5.9 CONSTRUCTION RELATED IMPACTS

The purpose of this section is to discuss the short-term demolition, remediation, and construction related impacts of project implementation upon land uses adjacent to the proposed project site. This section examines possible short-term impacts with regards to hydrology and water quality, air, noise, aesthetics/light & glare, hazards and hazardous materials, and traffic. Information used in this section was obtained from the City of Huntington Beach General Plan (1996), City of Huntington Beach General Plan EIR (1995), the City's "Transportation System Needs Analysis 2000-2010" (September 12, 2000, approved by City Council October 2, 2000), the Biological Constraints Survey for the Poseidon Seawater Desalination Plant Pump Station, Orange County, California (May 16, 2002), Historical/Archaeological Resources Survey Report, Poseidon Seawater Desalination Plant Pump Station Site (June 10, 2002), the Southeast Coastal Redevelopment Plan Program Environmental Impact Report (January 23, 2002), and the Paleontological Resources Assessment Report, Poseidon Seawater Desalination Plant Pump Station Site (June 10, 2002).

EXISTING CONDITIONS

PROPOSED DESALINATION FACILITY SITE

On-Site Land Uses

The approximately 11-acre (seven acres for the desalination facility and four acres for the product water tank) site is located within the City of Huntington Beach, south of Hamilton Avenue, north of Pacific Coast Highway, east of Newland Street, and west of Magnolia Street. The proposed project site consists of three fuel storage tanks formerly used in conjunction with the Huntington Beach Generating Station (HBGS). For additional information regarding existing on-site features, refer to Section 4.0, *EXISTING CONDITIONS/ENVIRONMENTAL SETTING*, Section 5.1, *LAND USE/RELEVANT PLANNING,* Exhibit 3-2,*SITE VICINITY MAP*, Exhibit 3-3, *CONCEPTUAL PIPELINE ALIGNMENTS*, Exhibit 3-4, *OC-44 BOOSTER PUMP STATION LOCATION MAP*, Exhibit 3-5, *COASTAL JUNCTION BOOSTER PUMP STATION LOCATION* MAP, and Exhibit 5.7-1, *DESALINATION FACILITY SITE PHOTOGRAPHS*.

Adjacent Land Uses

Surrounding adjacent land uses include the HBGS to the southwest, a wetland area to the southeast, the Orange County Flood Control District (OCFCD) flood channel to the east, a fuel oil storage tank to the north, and an electrical switchyard to the west. Additional surrounding land uses include Pacific Coast Highway to the south, the Pacific Holdings storage tank facility to the east, Ascon/Nesi Landfill to the northeast, commercial, industrial, recreational, and residential uses to the north, and Newland Street, Huntington-By-The-Sea Mobile Home Park, and Cabrillo Mobile Home Park to the west.

The Huntington Beach Wetlands are situated southeast of the desalination site and occupy a 131-acre, 1.5 mile long area along the coast, bordered by Pacific Coast Highway to the southwest, and the Talbert and Santa Ana River Flood Control Channels to the north and southeast.[1] The wetlands are divided into two major components. To the southeast, the 17-acre Talbert Marsh opens to the ocean through a 100 foot-wide entrance adjacent to the mouth of the Santa Ana River. The Talbert Marsh is a recovering wetland area reintroduced to tidal influence on February 17, 1989.[2]

1 MEC, 1991.
2 Reish and Massey, 1990.

The second component of the Huntington Beach wetlands, separated from the Talbert Marsh by Brookhurst Street, includes 89 privately-owned acres abutting the edge of the southeast corner of the proposed project site. This acreage has limited tidal access, and water sources are primarily limited to rainfall, urban runoff, and groundwater seepage.[3] Salinities are extremely high in the soils and seasonal ponds, water quality of the brackish water marsh is poor, and the area in general is considered degraded.[4] The remaining area of the Huntington Beach Wetlands includes almost 20 acres of open water channel of the Talbert Flood Control System.

The privately-owned area of the Huntington Beach wetlands (abutting the edge of the southeast corner of the desalination facility site) is primarily a seasonally flooded estuarine intertidal habitat dominated by pickleweed, along with other plant species that can tolerate high soil salinities and seasonal saturation and drought, such as saltgrass and alkali heath.[5] Many areas of the wetland are heavily disturbed and unvegetated. The back dune habitat along the Pacific Coast Highway supports a moderate number of species including introduced plant species. The dunes have been replanted with native plant species. The site functions as a seasonal wetland for some wildlife, while seasonal ponding in former tidal sloughs supports limited fish and invertebrate use.

The wetland area to the southeast of the desalination facility site is characterized primarily as southern coastal salt marsh. Southern coastal salt marsh is known to occur in bays, lagoons, and estuaries along the coast. Vegetation within this area is high quality with a few disturbed patches due to human encroachment. Vegetation types known to exist within southern coastal salt marsh in the vicinity of the project include:[6]

- common woody pickleweed (*Salicornia virginica);*
- alkali mallow (*Malvella leprosa);*
- alkali heath (*Frankenia salina*);
- curly dock (*Rumex crispus*);
- wild heliotrope (*Heliotropum curassavicum*);
- coastal saltgrass (*Distichlis spicata*);
- cocklebur (*Xanthium strumarium*);
- California encelia (*Encelia californica*);
- Alkali weed (*Cressa truxillensis*); and
- California marsh rosemary (*Limonium californicum*).

Wildlife species known to exist within the project area include:

- Monarch butterfly (*Danaus plexippus*);
- Cooper's hawk (*Accipiter cooperil*);
- Sharp-shinned hawk (*Accipiter striatus*);
- Northern harrier (*Circus cyaneus*);
- White-tailed kite (*Elanus leucurus*);
- Merlin (*Falco columbarius*);
- American peregrine falcon (*Falco peregrinus*);
- Western snowy plover (*Charadrius alexandrinus nivosus*);
- Long-billed curlew (*Numenius americanus*);
- California gull (*Larus californicus*);
- California least tern (*Sterna antillarum browni*);
- Elegant tern (*Sterna elegans*);
- Loggerhead shrike (*Lanius ludovicianus*); and

[3] MEC, 1991.
[4] Coats and Josselyn 1990, CDFG 1982, cited in MEC, 1991.
[5] MEC, 1991.
[6] Southeast Coastal Redevelopment Plan Program EIR, January 23, 2002.

- Belding's savannah sparrow (*Passerculus sandwichensis beldingi*).

Desalination Facility Demolition, Remediation, and Construction

Tank/Berm Demolition

Implementation of the Seawater Desalination Project at Huntington Beach would begin with the demolition of on-site fuel oil storage tanks and the removal of the interior portions of the containment berms surrounding the tanks. A total of three storage tanks exist on-site, with a diameter of 205 feet and a height of 40 feet (the "South", "West", and "East" fuel oil storage tanks). The fuel oil tanks consist of a thin, corrugated metal external shell and an internal layer of insulation. The external metal shells would be collected and sold as scrap. All tanks are seated on either concrete footings or piles, which would also need to be removed as part of the tank demolition process.

It is estimated that the South and East fuel oil tanks contain a total of 200,000 to 350,000 gallons of residual fuel oil remaining from former uses associated with the HBGS, while it is unknown how much fuel oil remains in the West tank. Precise amounts of remaining fuel oils would not be known until the tanks have been dismantled and inspected (however, for analysis within this section, a conservative assumption of 175,000 gallons per tank has been utilized). The contents of these tanks would either be transported to an appropriate industrial facility for reuse or disposed of at a suitable disposal site.

Each fuel storage tank is completely surrounded by a 10- to 15-foot high berm utilized to contain any accidental spillage of fuel from the tanks. Implementation of the proposed desalination facility would require the removal of the berms along the southern and western boundaries of the site, as well as the berm separating the South tank from the East tank (it should be noted that the existing northern berm is outside of project boundaries). The berm along the eastern boundary of the site (adjacent to the Huntington Beach Channel) would be left in place, as would the berms surrounding the proposed product water storage tank, except for a small access area. It is estimated that approximately 2,000 cubic yards of soil contained within the berms would be hauled off-site. It should be noted that a City-approved grading plan, grading permit, and haul route would be required prior to any excavation, remediation, or construction activities. It is estimated that a total of 140 truck trips for 2,000 cubic yards of soil (14 cubic yard trucks) would be required. Refer to Table 5.9-1, *DEMOLITION PROCESS DETAILS*, for more information.
Tank demolition would most likely proceed in the following sequence:

- Removal of residual product in the fuel oil tanks;
- Clean the interior of the tanks;
- Removal of interior layer of insulation;
- Dismantling and removal of external metal tank shell;
- Removal of concrete footings or piles; and
- Demolition and removal of containment berms.

The tank demolition phase of the project would result in an approximate total of 510 truck trips, which include the following:

- 60 trips for the removal of 380,000 gallons of fuel oil (6,500 gallon trucks loaded at 6,333 gallons per load);
- 30 trips for 30 tons of storage tank insulation (one-ton trucks);
- 110 trips for 110 tons of external storage tank shell material (one-ton trucks);
- 170 trips for 2,000 cubic yards of concrete footings or piles (14 cubic yard trucks); and
- 140 trips for 2,000 cubic yards of containment berm soil (14 cubic yard trucks).

Refer to Table 5.9-1, *DEMOLITION PROCESS DETAILS*, below.

Table 5.9-1
DEMOLITION PROCESS DETAILS

Activity / (Estimated Earth Export/Import or Other Material Quantity)	Total Activity Length (months)	Total Number of Truck Loads/ Construction Worker Trips	Maximum Number of One-way Truck Trips per Day
Removal of Residual Fuel Remaining in the Tanks (up to 380,000 gallons)	1	60	30
Removal of Tank Insulation (20 tons of metal)	1	30	12
Removal of External Metal Tank Shell (100 tons of metal)	1.5	110	28
Removal of Concrete Footings or Piles (2,000 CY)	1	170	20
Berms Demolition (2,000 CY)	1	140	40

Site Remediation

Areas surrounding the fuel storage tanks on the existing project site have been found to contain contaminants in exceedance of Regional Water Quality Control Board (RWQCB) thresholds.[7] It would not be known until after storage tank demolition if hydrocarbon contamination exists beneath the storage tanks. Prior to site grading, a Phase II hazardous materials evaluation and Remedial Action Plan (RAP) would be prepared to facilitate on-site remediation. However, such studies can only be prepared subsequent to storage tank demolition. Regardless, it is estimated that site remediation would require a total of 170 truck trips for 3,000 cubic yards of soil (14 cubic yard trucks).

Desalination Facility Construction

Construction of desalination facility components within project site boundaries would consist of a pretreatment filter structure, intake pump and pump station installations, reverse osmosis building, numerous pipelines, chemical storage/solids handling building, bulk chemical storage building, electrical substation building, various storage tanks, and an administration building. All buildings and structures on-site would be typical of water or wastewater plants, consisting of cast-in-place concrete and steel construction. All buildings on-site would be Type-II, non-rated. In addition, approximately 1,000 linear feet of pipeline would be installed to connect the desalination facility to the HBGS intake and outfall facilities. An intake and discharge pipeline would be installed from the southern portion of the subject site in a southerly direction, turning west near the HBGS acid retention basin, and connecting to the outfall facilities at HBGS. Refer to Exhibit 3-17, *DESALINATION FACILITY/HBGS COOLING WATER CONNECTION*. Facility construction is anticipated to result in approximately 1,300 trips for 18,800 cubic yards of soil for initial/final site grading (assuming 14 cubic yard trucks). Refer to Table 5.9-2, *SITE GRADING DETAILS*, for more

[7] Huntington Beach Generating Station Phase II Environmental Site Assessment. CH2M Hill, November 29, 1996.

information.

