraft strikes would likely increase. The FAA recommends that these distances be maintained between the AOA and land uses deemed incompatible with safe airport operations (i.e., hazardous wildlife attractants), including agriculture, water management facilities, and active wetlands. Public use airports within the study area are located in areas of mixed land uses. Some are located in proximity to urban uses, but all are located within five miles of substantial existing agricultural lands and wetlands. Thus, all of the public use airports in the study area are currently located in areas with existing wildlife hazards. The effect of increased bird-aircraft strikes during implementation of CM2–CM11 would be adverse because it could potentially result in an air and public safety hazard. Mitigation Measure HAZ-8 would reduce the severity of this effect through the development and implementation of measures to reduce, minimize and/or avoid wildlife hazards on air safety. However, this effect is would remain adverse.

CEQA Conclusion: Implementation of CM2–CM11, because they would create or improve wildlife habitat, could potentially attract waterfowl and other birds to areas in proximity to existing airport flight zones, and thereby result in an increase in bird-aircraft strikes, which could result in significant impacts on public safety. Airports that could be potentially affected would include Travis Air Force Base; Rio Vista Municipal Airport; Funny Farm Airport; Sacramento International Airport;

and Byron Airport. Mitigation Measure HAZ-8 could reduce the severity of this impact through the ultimate development of implementation of measures to reduce, minimize and/or avoid wildlife hazards on air safety, but not to a less-than-significant level. As such, the impact is significant and unavoidable.

Mitigation Measure HAZ-8: Consult with Individual Airports and USFWS, and Relevant Regulatory Agencies

The FAA requires commercial service airports to maintain a safe operation, including conducting hazard assessments for wildlife attractants within 5 miles of an airport. The hazard assessment is submitted to FAA, which determines if the airport needs to develop a Wildlife Hazard Management Plan. (15 CFR 139). The airport's Wildlife Hazard Management Plan contains measures to reduce wildlife hazards, including habitat modification (e.g., vegetation management, filling in of wetlands), wildlife control measures (e.g., harassment, trapping and removing), and use of a radar-based alert system.

BDCP proponents will consult with the individual airports and USFWS during the project-level environmental assessments for individual restoration activities, when site-specific locations and design plans are finalized. At that time, appropriate management plans, strategies, and protocols would be developed to reduce, minimize and/or avoid wildlife hazards on air safety. Site-specific avoidance, minimization, and mitigation measures will be developed during future environmental review once information on the design, location, and implementation of CM~~3~~2–CM11 is sufficient to permit a project-level analysis.

24.4 References Cited

24.4.1 Printed References

URS. 2014. *Reusable Tunnel Material Testing Report.* Delta Habitat Conservation and Conveyance Program Standard Agreement 4600008104, Task Order WGI 14. Prepared for State of California Department of Water Resources, Division of Engineering. March. Sacramento, CA.