Table 5.9-2
SITE GRADING DETAILS

Activity / (Estimated Earth Export/Import or Other Material Quantity)	Total Activity Length (months)	Total Number of Truck Loads/ Construction Worker Trips	Maximum Number of One-way Truck Trips per Day
Initial Site Grading (18,800 cubic yards)	2	1,300	30
Final Site Grading, Paving, and Landscaping (400 cubic yards)	5	30	8

OFF-SITE PIPELINES AND UNDERGROUND PUMP STATIONS

Proposed Pipeline Alignments

As stated previously, implementation of the proposed project would require the installation of up to 10 miles of 42- to 48-inch force main to convey water in an easterly direction to its ultimate destination within the City of Costa Mesa, east of State Route 55 (SR-55) at the intersection of Del Mar Avenue and Elden Avenue. The majority of the pipeline alignment would occur within existing public streets, easements, or other rights-of-way (ROW). Table 5.9-3, *PIPELINE ALIGNMENT DETAILS*, provides information regarding the lengths and characteristics of each pipeline alignment. Although precise pipeline alignments may be modified during final engineering analyses, the conceptual pipeline alignments are shown in Exhibit 3-3, *CONCEPTUAL PIPELINE ALIGNMENTS* and described in Section 3.0, *PROJECT DESCRIPTION.* Additional information regarding the pipeline alignment alternatives is included in Appendix G, *PRELIMINARY PIPELINE ASSESSMENT*.

Table 5.9-3
PIPELINE ALIGNMENT DETAILS

Route	Off Pavement (ft.)	Under Pavement (ft.)	Number of Trenchless Constructions
Primary Alignment	10,700	29,350	6
Alternative Alignment	0	30,000	6

As stated above, the pipeline alignment would require trenchless construction to cross waterways and roadways with a high sensitivity to traffic disturbance. The two methods under consideration are micro-tunneling or directional boring. Generally, micro-tunneling involves the excavation of two jacking and receiving pits, which are vertical excavations with shoring and bracing systems (one on each side of the waterway or roadway to be crossed). A micro-tunneling machine, equipped with either an auger or slurry material removing device, is lowered into the jacking pit and creates a tunnel connecting the jacking and receiving pits. The pipeline can then be installed within the underground tunnel.

Horizontal directional drilling involves the drilling of a pilot hole at a prescribed angle from one end of the waterway/roadway to be crossed to the other utilizing a pilot drill string. Once the pilot hole is complete, the hole must be enlarged to a suitable diameter for the pipeline. This is accomplished by "pre-reaming" the hole to an appropriate diameter. A reamer is attached to the drill string and is pulled through the pilot hole by a drilling rig. Large quantities of slurry are pumped into the hole to maintain the integrity of the hole and to flush out cuttings. Once the drilled hole is enlarged and the pipeline is prefabricated, a reamer is once again attached to the drill string, and the pipeline is connected behind the reamer via a swivel. The drilling rig then pulls the reamer and pipeline through the tunnel until surfacing at the opposite end, once again circulating high volumes of drilling slurry.

For lengths of the pipeline not utilizing trenchless construction (the majority of the pipeline), open trench construction techniques would be utilized. For open trenching, the minimum coverage for a 42- to 48-inch pipe would be at least five to six feet with two feet of available workspace on both sides of the pipe. This would require deep trenches (approximately nine to 10 feet) with appropriate shoring. The required size of any access construction pit would be a minimum of 20 feet by 30 feet and 15 feet by 15 feet for receiving pits. Dewatering operations may be necessary, especially in areas close to the Pacific Ocean within the City of Huntington Beach. Including required lay-down area for supplies and equipment, a 30-foot easement may be required for trenching operations. Refer to Table 5.9-4, *PIPELINE CONSTRUCTION DETAILS*, for more information.

Table 5.9-4
PIPELINE CONSTRUCTION DETAILS

Activity / (Estimated Earth Export/Import or Other Material Quantity)	Total Activity Length (months)	Total Number of Truck Loads/ Construction Worker Trips	Maximum Number of One-way Truck Trips per Day
Crossing of Flood Control Channel at Newland (1,200 CY)	4	90	12
Crossing of Talbert Drainage Channel (1,200 CY)	3	90	12
Removal of 30-inch OCWD Pipe (10 tons of pipe)	1.5	10	8
Soil Remediation (1,600 CY)	2	115	16
Crossing Santa Ana River and Greenville-Banning (2,400 CY)	2	180	20
Crossing Harbor Boulevard at Fair (1,200 CY)	3	90	12
Crossing 55 Freeway (1,200 CY)	3	90	12

OC-44 Pump Station

The off-site construction of an underground booster pump station would be required as part of the seawater desalination facility project in order to convey potable water from the subject site to southern Orange County. The pump station is proposed to be located entirely underground within

an unincorporated area of the County of Orange, along the eastern border of the City of Newport Beach, approximately 1.5 miles south of the University of California, Irvine. The site is within the Orange County Resource Preservation Easement, approximately 0.5 miles north of the San Joaquin Reservoir, where the East Orange County Feeder Number Two and the OC-44 transmission pipelines converge (the proposed underground pump station would connect to the OC-44 pipeline). The pump would be electrically powered and would be placed within an underground vault so as to avoid noise and aesthetic impacts to surrounding uses, which include residential and open space uses.

The footprint of the proposed underground pump station would be approximately 110 feet wide by 110 feet long by 40 feet deep, and would include space for the pump station with wet well below. to separate rooms for the electrical generator and diesel-powered emergency backup generator. Also included as part of the underground booster pump station are telemetry equipment, appurtenances, and a surge tank. It is anticipated that the underground pump station would require the import or export of approximately 17,400 cubic yards of earthen material, requiring approximately 1,240 truck trips (14 cubic yard trucks). Refer to Table 5.9-5, *OC –44 BOOSTER PUMP STATION CONSTRUCTION DETAILS*, for more information. The construction process for the proposed underground booster pump station is expected to last approximately 18 months.

Table 5.9-5
OC-44 BOOSTER PUMP STATION CONSTRUCTION DETAILS

Activity / (Estimated Earth Export/Import or Other Material Quantity)	Total Activity Length (months)	Total Number of Truck Loads/ Construction Worker Trips	Maximum Number of One-way Truck Trips per Day
Initial Site Grading (400 CY)	1	30	8
Site Excavation (16,000 CY)	3	1,240	40
Site Final Grading and paving and Landscaping (1,000 CY)	3	70	20

Construction of the proposed off-site underground booster pump station within an unincorporated area of the County of Orange may have impacts in regards to biological and cultural resources. The proposed pump station site is approximately 0.5 acres in size and is undeveloped and currently overgrown with dense native vegetation. The site is situated within a County-designated Resource Preservation Easement designated as a Natural Community Conservation Plan (NCCP) area. While development restrictions exist for the Easement, the underground pump station would be sited in an area where underground facilities are allowed (two underground pump stations exist adjacent to the proposed pump station site). Existing conditions for biological and cultural resources are described below.

Biological Resources

Vegetation

The booster pump station site exists with dense riparian and upland vegetation types on-site. Riparian vegetation types on-site include mule fat scrub, wouldow

scrub, freshwater marsh, and open water. Riparian species on-site include the following:

- mule fat (*Baccharis salicifolia*);
- arroyo wouldow (*Salix lasiolepis*);
- Fremont cottonwood (*Populus fremontii*);
- cattail (*Typha* sp.);
- reeds (*Scirpus* spp.);
- wild celery (*Apiastrum angusifolium*);
- western ragweed (*Ambrosia psilotachya*);
- prickly sow thistle (*Sonchus asper*); and
- pampas grass (*Cortaderia selloana)*.

Upland vegetation types on-site include coastal sage scrub, California annual grassland, ruderal, ornamental, and developed. Upland species on-site include the following:

- California sunflower (*Encelia californica*);
- California sagebrush (*Artemisia californica*);
- coyote brush (*Baccharis pilularis*);
- black sage (*Salvia mellifera*);
- white sage (*Salvia apiana*);
- monkey flower (*Mimulus aurantiacus*);
- poison oak (*Toxicodendron diversilobum*);
- deer weed (*Lotus scoparius*);
- Mexican elderberry (*Sambucus mexicana)*;
- lemonadeberry (*Rhus integrifolia*);
- coast prickly pear (*Opuntia littoralis*);
- California buckwheat (*Eriogonum fasciculatum*);
- California everlasting (*Gnaphalium californicum*);
- golden yarrow (*Eriophyllum confertiflorum*);
- black mustard (*Brassica nigra*);
- telegraph weed (*Heterotheca grandiflora*);
- tocalote (*Centaurea melitensis*);
- non-native grasses (*Avena* and *Bromus* spp.);
- gum trees (*Eucalyptus* spp.); and
- fan palm (*Washingtonia filifera*).

Wildlife

Vegetation types within the boundaries of the proposed booster pump station site provide moderate to high quality habitat for native wildlife species, including birds, amphibians, reptiles, mammals, and fish. Species either observed or expected to occur on-site include the following:

- red-tailed hawk (*Buteo jamaicensis)*;
- Cooper's hawk (*Accipiter cooperi*);
- red-shouldered hawk (*Buteo lineatus*);
- mourning dove (*Zenaida macroura*);
- California quail (*Callipepla californica)*;
- American crow (*Corvus brachyrhynchos*);
- house finch (*Carpodacus mexicanus*);
- northern mockingbird (*Mimus polyglottos*);

- California thrasher (*Toxostoma redivivum*);
- common yellowthroat (*Geothlypis trichas)*;
- coastal California gnatchatcher (*Polioptila californica californica*);
- least Bell's vireo (*Vireo bellii bellii*);
- tree frog (*Hyla regilla*);
- African clawed frog (*Xenopus laevis*);
- western rattlesnake (*Crotalus viridis*);
- gopher snake (*Pituophis melanoleucus*);
- western fence lizard (*Sceloporus occidentalis*);
- side-blotched lizard (*Uta stansburiana*);
- alligator lizard (*Elgaria multicarinata*);
- San Diego horned lizard (*Phyrnosoma coronatum blainvillei*);
- northern red-diamond rattlesnake (*Crotalus ruber ruber*);
- southwestern pond turtle (*Clemmys marmorata pallida*);
- opossum (*Didelphis virginianus*);
- house mouse (*Mus musculus*);
- coyote (*Canis latrans*);
- raccoon (*Procyon lotor*); and
- mosquito fish (*Gambusia* sp.).

Special Status Habitat

Special status habitats are considered to be "depleted" by the California Department of Fish and Game (CDFG) and the County of Orange. Two special status habitats occur on or in the immediate vicinity of the subject site: riparian habitat (including mule fat scrub, wouldow scrub, freshwater marsh, and open water) and coastal sage scrub. In addition, riparian habitats may include wetlands, drainages, and "waters of the United States" which are protected under the jurisdiction of the U.S. Army Corps of Engineers and/or CDFG. It should also be noted that the pump station site is situated adjacent to, but outside of, a Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) delineation zone, and the underground pump station would be subject to regulations as administered by the CDFG.

Special Status Plant and Wildlife Species

No federal- or state-listed threatened or endangered plant species are expected to occur within the boundaries of the proposed pump station site. However, several federal- and/or state-listed threatened or endangered wildlife species are known to occur in the subject site region, some of which are expected to occur on or in the immediate vicinity of the subject site. These include the coastal California gnatcatcher (federally-listed Threatened and state-listed Species of Special Concern), least Bell's vireo (federally- and state-listed Endangered), and southwestern pond turtle (federally-listed Species of Concern and state-listed Species of Special Concern). It should also be noted that the area has the potential to support raptor nesting habitat. A well-established red-tailed hawk nest was observed approximately 450 feet south of the subject site in a large gum tree.

For a detailed discussion of existing biological resources within and surrounding the proposed booster pump station site, refer to Appendix L, *UNDERGROUND BOOSTER PUMP STATION BIOLOGICAL CONSTRAINTS SURVEY.*

Cultural Resources

Historical/Archaeological Resources

No historical or archaeological resources are known to exist within the boundaries of the proposed booster pump station site. A total of 22 prehistoric archaeological sites are known to exist within a 0.5-mile radius of the subject site (none within or adjacent to the subject site), with eight having eligibility for listing in the National Register of Historic Places. In addition, historic maps indicate that the subject site vicinity appears to be low in sensitivity for historic resources. No buildings, structures, objects, sites, features, or artifacts over 50 years of age exist on-site.

Paleontological Resources

No paleontological localities have been discovered within the boundaries of the proposed booster pump station site or within a one-mile radius. However, some localities have been found elsewhere in the same sedimentary units as those found on the subject site. Because the site is part of the Topanga Formation (containing sediments deposited during the middle Miocene period, highly sensitive for marine invertebrate and vertebrate fossils), there is potential for disturbance of fossil remains during earth-moving operations. No fossil remains are known to exist on the ground surface on or surrounding the subject site.

For a detailed discussion of existing cultural resources within and surrounding the proposed booster pump station site, refer to Appendix M, *UNDERGROUND BOOSTER PUMP STATION CULTURAL RESOURCES ASSESSMENT REPORTS*.

Coastal Junction Pump Station

The Coastal Junction off-site underground booster pumping station would include pumps, telemetry equipment, appurtenances, and one diesel powered electrical generator for emergency back-up purposes. This generator would be a Caterpillar Model 3516 units or similar equipment and would supply approximately seven megawatts of emergency power for adequate operation of the pump station (in regards to flow and pressure). This diesel-powered generator would require a 1,300 gallon diesel fuel storage tank (assuming a 24-hour emergency period), with a diameter of six feet and a depth of 15 feet. The booster pumping station, including the generator and diesel fuel storage tank, would require a total footprint area of approximately 100' by 100' and would be placed entirely underground to maintain the appearance and functionality of the existing parking lot. Also refer to Table 5.9-6, *COASTAL JUNCTION BOOSTER PUMP STATION CONSTRUCTION DETAILS.* As the site is situated within a parking lot in an disturbed/urbanized area, no biological or cultural resources are anticipated to exist on-site.

Table 5.9-6
COASTAL JUNCTION BOOSTER PUMP STATION CONSTRUCTION DETAILS

Activity / (Estimated Earth Export/Import or Other Material Quantity)	Total Activity Length (months)	Total Number of Truck Loads/ Construction Worker Trips	Maximum Number of One-way Truck Trips per Day
Initial Site Grading (400 CY)	1	30	8
Site Excavation (16,000 CY)	3	1,240	40

Site Final Grading and paving and Landscaping (1,000 CY)	3	70	20

PROJECT PHASING

The demolition, remediation, and construction process of the proposed project would last approximately 24 months, including time necessary to acquire all required agreements, permits, and approvals. Project phasing would be divided into three categories described below:

1. **On-Site Desalination Facility Construction:** This portion of the proposed project would last approximately 24 months, and would include such activities as on-site demolition, grading/excavation, construction of desalination facilities, landscaping, and facility startup/testing. Import and export of earthen materials would occur primarily during the first six months and last four months of this phase of the project.

2. **Off-Site Product Water Transmission Pipeline Construction:** This portion of the project would last approximately 21 months, and would start about three months after the beginning of on-site desalination facility construction. This phase would include such activities as pipeline installation, implementation of pipeline under waterways/major roadways, soil remediation, removal of pipeline, and facility startup/testing. Import and export of earthen materials would occur primarily during the middle 12 months of this phase.

3. **Off-Site Product Water Underground Booster Pump Station Construction:** This phase of the proposed project would last approximately 18 months, and would begin approximately six months subsequent to the commencement of on-site desalination facility construction. This portion of the project would include such activities as grading/excavation/paving, pump station construction, emergency power generator construction, landscaping, and facility startup/testing. Import and export of materials would occur mainly within the first six months and final six months of the phase.

It should be noted that it is anticipated that all three phases would be implemented concurrently for the final 18 months of the proposed project.

IMPACTS

Significance Criteria

Significance criteria for construction related impacts are provided within each impact category below.

HYDROLOGY AND WATER QUALITY

Excavation, grading, and backfilling associated with project implementation are anticipated to generate erosive conditions that may include sediment laden storm run-off or dust. Pursuant to Appendix G of the Drainage Area Management Plan (DAMP) by the Orange County Stormwater Management Program, a National Pollution Discharge Elimination System (NPDES) Permit must be obtained from the Santa Ana Regional Water Quality Control Board (SARWQCB) for the demolition, remediation, and construction process. As part of the NPDES process, the project would also

comply with the State of California general permit (including the submittal of a Notice of Intent to the SARWQCB) and would include the preparation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP would outline the source control and/or treatment control BMPs that would avoid or mitigate runoff pollutants at the construction site to the "maximum extent practicable". Implementation of BMPs as found in the Orange County NPDES Stormwater ProgramDAMP, and the Standard Specifications for Public Works Construction "Greenbook" which include such measures as use of sand bags and temporary dam building may be applied to sufficiently reduce sediment laden storm run-off. Additionally, area watering and limiting excavation, backfilling and grading activities to non-windy days would sufficiently control the amount of particulate matter that may migrate off-site. Therefore, this is not considered a significant impact with mitigation.

In addition, any dewatering activities due to excavation at the proposed desalination facility site are not anticipated to have significant impacts in regards to hydrology and water quality. As stated previously, dewatering discharge would be directed to a desilting system, and would be sampled and tested periodically to ensure compliance with all NPDES regulations. Should contaminated groundwater be encountered, a remediation contractor would remediate the groundwater prior to discharge into the sanitary sewer system or HBGS storm water system. The dewatering process would be a temporary procedure and would have no long-term impacts on groundwater quality in the project site vicinity. As no potable water supply or extraction wells exist within the vicinity of the subject site, no impacts to the potable groundwater supply would occur. Groundwater conditions would return to existing levels subsequent to the dewatering process, and no adverse impacts on the groundwater basin or seawater intrusion barrier are expected.

AIR QUALITY

Note: *Potential construction related air quality impacts of the proposed project have remained consistent with those described in the previously circulated EIR (2001). However, due to changes in regulatory standards since 2001, information has been added to this section to better describe the regulatory framework in the State and air basin, as well as additional impact analysis to demonstrate compliance with existing requirements.*

South Coast Air Quality Management District Thresholds

Under CEQA, the South Coast Air Quality Management District (SCAQMD) is an expert commenting agency on air quality and related matters within its jurisdiction or impacting its jurisdiction. Under the Federal Clean Air Act (FCAA) the SCAQMD has adopted federal attainment plans for ozone and PM_{10}. The SCAQMD reviews projects to ensure that they would not: 1) cause or contribute to any new violation of any air quality standard; 2) increase the frequency or severity of any existing violation of any air quality standard; or 3) delay timely attainment of any air quality standard or any required interim emission reductions or other milestones of any federal attainment plan.

The SCAQMD *CEQA Air Quality Analysis Guidance Handbook* provides significance thresholds for construction activities of projects within the SCAQMD jurisdictional boundaries. Exceedance of the SCAQMD thresholds could result in a potentially significant impact. However, the lead agency ultimately determines the thresholds of significance for impacts.[8] If the project proposes development in excess of the established thresholds, as illustrated in Table 5.9-7, *SCAQMD EMISSIONS THRESHOLDS,* a significant air quality impact may occur and additional analysis is warranted to fully assess the significance of impacts.

[8] South Coast Air Quality Management District, *CEQA Air Quality Handbook,* April 1993.

Table 5.9-7
SCAQMD EMISSIONS THRESHOLDS

PHASE	Pollutant (lbs/day)				
	ROG	NO_X	CO	SO_X	PM_{10}
Construction	75	100	550	150	150
Source: SCAQMD, *CEQA AQMD Air Quality Analysis Guidance Handbook,* page 6-1, April 1993.					

Diesel Toxics Risk Factors

Estimates of potencies and RELs are derived from experimental animal studies or from epidemiological studies of exposed workers or other populations. Uncertainty arises from the application of potency or REL values derived from this data to the general human population. There is debate as to the appropriate levels of risk assigned to diesel particulates since the U.S. Environmental Protection Agency (EPA) has not yet declared diesel particulate matter (DPM)s as a toxic air contaminant. The SCAQMD typically applies a risk level of one in a million as the *de minimis* risk level. However, this type of reporting is only applicable to large populations (such as entire air basins) where the sample group is large and the exposure time is long (which is not the case for typical project-level construction projects).

Odor-based Thresholds

Projects emanating objectionable odors near existing sensitive receptors or other land uses where people may congregate could constitute a significant air quality impact to existing uses. Also, residential or other sensitive receptor projects built for the intent of attracting people near existing odor sources could also cause a significant air quality impact. The SCAQMD suggests a threshold based on the distance of the odor source from people and complaint records for a facility or similar facility. The threshold would be more than one confirmed complaint per year averaged over a three-year period, or three unconfirmed complaints per year averaged over a three-year period. Many of the air contaminants, which may be emitted at the proposed project, have odor thresholds based on empirical data.[9] These thresholds would be utilized to determine the potential to create objectionable odors (i.e. these pollutants would be treated as odor surrogates for comparison against modeled emission concentrations at the maximum point of impact).

Methodologies

The following models and guidelines are used as tools to create the analytical basis for the construction related impact analysis. The tools are discussed below. Note that Section 5.4, *AIR QUALITY* utilized the EMFAC2002 air quality model for long-term operational impacts, due to the project's minimal area source and vehicular related emissions. The construction process, which would generate substantially more mobile emissions, is modeled utilizing the Urbemis2002 model, which more accurately calculates mobile source impacts.

Urbemis2002[10, 11]

Construction emissions are considered short-term impacts and are temporary in nature.

[9] Nagata, *Measurement of Odor Threshold by Triangle Odor Bag Method*, 2002.
[10] Jones and Stokes, *Software User's Guide: URBEMIS2002 for Windows with Enhanced Construction Module*, 2003.
[11] Note: Unlike Section 5.4, *AIR QUALITY* (which utilizes the EMFAC model), this section utilizes URBEMIS2002 to calculate construction related air emissions. EMFAC does not have the capability to calculate construction equipment emissions. Thus, URBEMIS2002 is the appropriate model for this analysis .

URBEMIS2002 estimates construction related emission as if all construction were ongoing at the same time with all paving and architectural coatings applied in the last year. This analysis utilized the emission factors from URBEMIS2002 for the construction analysis. URBEMIS2002 operational emissions are comprised of two separate sources, area sources (i.e. emissions from space heating, landscape maintenance) and mobile sources. These emissions are calculated for the build out period and take into account future fleet mixes and emission controls.

URBEMIS2002 was developed to provide meaningful analysis of both short and long term impacts, and to encourage mitigation measures during project planning. Discrete URBEMIS2002 analysis is limited to annual periods. URBEMIS2002 uses a simplified set of emission factors to estimate impacts separately for predetermined construction periods and for operational periods as independent events and does not factor in: small discrete periods of project overlap, incremental periods smaller than one year, individual build out rates for each particular element of construction, schedule utilization of individual pieces of equipment, pro-ration for occupancy rate, retrofit technology over the life of equipment, pollutant reactivity or pollutant transport.

Where site specific or project specific data were available, URBEMIS2002 factors were modified to fit with the information (e.g. construction worker trips, demolition details, grading details, etc.). Where little or no information was available for a project, default values were selected (in the case of this project, only the distance that construction workers would be commuting was set to the URBEMIS2002 default). For the cumulative analysis, air emissions that occur in the South Coast Air Basin (SCAB) were utilized.

Screen3

For the purposes of diesel toxics analysis, construction vehicle pollutant emission generators would consist entirely of construction activities associated with rough-grading operations (which is the worst-case pollution emission scenario). The analysis methodology utilized in this report is based upon the SCAQMD *CEQA Air Quality Handbook CEQA Handbook Guidelines* for construction operations. Construction emissions were based upon the EPA AP-42 Report generation rates identified by the SCAQMD for the various classes of diesel construction equipment.

A screening risk assessment of diesel-fired toxics from construction haul trucks was performed using the SCREEN3 dispersion model developed by the EPA's Office of Air Quality Planning and Standards. The SCREEN3 model uses a Gaussian plume dispersion algorithm that incorporates source-related and meteorological factors to estimate pollutant concentration from continuous sources. It is assumed that the pollutant does not undergo any chemical reactions, and that no other removal processes, such as wet or dry deposition, act on the plume during its transport from the source.

Using the aforementioned concentrations obtained from the screening model, the diesel toxic risk can be defined as the following:

$$Risk = \frac{F_{wind} \times EMFAC \times URF_{70\,year\,\exp osure}}{Dilution}$$

where:

Risk = is the excess cancer risk (probability in one-million);

F_{wind} = is the frequency of the wind blowing from the exhaust source to the receptor (the default value is 1.0);

EMFAC = the exhaust particulate emission factor (the level from the screening model);

$URF_{70\ year\ exposure}$ is = the CARB unit risk probability factor (300 x 10^{-6}, or 300 in a million cancer risk per $\mu g/m^3$ of diesel combustion generated PM_{10} inhaled in a 70-year lifetime based upon the California Air Resources Board (CARB)*CARB 1999 Staff Report from the Scientific Review Panel [(SRP)] on Diesel Toxics*); and,

Dilution is = the atmospheric dilution ratio during source-to-receptor transport (the default value of 1.0 assumes no dilution)

Given the above assumptions for wind frequency and atmospheric dilution ratio, and substituting the CARB recommended value for the unit risk probability factor gives the following expression:

$$Risk = \frac{1 \times EMFAC \times 300x10^{-6}}{1} = 300x10^{-6} \times EMFAC \quad \text{per person}$$

Thus, the percentage of risk of cancer to any given person being exposed to a concentration of pollution equal to EMFAC (in $\mu g/m^3$) over a continuous period of 70-years would be:

$$Risk(\%) = (300x10^{-6} \times EMFAC) \times 100 = 300x10^{-4} \times EMFAC \quad \text{per person}$$

Where it can be directly stated that a risk percentage of, say, 25% would indicate a 25% probability of inhaled cancer risk for the given level of exposure (EMFAC) if consumed continuously for a period of 70-years. A 50% probability would correspond to a 50:50 chance of inhaled cancer risk if consumed continuously for a period of 70 years, and so on.

For the construction-related diesel-fired toxics analysis, an area-source consistent in dimensions with the proposed grading area is assumed. A simplified terrain model (which is consistent with the area surrounding the project site) with no building downwash corrections and a worst-case wind direction is utilized.

Impacts

Future construction of the project site would generate short-term air quality impacts during demolition, grading and construction operations. The short-term air quality analysis considers temporary impacts from the project. Construction activities would include:

- Clearing, grading, excavating and using heavy equipment or trucks creating large quantities of fugitive dust, and thus PM_{10};
- Heavy equipment required for grading and construction generates and emits diesel exhaust emissions; and
- The vehicles of commuting construction workers and trucks hauling equipment generate and emit exhaust emissions.

Construction of the project has been divided into three distinct phases: proposed desalination facility site construction, proposed off-site pipeline alignment construction, and off-site underground pump station construction. Although the project has been divided in three different phases, all phases would occur concurrently, and therefore must be analyzed and compared to SCAQMD thresholds as a whole.[12] As previously mentioned, the construction of the entire project is

[12] Telephone conversation with Steve Smith, South Coast Air Quality Management District, November 17, 2004.

anticipated to take place within a period of 24 months (two years).

The entire project would include site grading for an estimated total of eleven acres. Construction equipment used for grading includes graders, off-highway trucks, off-highway tractors and scrapers. Building and paving equipment includes cranes, construction trucks, tractors, pavers, paving equipment, excavators and tractors/loaders/backhoes. Exhaust emission factors for typical diesel-powered heavy equipment are based on the URBEMIS2002 program defaults. Exhaust emissions would vary substantially from day to day. Numerous variables factored into estimating total construction emissions include: level of activity, length of construction period, number of pieces/types of equipment in use, site characteristics, weather conditions, number of construction personnel and the amount of materials to be transported on-site or off-site. Refer to Appendix B, *AIR QUALITY DATA*, for a listing of mobile and stationary construction equipment included in these calculations. Computer model results are also included in Appendix B.

Fugitive Dust Emissions

Construction activities are a source of fugitive dust (PM10) emissions that may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the project vicinity. Fugitive dust emissions are associated with land clearing, ground excavation, cut and fill operations, and truck travel on unpaved roadways (includes demolition activities). Dust emissions also vary substantially from day to day, depending on the level of activity, the specific operations, and weather conditions.

Fugitive dust from grading and construction is expected to be short-term and would cease following project completion. Additionally, most of this material is inert silicates, rather than the complex organic particulates released from combustion sources, which are more harmful to health. Dust (larger than 10 microns) generated by such activities usually becomes more of a local nuisance than a serious health problem. Of particular health concern is the amount of PM10 (particulate matter smaller than 10 microns) generated as a part of fugitive dust emissions. As previously discussed, PM10 poses a serious health hazard; alone or in combination with other pollutants. The SCAQMD regulates fugitive dust emissions through Rule 403, which aims to reduce the amount of particulate matter entrained in ambient air by requiring actions to prevent, reduce, or mitigate emissions. Such actions include watering during site grading, limiting the speed of construction vehicles, and minimizing the area of disturbance, among others.

The URBEMIS2002 computer model calculates PM10 fugitive dust as part of the site grading emissions (refer to Table 5.9-8, *CONSTRUCTION EMISSIONS*). With implementation of standard construction practices and recommended mitigation measures regarding dust control techniques (i.e., daily watering), limitations on construction hours, and adherence to standard construction practices (requires watering for inactive and perimeter areas, track out requirements, etc.) fugitive dust impacts would be substantially reduced. In addition, the project would comply with the SCAQMD Rule 403 to reduce PM10 impacts. Impacts from PM10 fugitive dust would be less than significant.

Construction Equipment and Worker Vehicle Exhaust

Exhaust emissions from construction activities include emissions associated with the transport of machinery and supplies to and from the on-site desalination facility, off-site product water pipeline locations and the underground booster pump stations. Emitted pollutants would include CO, ROG, NO_X, SO_X, and PM_{10}. As indicated within Table 5.9-8, *CONSTRUCTION EMISSIONS* construction activities would exceed the SCAQMD threshold for NO_X. The project would result in approximately 221,051 cubic yards of soil hauling attributed to grading and excavation from all three separate phases of the project. The export of excess soil would result in additional truck hauling trips, which

increases NO_X emissions. Construction equipment and worker vehicle exhaust emissions would be considered significant and unavoidable despite the implementation of standard construction practices and recommended mitigation measures requiring all construction equipment being maintained in proper tune, shutting down equipment when not in use for extended periods of time and utilizing electric equipment for construction whenever possible in lieu of fossil fuel-fired equipment.

Table 5.9-8
CONSTRUCTION EMISSIONS

Emissions Source	Pollutant (pounds/day)[1]				
	ROG	NO_X	CO	PM_{10}	SO_x
Year 1					
On-site Desalination Facility	17.5	119.91	143.65	14.59	0.01
Off-Site Product Water Pipeline	17.4	117.67	140.12	5.35	0.01
Site Product Water Underground Booster Pump Stations Construction	17.6	116.84	146.02	5.57	0.01
Total Un-mitigated Emissions	*52.5*	353.26	429.79	25.51	0.03
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**150**
Is Threshold Exceeded After Mitigation?	***NO***	***YES***	***NO***	***NO***	***NO***
Mitigated Emissions[2]					
On-site Desalination Facility	17.5	119.91	143.65	6.66	0.01
Off-Site Product Water Pipeline	17.4	117.67	142.11	4.35	0.00
Site Product Water Underground Booster Pump Stations Construction	17.6	116.84	146.02	4.78	0.01
SCAQMD Thresholds	75	100	550	150	150
Total Mitigated Emissions	*52.5*	353.26	429.79	15.79	0.03
Is Threshold Exceeded After Mitigation?	***NO***	***YES***	***NO***	***NO***	***NO***
Year 2					
On-site Desalination Facility	22.64	149.24	181.90	5.73	0.00
Off-Site Product Water Pipeline	17.4	113.81	142.11	4.35	0.00
Site Product Water Underground Booster Pump Stations Construction	17.58	113.66	147.16	5.21	0.01
Total Un-mitigated Emissions	57.62	376.71	471.17	15.29	0.01
SCAQMD Thresholds	75	100	550	150	150
Is Threshold Exceeded After Mitigation?	***NO***	***YES***	***NO***	***NO***	***NO***
Mitigated Emissions[2]					
On-site Desalination Facility	22.64	149.24	181.90	5.73	0.0
Off-Site Product Water Pipeline	17.44	113.81	142.11	4.35	0.0
Site Product Water Underground Booster Pump Stations Construction	17.58	113.66	147.16	4.42	0.01
Total Mitigated Emissions	57.62	376.71	471.17	14.5	0.01
SCAQMD Thresholds	75	100	550	150	150
Is Threshold Exceeded After Mitigation?	***NO***	***YES***	***NO***	***NO***	***NO***

CO = Carbon Monoxide ROG = Reactive Organic Gases PM_{10} = Particulate Matter NO_X = Nitrogen Oxides SO_X = Oxides of Sulfur

NOTES:
1. Emissions calculated using the URBEMIS2002 Computer Model as recommended by the SCAQMD.
2. The reduction/credits for construction emission mitigations are based on mitigations included in the UREBMIS 2002 computer model and as typically required by the SCAQMD. Mitigations include the following: proper maintenance of mobile and other construction equipment, replace ground cover in disturbed areas quickly, water exposed surfaces twice daily, cover stock piles with tarps, water all haul roads twice daily and reduce speed limitation on unpaved roads to 15 miles per hour.

Refer to Appendix B, *Air Quality Data*, for assumptions used in this analysis, including quantified emissions reduction by mitigation measures.

ROG Emissions

In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are O_3 precursors. In accordance with the methodology prescribed by the SCAQMD, the ROG emissions associated with paving have been quantified with the URBEMIS2002 model. All architectural coatings for proposed project structures would need to be in compliance with Regulation XI, Rule 1113 – *Architectural Coating,* listed in the SCAQMD Rules and Regulations.[13] Rule 1113 provides specifications on painting practices as well as the ROG contents within paints used for within the District. It is anticipated that ROG emissions would be well below SCAQMD thresholds.

Toxic Air Contaminants

Diesel particulate matter is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is commonly found throughout the environment and is estimated by the EPA's National Scale Assessment to contribute to human health risk. Diesel exhaust is composed of two phases, either gas or particle and both phases contribute to the risk. The gas phase is composed of many of the urban hazardous air pollutants, such as acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde and polycyclic aromatic hydrocarbons. The particle phase also has many different types of particles that can be classified by size or composition. The size of diesel particulates that are of greatest health concern are those in the categories of fine, and ultra fine particles. The composition of these fine and ultra fine particles may be composed of elemental carbon with adsorbed compounds such as organic compounds, sulfate, nitrate, metals and other trace elements. Diesel exhaust is emitted from a broad range of diesel engines; the on road diesel engines of trucks, buses and cars and the off road diesel engines that include locomotives, marine vessels and heavy duty equipment.

Health Risk Assessments (HRA) for Diesel Particulate Matter (DPM) are typically conducted for areas that would expose sensitive receptors to high concentrations of DPM over a long period of time. Typically, per the California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Pollution Control Officers Association (CAPCOA) guidelines, estimating cancer risk for DPM is not required for construction activities as they occur for a short period of time and therefore would not measurably increase cancer risk. However, in order to provide a conservative analysis for construction impacts, a health risk screening analysis was performed using the EPA approved SCREEN3 model.

To be consistent with the approaches used for other toxic pollutants, a functional

[13] South Coast Air Quality Management District, http://www.aqmd.gov/rules/reg/reg11_tofc.html, November 10, 2004.

comparison of the risk probability per individual person exposed to construction contaminants would be examined. This approach has the advantage of not needing to quantify the population of the statistical group adjacent to the construction site as well as allowing the per-person risk to be expressed as a final percentage. Of course, for a large enough population sample (i.e., a million people) the results are the same as CARB's predictions.

Construction vehicle pollutant emission generators would consist primarily of haul truck activities such as earthwork haulage, concrete delivery and other suppliers, graders and pavers, contractor vehicles, and ancillary operating equipment such as diesel-electric generators and lifts. Construction emissions utilized within the SCREEN3 model were taken from the URBMIS2002 construction outputs for the proposed project (refer to Table 5.9-8, *CONSTRUCTION EMISSIONS*). According to the construction schedule for the project, a majority of the demolition and grading would take place within the first year of construction, which would result in greater particulate matter emissions. Although all stable criteria pollutants are provided, it should be noted that for cancer-risk potential, only PM_{10} is the single contributing factor. Therefore, emissions during the first year of construction were utilized in the SCREEN3 analysis as a worst case scenario. In addition to PM_{10}, SCREEN3 also calculates predicted emissions for non-carcinogenic contaminants, including CO, NO_x, and SO_x.

As illustrated in Table 5.9-8, *CONSTRUCTION EMISSIONS* construction operations were found to generate daily pollutant levels of 429.79 pounds/day of CO, 353.26 pounds/day of NO_x, 0.03 pounds/day of SO_x, and 15.79 pounds/day of PM_{10}. These emissions are assumed to occur over any given 24-hour day (thereby providing an upper bound on expected emission concentrations) and direct comparison with the California Ambient Air Quality Standards (CAAQS). The proposed project development has a working area of roughly 11 acres or 44,516 square-meters (36,422 m^2). Based upon the on-site emission levels identified above, the aggregate emission rates for the various criteria pollutants in grams per second and grams per square-meter (m^2) per second (required as the input parameters for the SCREEN3 model) are given below in Table 5.9-9, *PREDICTED PROJECT EMISSION RATES*. This methodology essentially applies all of the diesel emissions over this working area and provides a worst-case assessment of the impacts to sensitive receptors.

Table 5.9-9
PREDICTED PROJECT EMISSION RATES

Criteria Pollutant	Daily Site Emission Rates (grams/second)	Average Area Emission Rates (grams/m^2/second)
CO	2.25	4.31×10^{-5}
NO_x	1.57	6.17×10^{-5}
SO_x	0.000157	4.31×10^{-10}
PM_{10}	0.83	2.28×10^{-5}

Notes:
1. Total averaging time is 24 hours x 60 minutes/hour x 60 seconds/minute = 86,400 seconds per CAAQS standards.
2. One pound-mass = 453.592 grams

The expected diesel-fired construction emission concentrations from the SCREEN3 model are shown in Table 5.9-10, *SCREEN3 PREDICTED EMISSION CONCENTRATIONS*. Based upon the model results, all criteria pollutants were below the recommended risk level with a PM_{10} risk probability of 0.34% per 70-year exposure duration. A less than significant impact is expected due to proposed construction operations.

NOISE

The proposed project would involve the remediation and demolition of existing fuel oil storage tanks, the construction of the proposed seawater desalination project, the installation of up to ten miles of pipeline within primarily within existing public streets, easements, or other rights -of-way (ROW), and the implementation of two off-site underground booster pump stations. The noise level for the construction of the seawater desalination facility would vary during the construction period, depending upon the construction phase.

TABLE 5.9-10
SCREEN3 Predicted Emission Concentrations

Criteria Pollutant	Pollutant Concentration ($\mu g/m^3$)	Pollutant Concentration (ppm)	Pollutant Risk Probability (percent risk per person for 70-year exposure)	California Standards	Significant?
CO	310.0	0.27	n/a	9.0(ppm)	**No**
NO_x	216.3	0.115	n/a	0.04(ppm)	**No**
SO_x	0.021	0.000008	n/a	0.25(ppm)	**No**
PM_{10}	11.44	- -	0.34%	20($\mu g/m^3$)	No

Notes:

1. Diesel risk calculated using: $Risk(\%) = (300x10^{-6} \times EMFAC) \times 100 = 300x10^{-4} \times EMFAC$, based upon CARB 1999 Staff Report from the Scientific Review Panel (SRP) on Diesel Toxics inhaled in a 70-year lifetime.
2. Conversion Factors (approximate):
   - *CO: 1 ppm = 1,150 $\mu g/m^3$ at 25 deg-C Standard Temperature and Pressures (STP)*
   - *NO_x: 1 ppm = 1,880 $\mu g/m^3$ at 25 deg-C STP*
   - *SO_x: 1 ppm = 2,620 $\mu g/m^3$ at 25 deg-C STP*
   - *PM_{10}: 1 ppm = 1 g/m^3 (solid)*

The demolition, remediation, and construction process of the proposed desalination facility would last approximately 24 months. Project phasing would be divided into three separate categories, composed of: 1) on-site desalination facility construction (lasting approximately 24 months); 2) off-site product water transmission pipeline construction (lasting approximately 21 months, beginning about three months after the commencement of on-site desalination facility construction); and 3) off-site product water underground booster pump station construction (lasting approximately 18 months, beginning about 6 months after the start of construction for the on-site desalination facility). During the project implementation process, adjacent sensitive receptors would be exposed to sporadic high noise levels and groundborne vibration associated with remediation, demolition and construction activities (as a result of power tools, jack-hammers, truck trips, pile-drivers, etc.).

As stated above, sensitive receptors exist in the subject site vicinity, the nearest being residential uses approximately 500 feet west of the desalination facility site. These sensitive receptors are located within a primarily industrial area, and are typically exposed to noise generated by the HBGS, industrial uses along Edison Avenue, and high levels of automobile traffic along Beach Boulevard, Pacific Coast Highway, and Magnolia Street. Various sensitive receptors exist along the two alternative pipeline alignments, including residential areas, open space/recreational uses, medical facilities and schools. Open space and residential uses are located adjacent to the proposed off-site underground pump stations located within unincorporated County of Orange and

the City of Irvine. The more intense remediation, demolition, and construction noise (including the driving of sheet piles) would occur for brief periods of typically two to four weeks. In addition, the proposed project would require off-site import/export of soils as part of the site grading process. Any off-site truck traffic associated with desalination project implementation would utilize the existing access road located off of Newland Street.

The loudest equipment types generally operating at a site during each phase of construction are presented in Table 5.9-11, *SEAWATER DESALINATION FACILITY CONSTRUCTION EQUIPMENT NOISE LEVELS*. The composite average or equivalent site noise level, representing noise from all equipment, is also presented in the table for each major activity.

Table 5.9-11
SEAWATER DESALINATION FACILITY CONSTRUCTION EQUIPMENT NOISE LEVELS

Construction Phase	Loudest Construction Equipment	Equipment Noise Level at 50 feet (dBA)	Composite Site Noise Level at 50 feet (dBA)
Facility Construction	Forklift (2) Track Mount Crane (1) Wheel Mount Crane (1) Flatbed Truck (2)	75 75 75 88	91.4
Pipeline Construction	Backhoe (1) Compactor (1) Derrick Crane (1) Flatbed Truck (1)	85 80 88 88	92.2
Source: J.D. Barnes, et. al., *Power Plant Construction Noise Guide*, 1977.			

To calculate the noise level at a given distance from a noise source, the noise levels are mathematically propagated using the Inverse Square Law of Noise Propagation. Briefly, this formulation states that noise decreases by approximately 6 dBA with every doubling of the distance from the source. This methodology is represented as:

$$L_2 = L_1 - 20 \log (R_2/R_1)$$

Where:

L_2 = Noise level at a selected distance R_2 from the source.
L_1 = Noise level measured at a distance R_1 from the source.

Given the following values:

Desalination Facility Construction

$_{max}L_1$ = 91.4 dBA (per Table 5.9-11).
R_1 = 50 ft. (distance from equipment, Table 5.9-11).
R_2 = 1,000 ft. to nearest residential uses west of the subject site

Pipeline Construction

$_{max}L_1$ = 92.2 dBA (per Table 5.9-11).

R_1 = 50 ft. (distance from equipment, Table 5.9-11).
R_2 = 150 ft. to nearest residential uses along pipeline alignment (approximate average)

Applying the above Inverse Square Law formula, the construction noise levels at residential uses adjacent to the Desalination Facility and pipeline alignment would be 65.4 dBA and 82.7 dBA respectively. Since this level of noise is higher than typical ambient environmental noise levels, the construction noise would likely be audible during traffic lull period levels. Table 5.9-12, *CONSTRUCTION NOISE EXEMPTION PERIODS* outlines the hours that City of Huntington Beach, City of Irvine, City of Costa Mesa and the County of Orange exempt construction noise.

Table 5.9-12
CONSTRUCTION NOISE EXEMPTION PERIODS

Jurisdiction	Weekday Exempt Periods	Weekend Exempt Periods
City of Huntington Beach[1]	7 AM to 8 PM	7 AM to 8 PM
City of Costa Mesa[2]	7 AM to 8 PM	8 AM to 6 PM
City of Irvine[3]	7 AM to 7 PM	9 AM to 6 PM
County of Orange[4]	8 AM to 7 PM	8 AM to 7 PM

Notes:
1 – Per Section 8.40.090 of the City of Huntington Beach Municipal Code. Additionally, construction noise is prohibited on Sundays and Federal Holidays.
2 – Per Section 13-279 of the City of Costa Mesa Municipal Code. Additionally, construction noise is prohibited on Sundays and Federal Holidays.
3 – Per Section 6-8-205 of the City of Irvine Municipal Code. Additionally, construction noise is prohibited on Sundays and Federal Holidays.
4 – Per Section 4-6-7 of the County of Orange Code of Ordinances. Additionally, construction noise is prohibited on Sundays and Federal Holidays.

The proposed project would adhere to the above time restrictions to reduce the construction noise impact to adjacent sensitive uses. With the incorporation of the time restriction, as well as standard control measures, construction noise impacts are considered less than significant. All truck traffic, including traffic associated with pipeline implementation, would be subject to a truck and construction vehicle routing plan and would comply with all City/County noise regulations. It should also be noted that no significant noise related impacts would occur at the OC-44 underground booster pump station that would be located along the eastern border of the City of Newport Beach, as it is outside of the NCCP/HCP area. Pre-construction focused bird surveys would be performed, and any potential construction noise impacts would be mitigated as required by applicable regulatory agencies. Construction impacts to biological resources are further discussed below in this section under *BIOLOGICAL RESOURCES.*Given this information, a temporary increase in noise and groundborne vibration from remediation, demolition, and construction is expected to be less than significant with implementation of standard construction practices.

PUBLIC SERVICES AND UTILITIES

The demolition, remediation, and construction process for implementation of both on- and off-site components of the proposed project is not anticipated to result in impacts to public services. However, the proposed project (especially the installation of product water pipeline) may impact utilities in regards to damage or disruption of underground facilities such as water/sewer pipelines, electrical conduits, underground cable television or telephone wiring, and natural gas mains. On- and off-site grading and excavation would occur only after the project engineer has identified the locations of underground utilities.

Should implementation of the product water pipeline conflict with existing subsurface utilities such as sewer or storm water gravity systems, either the proposed pipeline or existing utility would be rerouted. It should be noted that although the new Effingham sewer lift station is located along the Alternative Pipeline Alignment, pipeline construction would avoid this facility and disruption of service would not occur. In the event that a gravity line or other utility cannot be rerouted, the 42- to 48-inch transmission line would be installed either above or below the existing utility (since the water flowing through the proposed pipeline would be under pressure, routing the line under the utility would not affect its operation). In cases where a gravity line or other existing utility can be rerouted, the utility would be routed underneath the proposed pipeline, if possible. Gravity lines would be fitted with a siphon section to allow flow to continue uninterrupted during proposed pipeline implementation. The proposed water transmission pipeline would have adequate sanitary separation from sewer facilities, and, if necessary, the Applicant would obtain necessary permits/approvals from the Department of Health Services (DHS) for portions of the pipeline in restricted zones. Impacts in this regard are not anticipated to be significant.
In addition, the project would require trenchless construction beneath the Huntington Beach Channel as part of the product water pipeline portion of the project. The County of Orange has improved this channel by driving sheet piles 24 feet below ground to achieve a greater level of flood protection.[14] Impacts in this regard are anticipated to be less significant.

AESTHETICS/LIGHT & GLARE

Demolition, remediation, and construction debris, associated mechanical equipment and high levels of truck traffic may adversely impact views of and across the project site, including the pipeline alignment and underground pump station locations. Construction and remediation activities on the proposed desalination project site would be visible from Huntington-By-The-Sea Mobile Home Park (located to the west), Beach Boulevard (located to the west), limited locations along Hamilton Avenue (located to the north), limited locations along Huntington State and Huntington City Beaches (located to the south), and from the vicinity of the intersection of Magnolia Street and Pacific Coast Highway (located to the southeast). However, these impacts would not be considered significant, as they would be short-term in nature. Standard construction measures such as chain link fencing and nylon mesh would be utilized to screen the staging and construction areas from site visitors and the general public at the proposed desalination project site and underground pump station sites. In addition, a staging area for equipment associated with the demolition, remediation, and construction process would be situated within HBGS property boundaries.

HAZARDS AND HAZARDOUS MATERIALS

The short-term demolition, remediation, and construction process of the proposed project may have adverse impacts with regards to hazardous materials. Remediation activities could expose on-site workers, future project employees, and the adjacent community to a variety of potentially hazardous materials. However, site remediation activities are strictly controlled by local, state, and federal requirements, and the majority of contamination in the vicinity of the proposed desalination project site is petroleum-based (which is not considered “toxic” or acutely hazardous). In addition, contaminated soils may be encountered along the proposed pipeline alignment (especially in the vicinity of the proposed desalination facility) as well as on the proposed pump station site. Therefore, compliance with the required mitigation measures (including a Remedial Action Plan subject to regulatory agency approval prior to project implementation for contaminated areas) is expected to reduce potential impacts to less than significant levels.

No known plugged and abandoned oil wells exist within the project boundaries. However, several

[14] Telephone conversation with Albric Ghokasian, OCFCD, November 23, 2004.

plugged and abandoned oil wells are located within proximity to the project site.. If possible, development over these wells would be avoided. Should development over a plugged/abandoned well be necessary, the well would be plugged or re-plugged in accordance with current Division of Oil, Gas and Geothermal Resources (DOGGR) specifications. Should any unrecorded or unknown wells be encountered during the excavation or grading process, the construction contractor would immediately report and coordinate with the City of Huntington Beach Fire Department and DOGGR to ensure adequate actions are taken.

Implementation of the water transmission pipeline portion of the project may create potential impacts due to landfill gas generation (particularly methane) from the former Cannery Street Landfill, located at the northwestern corner of Hamilton Avenue and Magnolia Street (currently developed as Edison Community Center/SCE easement). Both pipeline alignment alternatives would pass directly south of the former landfill within Hamilton Avenue. However, pipeline construction in the vicinity of the former Cannery Street landfill would comply with all local, state, and federal regulations in regards to landfill gas. Standard construction practices would be implemented to determine the potential for landfill gas and, if deemed necessary, appropriate gas detection, venting, and/or barrier system would be implemented to reduce impacts to less than significant levels.

In addition, potential groundwater contamination beneath the subject site may pose a short-term health threat to on-site workers and adjacent land uses during dewatering operations. Groundwater pumped from the project site would be continually monitored for pollutants, and if detected, would be treated prior to discharge to the sanitary sewer system or stormwater facilities. As dewatering operations would meet all federal, State and local criteria for groundwater contaminants, impacts in this regard would be less than significant.

In addition, demolition of existing on-site fuel oil storage tanks may expose persons to asbestos containing materials (ACMs) and/or lead based paint. Existing tanks on-site are constructed with a layer of insulation potentially containing asbestos. The proposed project is not expected to present significant health hazards, as carefully controlled removal operations would comply with all applicable Federal, State, and County regulations, in addition to measures imposed by the City of Huntington Beach and local agencies. Should asbestos or lead based paint be discovered on-site, a licensed asbestos/lead abatement contractor would be retained to remove the hazardous materials prior to the demolition of any structures. All ACMs would be removed in accordance with SCAQMD Rule 1403. No structures would be demolished along the pipeline alignment, as the pipeline alignment would occur within existing public streets, easements, or other rights-of-way (ROW). In addition, the two proposed booster pump location sites are void of structures, thereby eliminating the possibility of asbestos insulation or lead based paint on-site. Impacts are not anticipated to be significant.

TRAFFIC

Implementation of the proposed project may cause short-term, construction-related traffic impacts. The demolition, remediation and construction process would generate traffic in the site vicinity through on-site construction worker vehicle trips and truck trips. However, the City of Huntington Beach's adopted "Transportation System Needs Analysis 2000-2010" (September 12, 2000, approved by City Council October 2, 2000) indicates that no existing deficient street segments (LOS D or worse) surround the subject site. The nearest deficient segment is located along Pacific Coast Highway (PCH), between Beach Boulevard and Huntington Street, to the west of the proposed desalination project site. The truck trips to and from the project site would utilize Beach Boulevard to PCH to Newland Street, thereby minimizing impacts to the deficient segment of PCH located west of the project site. As the truck route would utilize Beach Boulevard from PCH north to the I-405 freeway, the portion of Beach Boulevard from Garfield Avenue to Ellis Avenue (also designated

as deficient by the City's "Transportation System Needs Analysis 2000-2010") may be temporarily impacted by short-term demolition, remediation, and construction. However, a Traffic Management Plan would be prepared for the demolition, remediation and construction phases of the proposed project in order to mitigate these short-term impacts to less than significant levels.

Pipeline construction for product water delivery would require temporary disruption along public streets, as the majority of the pipeline is proposed to be installed within existing street right-of-way (ROW) utilizing open trench construction methods. Trenchless construction methods would be utilized to cross roadways sensitive to traffic disruption, such as Brookhurst Street and SR-55. Adequate staging areas would be provided for both open trench and trenchless construction in order to minimize the amount of traffic disruption. In addition, a Traffic Management Plan would be prepared for the pipeline implementation phase of the proposed project in order to mitigate impacts to less than significant levels. The Traffic Management Plan would include measures to minimize traffic impacts due to pipeline implementation, such as the use of plating to reopen travel lanes during peak traffic hours as well as maintaining access to businesses and residences.

In addition, a new pipeline would be necessary to connect existing HBGS intake and outfall facilities to the proposed desalination project. It is not anticipated that the pipeline would require the relocation of structures, utilities, or other AES facilities. The pipeline connecting HBGS facilities to the proposed desalination project would exist entirely within HBGS property boundaries, and would not affect public roadways. Pipeline construction would be short-term in nature, and appropriate mitigation measures would be implemented to reduce impacts on the HBGS to less than significant levels, including provision of temporary parking areas.

Traffic impacts are not anticipated to occur upon implementation of the underground booster pump stations, as the pump station sites are proposed to occur within an Orange County Resource Preservation Easement and a church parking lot and would not require the closure or impede access to any roadways.

BIOLOGICAL RESOURCES

Proposed Desalination Facility Site

Construction of the proposed desalination facility would not directly impact the existing wetland area situated to the southeast of the proposed site, as the facility is proposed entirely within the existing fuel oil storage tank area. Rather, construction-related impacts have the potential to occur indirectly in regards to air quality, noise, light/glare, and storm water runoff. However, as stated above, any such impacts would be short-term in nature and would cease following completion of the project. Construction at the desalination facility would only occur during the hours allowed by the City of Huntington Beach Noise Ordinance (7:00 AM to 8:00 PM).

Western snowy plover (*Charadrius nivosus,* federally-listed as threatened and a state species of concern) forage primarily on sand at the beach-surf interface where they feed on small invertebrates. Snowy plovers nest most commonly on sandspits, dune-backed beaches, beach strands and open areas near river mouths and estuaries.[15] Western snowy plover is a winter migrant in southern California and a localized breeding resident April through September.[16] Reduced tidal influence in the marsh adjacent to the proposed project make it unlikely that western snowy plover would forage in this area. Plovers would also be unlikely to nest in this, or other adjacent marsh areas due to human activity. Western snowy plover nesting was last observed in the area in 1993, when one nesting pair was observed at the protected California least tern

[15] Thelander and Crabtree, 1994.
[16] AES and URS, 2000.

breeding area located on the Huntington State Beach.[17]

Belding's savannah sparrow (*Passerculus sandwichensis beldingii*, state-listed as endangered) may use the pickleweed of the Huntington Beach wetlands for breeding, nesting and feeding habitat.[18] Construction impacts, including short-term, temporary noise disturbance, could lead to disruption in Belding's savannah sparrow nesting activities in the marsh adjacent to the project site. Adult birds are likely to avoid areas of construction and operational impacts, minimizing potential effects on adults. In order to minimize potential construction impacts to nesting savannah sparrows, a pre-construction nesting survey would be performed by a qualified biologist in consultation with applicable regulatory agencies. Adequate mitigation (such as relocation, construction noise abatement measures, etc.) would be implemented as appropriate based on the findings of the pre-construction survey. All focused surveys for sensitive biological resources performed prior to proposed project implementation would include a review of data within the California Natural Diversity Data Base (CNDDB) to obtain current information on any previously reported sensitive species/habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code.

California least tern (*Sterna antillarum brownii*, state- and federally-listed as endangered) are known to fly over the Huntington Beach wetlands, and to feed in the open water of the Talbert Channel.[19] Least terns forage on small shallow-water fish such as anchovies and topsmelt.[20] In order to provide abundant food for their chicks, California least terns breed in loose colonies along the coast near areas of seasonally abundant small fish, such as estuaries, river mouths and shallows. Nests are shallow depressions in sandy open areas with little vegetation. Nests and chicks are highly vulnerable to predation from native and introduced predators. A protected 7.9-acre California least tern breeding area is located on the Huntington State Beach between the Talbert Marsh opening and the mouth of the Santa Ana River, approximately 5,000 ft south east of the proposed project area. Typically 200 to 300 nesting pairs of California least terns utilize this breeding site each year.[21] This area is likely to be unaffected by construction impacts.

Upon adherence to construction standards administered by the City of Huntington Beach, and upon implementation of recommended mitigation measures, impacts to the adjacent wetland area are not anticipated to be significant.

Off-Site Pipelines and Underground Pump Stations

Proposed Pipeline Alignments

Implementation of the proposed project may result in impacts to waterways due to "frac-outs" potentially occurring during pipeline construction. "Frac-outs" occur when drilling fluids (usually bentonite) seep to the surface via cracks in the ground. Prior to the performance of any directional boring, the applicant would prepare a Frac-Out Contingency Plan. The plan would establish criteria under which a bore would be shut down (e.g., loss of pressure, loss of a certain amount of returns) and the number of times a single bore should be allowed to frac-out before the bore is shut down and reevaluated. It would also clearly state what measures would be taken to seal previous frac-outs that have occurred on a given bore to ensure that it does not become the path of least resistance for subsequent frac-outs. Additionally, the site-specific Frac-Out Contingency Plan would be prepared and reviewed by the City Engineer and appropriate resource agencies prior to each major bore.

[17] Personal communication, Jonathan Snyder, United States Fish and Wildlife Service, 2003.
[18] MEC, 1991.
[19] MEC, 1991.
[20] Thelander and Crabtree, 1994.
[21] Personal communication, Keane, 2001.

OC-44 Booster Pump Station

Construction of the proposed OC-44 underground booster pump station may have impacts on biological resources, as the 0.5-acre site is overgrown with dense native vegetation known to support numerous species of wildlife. Pump station construction may impact two special status habitats (riparian and coastal sage scrub) on-site and may adversely affect several federal- or state-listed species (coastal California gnatcatcher, least Bell's vireo, and western pond turtle) expected to occur within the immediate vicinity of the subject site. The applicant would consult with applicable regulatory agencies during the permit application process to determine the precise location of the underground pump station that would minimize impacts to surrounding biological resources. During project design and after the exact location has been determined, the following focused surveys would be performed, if necessary:

- Prior to construction, three coastal California gnatcatcher surveys would be performed for the subject site (preferably during the gnatcatcher breeding season) in accordance with the United States Fish and Wildlife Service (USFWS) and CDFG regulations for development within a NCCP region. If the gnatcatcher were detected on or adjacent to the site, consultation and permitting through the USFWS would be required.
- In addition, a focused survey utilizing USFWS protocols for the least Bell's vireo would be performed prior to pump station construction. This protocol requires that eight surveys be conducted at least 10 days apart during the vireo nesting season of April through July. If this species is found to occur on or adjacent to the subject site, consultation and permitting through the USFWS would be necessary. If construction can avoid the nesting season, this survey may not be required.
- As pump station construction may also impact the southwestern pond turtle, a habitat assessment conducted by a qualified biologist experienced with the species would be performed. If adequate habitat is observed, a trapping program may be required to determine the presence or absence of this species. If present, the pond turtles would be trapped and relocated prior to construction to mitigate impacts to this species to less than significant levels.
- A survey for active raptor nests would be conducted 30 days prior to commencement of any construction activities during the raptor breeding season between February 1 and June 30. Any occupied nests found during survey efforts would be mapped on construction plans. Restrictions on construction activities may be required in the vicinity of the nest until the nest is no longer active as determined by a qualified biologist.

According to the 1995 County of Orange Central & Coastal Subregion Natural Community Conservation Plan & Habitat Conservation Plan (NCCP/HCP), the OC-44 pump station to be placed adjacent to the NCCP/HCP area would not be situated within or near a designated "special linkage" area. The purpose of "special linkage" areas is to "maintain connectivity between core coastal sage scrub habitat areas within the subregion, to improve biological linkages between the subregional reserve system and adjacent NCCP subregions, and to provide for other target species habitat located outside the reserve system." The nearest "special linkage" area to the proposed underground booster pump station site is the Coyote Landfill Special Linkage area, situated approximately 2,000 feet to the east. The El Capitan Special Linkage Area is located approximately one mile to the south. Implementation of the proposed off-site underground pump station is not anticipated to impact either of these "special linkage" areas. In addition, the underground pump station site would be situated outside the NCCP/HCP boundary, adjacent to an urbanized area.

In addition, according to Appendix L of the Draft EIR, *UNDERGROUND BOOSTER PUMP STATION BIOLOGICAL CONSTRAINTS SURVEY*, the proposed OC-44 site may include areas

within the jurisdiction of the Army Corps of Engineers (ACOE) or California Department of Fish and Game (CDFG). Should the potential for such areas continue to exist after the site is specifically located (outside of NCCP/HCP boundaries), a jurisdictional delineation in accordance with the Corps' Wetland Delineation Manual would be performed to determine the existence and/or extent of jurisdictional area. Adequate mitigation measures shall be implemented in consultation with the ACOE and CDFG during the permit application process, if necessary.

As the proposed underground pump station would include all necessary biological surveys and comply with standard regulations as required by the USFWS, ACOE, and CDFG, impacts to biological resources are not anticipated to be significant (refer to Appendix L, *UNDERGROUND BOOSTER PUMP STATION BIOLOGICAL CONSTRAINTS SURVEY*, for additional information). It should also be noted that any displaced vegetation would be replaced. All focused surveys for sensitive biological resources performed prior to proposed project implementation would include a review of data within the California Natural Diversity Data Base (CNDDB) to obtain current information on any previously reported sensitive species/habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code.

Coastal Junction Booster Pump Station

As the Coastal Junction pump station is proposed within a church parking lot in a disturbed area, no impacts to biological resources are anticipated.

CULTURAL RESOURCES

Four archaeological studies have been conducted within a half-mile radius of the proposed desalination facility site. Of these studies, one encompasses the project site. This study found two archaeological sites, although none were found at the HBGS facility.[22] In addition, no historic properties have currently been recorded at or nearby the subject site by the State Historic Resources Inventory list. However, due to the sedimentary deposits known to exist in the project area and due to the site's proximity to the coastal resources and fossil production from similar nearby sites, the project area is considered to have a high potential for producing paleontological resources. As such, a qualified paleontologist would be retained to monitor grading operations, and, if necessary, to salvage scientifically significant fossil remains. The paleontologist would have the authority to temporarily divert or direct grading efforts to allow evaluation and any salvage of exposed fossils. Upon implementation of recommended mitigation, significant cultural resources impacts at the proposed desalination facility site are not anticipated to occur.

As no historical or archaeological resources are known to exist within or surrounding the proposed booster pump station sites, impacts are not anticipated to be significant in this regard. However, should buried historical/archaeological resources be discovered during construction, all work in that area would be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

However, as the OC-44 pump station site is underlain by sediments deposited during the middle Miocene period, there is a high potential for the existence of middle Miocene invertebrate fossils and lower potential for middle Miocene vertebrate and Pleistocene vertebrate/invertebrate fossils. As such, a paleontological resource recovery program for Miocene invertebrate fossils would be performed for proposed underground pump station implementation. Earth-moving activities excavating lower than five feet would be monitored for paleontological resources, and a program to mitigate potential impacts to paleontological resources if exposed or unearthed during excavations would also apply (in accordance with the proposed guidelines of the Society of Vertebrate

[22] Southeast Coastal Redevelopment Plan Program EIR, January 23, 2002.

Paleontology). With the implementation of recommended mitigation measures, impacts to paleontological resources are not expected to be significant (refer to Appendix M, *UNDERGROUND BOOSTER PUMP STATION CULTURAL RESOURCES ASSESSMENT REPORTS*, for more information).

MITIGATION MEASURES

HYDROLOGY AND WATER QUALITY

CON-1 Concurrent with the submittal of the Grading Plan, the Applicant shall submit an Erosion Control Plan to the City of Huntington Beach Department of Public Works which would include the following measures:

a) Where necessary, temporary and/or permanent erosion control devices, as approved by the Department of Public Works, shall be employed to control erosion and provide safety during the rainy season from October 15th to April 15th.

b) Equipment and workers for emergency work shall be made available at all times during the rainy season. Necessary materials shall be available on-site and stockpiled at convenient locations to facilitate the rapid construction of temporary devices when rain is imminent.

c) Erosion control devices shall not be moved or modified without the approval of the Department of Public Works.

d) All removable erosion protective devices shall be in place at the end of each working day when the 5-day rain probability forecast exceeds 40%.

e) After a rainstorm, all silt and debris shall be removed from streets, check berms and basins.

f) Graded areas on the permitted area perimeter must drain away from the face of the slopes at the conclusion of each working day. Drainage is to be directed toward desilting facilities.

g) The permittee and contractor shall be responsible and shall take necessary precautions to prevent public trespass onto areas where impounded water creates a hazardous condition.

h) The permittee and contractor shall inspect the erosion control work and ensure that the work is in accordance with the approved plans.

i) Water shall be applied to the site twice daily during grading operations or as otherwise directed by the County of Orange Inspector in compliance with South Coast AQMD rule 403 (Fugitive Dust Emissions). A grading operations plan may be required including watering procedures to minimize dust, and equipment procedures to minimize vehicle emissions from grading equipment.

CON-2 Construction of the project shall include Best Management Practices (BMPs) as stated in the Drainage Area Management Plan (DAMP) by the Orange County Stormwater Management Program. BMPs applicable to the project include the following:

˜ Potential pollutants include but are not limited to: solid or liquid chemical spills; wastes from paints, stains, sealants, glues, limes, pesticides, herbicides, wood preservatives and solvents; asbestos fibers, paint flakes, or stucco fragments; fuels, oils, lubricants, and hydraulic, radiator, or battery fluids; fertilizers, vehicle/equipment wash water and concrete wash water; concrete, detergent, or floatable wastes; wastes from any engine/equipment steam cleanings or chemical

degreasing; and superchlorinated potable water line flushings.

- During construction, disposal of such materials should occur in a specified and controlled temporary area on-site, physically separated from potential stormwater run-off, with ultimate disposal in accordance with local, state, and federal requirements.

CON-3 As part of its compliance with the NPDES requirements, the Applicant shall prepare a Notice of Intent (NOI) to be submitted to the Santa Ana Regional Water Quality Control Board providing notification and intent to comply with the State of California general permit. Prior to construction, completion of a Storm Water Pollution Prevention Plan (SWPPP) would be required for construction activities on-site. A copy of the SWPPP shall be available and implemented at the construction site at all times.

CON-4 Prior to any dewatering activities, the Applicant shall obtain and comply with a general dewatering NPDES permit from the Santa Ana Regional Water Quality Control Board.

CON-5 The Applicant shall submit a dewatering plan for review and approval by the Santa Ana Regional Water Quality Control Board and the City of Huntington Beach Department of Public Works. The Applicant would comply with the approved dewatering plan.

CON-6 The Applicant shall inform the Orange County Water District (OCWD) of its plans for on-site dewatering, and, if necessary, would acquire necessary permits and approvals from the OCWD to ensure that no adverse impacts on the groundwater basin or seawater intrusion barrier occur as a result of the proposed project. The Applicant would comply with any approved dewatering permits or plans.

CON-7 During dewatering operations, a survey program shall be conducted on surrounding properties and structures to ensure that movement or settlement from on-site dewatering operations does not occur. This survey program would be subject to approval by the City Engineer.

CON-8 Should on-site dewatering operations require discharge into the sanitary sewer system, the Applicant shall obtain applicable permits and approvals from the Orange County Sanitation District (OCSD) and City of Huntington Beach Department of Public Works. Should the dewatering discharge be directed to existing AES stormdrain facilities, the Applicant shall ensure that dewatering is addressed in the Applicant's SARWQCB NPDES permit.

AIR QUALITY

CON -9 The project shall comply with SCAQMD Rule 402, which prohibits the discharge from a facility of air pollutants that cause injury, detriment, nuisance, or annoyance to the public or that damage business or property.

CON-10 During clearing, grading, earth moving, or excavation operations, excessive fugitive dust emissions shall be controlled by regular water or other dust preventive measures using the following procedures, as specified in the SCAQMD Rule 403.

- ❖ On-site vehicle speed shall be limited to 25 miles per hour.
- ❖ All material excavated or graded would be sufficiently watered to prevent excessive amounts of dust. Watering would occur at least twice daily with complete coverage, preferable in the late morning and after work is done for the day.
- ❖ All material transported on-site or off-site would be either sufficiently watered or securely covered to prevent excessive amounts of dust.
- ❖ The area disturbed by clearing, grading, earth moving, or excavation operations would be minimized so as to prevent excessive amounts of dust.
- ❖ These control techniques would be indicated in project specifications. Compliance with the measure would be subject to periodic site inspections by the City.
- ❖ Visible dust beyond the property line emanating from the project would be prevented to the maximum extent feasible.

NOISE

CON-11 Prior to the issuance of any grading permits, the Applicant shall ensure evidence acceptable to the City of Huntington Beach Department of Planning and Public Works that:

- ❖ All construction vehicles or equipment, fixed or mobile, operated within 1,000 feet of a dwelling shall be equipped with properly operating and maintained mufflers;
- ❖ All operations shall comply with the City of Huntington Beach Municipal Code Chapter 8.40 (Noise Control);
- ❖ Stockpiling and/or vehicle staging areas shall be located as far as practicable from residential areas; and
- ❖ Notations in the above format, appropriately numbered and included with other notations on the front sheet of grading plans, would be considered as adequate evidence of compliance with this condition.

CON-12 Should the project require off-site import/export of fill material during demolition, remediation, and construction, trucks shall utilize a route that is least disruptive to sensitive receptors, preferably Newland Street to Pacific Coast Highway to Beach Boulevard to I-405. Construction trucks shall be prohibited from operating on Saturdays, Sundays and federal holidays.

CON-13 To reduce project-related construction noise impacts generated by the proposed project, the following conditions shall be implemented:

- ˜ Construction activities shall be limited to hours specified by the City Noise Ordinance; and
- ˜ Unnecessary idling of internal combustion engines shall be prohibited.

PUBLIC SERVICES AND UTILITIES

CON-14 Unless underground utility locations are well documented, as determined by the City of Huntington Beach Public Works Department, the project engineer shall perform

geophysical surveys to identify subsurface utilities and structures, the findings of which shall be incorporated into site design. Pipelines or conduits which may be encountered within the excavation and graded areas shall either be relocated or be cut and plugged according to the applicable code requirements.

AESTHETICS/LIGHT & GLARE

CON-15 During construction, a security fence, the height of which shall be determined by the City of Huntington Beach Department of Building and Safety, shall be installed around the perimeter of the site. The construction site shall be kept clear of all trash, weeds, etc.

CON-16 Construction activities, to the extent feasible, shall be concentrated away from adjacent residential areas. Equipment storage and soil stockpiling shall be at least 100 feet away from adjacent residential property lines.

HAZARDS AND HAZARDOUS MATERIALS

CON-17 Prior to excavation of the contaminated and other areas for rough grading, the project site shall be cleared of all excess vegetation, surface trash, piping, debris and other deleterious materials. These materials shall be removed and disposed of properly (recycled if possible).

CON-18 Proper excavation procedures shall be followed to comply with OSHA's Safety and Health Standards. If applicable, the South Coast Air Quality Management District (SCAQMD) Rule 1166 permit shall be obtained prior to the commencement of excavation and remedial activities.

CON-19 The contractor shall follow all recommendations contained within the adopted Remedial Action Plan for the project site.

CON-20 If asbestos or lead-based paints are identified in any on-site structures, the contractor shall obtain a qualified contractor to survey the project site and assess the potential hazard. The contractor shall contact the SCAQMD and the City of Huntington Beach Departments of Planning, Building and Safety, and Fire prior to asbestos/lead paint removal.

CON-21 If any hazardous materials not previously addressed in the mitigation measures contained herein are identified and/or released to the environment at any point during the site cleanup process, operations in that area shall cease immediately. At the earliest possible time, the contractor shall notify the City of Huntington Beach Fire Department of any such findings. Upon notification of the appropriate agencies, a course of action would be determined subject to the approval of the by the City of Huntington Beach Department of Public Works.

CON-22 All structures must be cleaned of hazardous materials prior to off-site transportation, or hauled off-site as a waste in accordance with applicable regulations.

CON-23 Structure removal operations shall comply with all regulations and standards of the SCAQMD.

CON-24 The contractor shall post signs prior to commencing remediation, alerting the public

to the site cleanup operations in progress. The size, wording and placement of these signs shall be reviewed and approved by the City of Huntington Beach Departments of Planning and Public Works.

CON-25 Any unrecorded or unknown wells uncovered during the excavation or grading process shall be immediately reported to and coordinated with the City of Huntington Beach Fire Department and State Division of Oil, Gas, and Geothermal Resources (DOGGR).

CON-26 During remediation, if any soil were found to be hazardous due to contamination other than petroleum hydrocarbons, it would be segregated, stockpiled, and handled separately.

CON-27 Dust and volatile organic emissions from excavation activities shall be controlled through water spray or by employing other approved vapor suppressants including hydromulch spray in accordance with Regional Water Quality Control Board (RWQCB) Waste Discharge Requirements and the South Coast Air Quality Management District (SCAQMD) permit conditions.

CON-28 Prior to the excavation process for pipeline construction, the contractor shall coordinate with the County of Orange's Integrated Waste Management Department in order to ensure that proposed pipeline construction does not impact drainage of the former Cannery Street Landfill.

CON-29 Methane migration features would be consistent with the requirements of the City of Huntington Beach Specification Number 429 and other applicable state and federal regulations. The methane migration features shall be submitted for review and approval to the Orange County Health Care Agency (OCHCA), Environmental Health Division.

CON-30 Studies to evaluate the potential for landfill gas (LFG) generation and migration would be completed prior to implementation of the proposed water delivery component of the project. Appropriate mitigation measures would be coordinated with the South Coast Air Quality Management District, Solid Waste Local Enforcement Agency, Regional Water Quality Control Board, and the City of Huntington Beach Fire Department. Mitigation measures could entail active or passive extraction of LFG to control surface and off-site migration and passive barriers with vent layers and alarm systems below trenches and within 1,000 feet of the former Cannery Street Landfill boundary. A comprehensive monitoring network would be established along the pipeline alignment adjacent to the landfill. Periodic monitoring of the monitoring network would be performed.

TRAFFIC

CON-31 A Traffic Management Plan (TMP) shall be prepared and implemented to the satisfaction of the affected jurisdiction within which the facilities are to be constructed when the facilities are to be located where construction would affect roadways. The TMP shall include, but not be limited to, the following measures:

- Limit construction to one side of the road or out of the roadbed where possible;
- Provision of continued access to commercial and residential properties adjacent to construction sites;

- Provide alternate bicycle routes and pedestrian paths where existing paths/ routes are disrupted by construction activities, if any;
- Submit a truck routing plan, for approval by the City of Huntington Beach, County, and other responsible public agencies in order to minimize impacts from truck traffic during material delivery and disposal;
- Where construction is proposed for two-lane roadways, confine construction to one-half of the pavement width. Establish one lane of traffic on the other half of the roadway using appropriate construction signage and flagmen, or submit a detour plan for approval by the City Traffic Engineer;
- The Traffic Management Plan shall be approved by affected agencies at least two weeks prior to construction. Per Caltrans requirements, the applicant shall submit the Traffic Management Plan to Caltrans at the 90-percent design phase;
- Construction activities shall, to the extent feasible, be coordinated with other construction activity taking place in the affected area(s); and
- Provide for temporary parking, where necessary, during installation of pipelines within the AES site.

CON-32 Prior to initiating the removal of structures and contaminated materials, the contractor must provide evidence that the removal of materials would be subject to a traffic control plan, for review and approval by the by the City of Huntington Beach Department of Public Works. The intent of this measure is to minimize the time period and disruption of heavy duty trucks.

CON-33 Construction related activities would be subject to, and comply with, standard street use requirements imposed by the City of Huntington Beach, County and other public agencies, including the use of flagmen to assist with haul truck ingress and egress of construction areas and limiting the large size vehicles to off-peak commute traffic periods.

CON-34 The Contractor shall obtain the necessary right-of-way encroachment permits and satisfy all permit requirements. Nighttime construction may be performed in congested areas. Also, any nighttime construction activities shall have prior approval by the City of Huntington Beach Department of Public Works.

CON-35 During periods of heavy equipment access or truck hauling, the Contractor would provide construction traffic signage and a construction traffic flagman to control construction and general project traffic at points of ingress and egress and along roadways that require a lane closure.

CON-36 The Applicant shall coordinate with the Department of Public Works, Traffic Engineering Division in developing a truck and construction vehicle routing plan. This plan shall include the approximate number of truck trips and the proposed truck haul routes. It shall specify the hours in which transport activities can occur and methods to mitigate construction related impacts to adjacent residents and the surrounding area. The plan shall take into consideration any street improvement construction occurring in the vicinity. These plans must be submitted for approval to the Department of Public Works.

BIOLOGICAL RESOURCES

CON-37 Prior to construction on the proposed booster pump station site, three focused coastal California gnatcatcher surveys shall be performed in accordance with USFWS protocols, preferably during the gnatcatcher breeding season. Should the species be observed on or adjacent to the site, consultation and permitting through the USFWS would be required.

CON-38 Prior to construction on the proposed booster pump station site, eight focused least Bell's vireo surveys shall be performed for the off-site underground booster pump station (at least 10 days apart during the vireo nesting season of April and July) in accordance with USFWS protocols. Should the species be observed on or adjacent to the site, consultation and permitting through the USFWS would be required. This measure may not be necessary if construction phasing can avoid the vireo nesting season.

CON-39 Prior to construction on the proposed booster pump station site, a qualified biologist shall perform a habitat assessment for the southwestern pond turtle. If habitat for this species is observed, a trapping program would be implemented to determine the presence or absence of these species. If present, pond turtles must be trapped and relocated prior to the start of construction.

CON-40 A survey for active raptor nests shall be performed by a qualified biologist 30 days prior to the commencement of construction activities on the proposed booster pump station site. Any occupied nests discovered during survey efforts shall be mapped on construction plans for the site. If recommended by the biologist, restrictions on construction activities may be required in the vicinity of the nest until the nest is no longer active.

CON-41 Prior to the commencement of any directional boring for water conveyance pipeline implementation, the applicant shall prepare a Frac-Out Contingency Plan. The plan shall establish criteria under which a bore would be shut down (e.g., loss of pressure, loss of a certain amount of returns) and the number of times a single bore should be allowed to frac-out before the bore is shut down and reevaluated. It would also clearly state what measures would be taken to seal previous frac-outs that have occurred on a given bore to ensure that it does not become the path of least resistance for subsequent frac-outs. Additionally, the site-specific Frac-Out Contingency Plan would be prepared and reviewed by the City Engineer and appropriate resource agencies prior to each major bore.

CON-42 In order to minimize potential construction impacts to nesting savannah sparrows adjacent to the proposed desalination facility, a pre-construction nesting survey would be performed by a qualified biologist in consultation with applicable regulatory agencies. Should nesting savannah sparrows be found, adequate mitigation (such as relocation, construction noise abatement measures, etc.) would be implemented as appropriate based on the findings of the pre-construction survey.

CON-43 All focused surveys for sensitive biological resources performed prior to proposed project implementation shall include a review of data within the California Natural Diversity Data Base (CNDDB) to obtain current information on any previously reported sensitive species/habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code.

CON-44 Prior to implementation of the proposed off-site booster pump station adjacent to the

NCCP/HCP boundary, a jurisdictional delineation of the proposed pump station site shall be performed to determine the extent of jurisdictional area, if any, as part of the regulatory permitting process.

CULTURAL RESOURCES

CON-45 Should buried historical/archaeological resources be discovered during excavation on the proposed booster pump station site, all construction work in that area shall be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

CON-46 During excavation of five feet below ground surface or lower on the proposed booster pump station site, a paleontological resource recovery program for Miocene invertebrate fossils shall be implemented. This program shall include, but would not be limited to, the following:

- Monitoring of excavation in areas identified as likely to contain paleontologic resources by a qualified paleontologic monitor. The monitor shall be equipped to salvage fossils as they are unearthed to avoid construction delays and to remove samples of sediments, which are likely to contain the remains of small fossil invertebrates and vertebrates. The monitor must me empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Monitoring may be reduced if the potentially fossiliferous units described herein are not encountered, or upon exposure are determined following examination by qualified paleontologic personnel to have low potential to contain fossil resources;
- Preparation of recovered specimens to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates;
- Identification and curation of specimens into a museum repository with permanent retrievable storage. The paleontologist should have a written respository agreement in hand prior to the initiation of mitigation activities; and
- Preparation of a report of findings with appended itemized inventory of specimens. The report and inventory, when submitted to the appropriate Lead Agency, would signify completion of the program to mitigate impacts to paleontologic resources.

CON-47 A qualified paleontologist shall be retained to monitor grading operations at the proposed desalination facility site, and, if necessary, to salvage scientifically significant fossil remains. The paleontologist shall have the authority to temporarily divert or direct grading efforts to allow evaluation and any salvage of exposed fossils.

UNAVOIDABLE SIGNIFICANT IMPACTS

The proposed desalination project may have unavoidable significant impacts in regards to temporary, short-term emissions for NO_x. This unavoidable significant impact is anticipated to occur for the duration of the demolition, remediation, and construction process (expected to last approximately 18-24 months). NO_x emissions during construction of the proposed project would exceed the SCAQMD emission standards, despite the implementation of applicable mitigation measures.