D.2 Air Quality

D.2.1 Environmental Setting for the Proposed Project

Climate and Meteorology

The semi-permanent Pacific High over the eastern Pacific Ocean dominates the climate in the project area. San Diego County has a subtropical climate. On the coast, summers and winters are mild compared to locations further inland. During the winter months, the Pacific High weakens and migrates to the south allowing Pacific storms into California. At Oceanside, the average annual rainfall is just over 10 inches, most of which occurs between November and April (WRCC, 2004).

The SONGS site is within the coastal climate zone of San Diego County. The ocean's influence is significant. The prevailing climate is semi-arid to arid. Low-level temperature inversions (below 1,500 feet) occur frequently over the coastal area. This tends to limit vertical dispersion of pollutants and can lead to increased concentrations of pollutants inland where prevailing winds carry the air. Prevailing wind directions in the area of SONGS are from the west-southwest to west, and they are greatly influenced by local topography. Occasional winter storms and offshore flows reverse the winds so that they flow from the east.

Existing Air Quality

Criteria Air Pollutants. With the assistance of the San Diego County Air Pollution Control District (SDAPCD), the California Air Resources Board (CARB) compiles inventories and projections of emissions of the major pollutants and monitors air quality conditions. Air quality conditions are tracked for both "criteria air pollutants" and "toxic air contaminants."

Criteria air pollutants are a group of pollutants for which regulatory agencies have adopted ambient air quality standards and region-wide pollution reduction plans. Criteria air pollutants include ozone, carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), particulate matter, and lead. Toxic air contaminants (TACs) refer to a category of air pollutants that pose a present or potential hazard to human health, but which tend to have more localized impacts than criteria air pollutants. Reactive and volatile organic compounds and gases (VOC) and nitrogen oxides (NOx) are also regulated as criteria pollutants because they are precursors to ozone formation. Certain VOCs may also qualify as TACs. Two subsets of particulate matter are inhalable particulate matter less than ten microns in diameter (PM10) and fine particulate matter less than 2.5 microns in diameter (PM2.5).

Ambient Air Quality. Historically, violations of federal and State ambient air quality standards for ozone, particulate matter, and CO have occurred in San Diego County. Since the early 1970s, substantial progress has been made toward controlling these pollutants. Although air quality improvements have occurred, violations of ambient air quality standards for ozone and particulate matter are persistent. The frequency of the violations and the current air quality conditions are summarized for ozone, PM10, and PM2.5 in Table D.2-1. (The standards are discussed in more detail under Section D.2.2, Applicable Regulations, Plans, and Standards.)

Table D.2-1. Local Ambient Air Quality Monitoring Data

Monitoring Locations	Year	Ozone Days Over 1-hr State Standard	Ozone Max 1-hr (ppm)	Ozone Max 8-hr (ppm)	PM10 Days Over 24-hr State Standard	PM10 Max 24-hr ($\mu g/m^3$)	PM10 Annual Average ($\mu g/m^3$)	PM2.5 Max 24-hr ($\mu g/m^3$)	PM2.5 Annual Average ($\mu g/m^3$)
North San Diego County	1999	0	0.09	0.081	0	52.0	30.0	64.3	18.0
	2000	1	0.10	0.083	2	65.0	29.6	65.9	15.8
	2001	1	0.10	0.089	2	74.0	31.2	60.0	17.5
	2002	N/A	N/A	N/A	0	51.0	27.1	53.6	16.0
	2003	N/A	N/A	N/A	5	179.0	31.6	69.2	14.2

Source: Air Quality Data Website (CARB, 2004a).
Notes: State Standard = California Ambient Air Quality Standard (CAAQS)
ppm = parts per million
µg/m3 = micrograms per cubic meter; days over PM10 CAAQS is calculated based on monitoring every sixth day.
Station Locations: Ozone data are from the Oceanside monitoring station, and particulate matter data are from Escondido.

Existing Emission Inventory

Emission sources in the project area are primarily mobile sources, including on-highway motor vehicles passing through on Interstate 5, railroad locomotives, marine vessels, and military equipment and aircraft in routine use at MCBCP. CARB compiles regionwide emission inventories that include planning and forecast estimates for all groups of sources. The existing inventory shows that more than 50 percent of all NOx emissions in the region are from on-road motor vehicles, and more than ten percent of NOx emissions in the county are from construction-type equipment. Dust from construction activity in the county accounts for 20 percent of all PM10. The daily emissions from electric utilities, dust from construction activity, off-road equipment used during construction, ships, and all on-road motor vehicles are shown for inventory year 2003 in Table D.2-2.

Table D.2-2. Daily Emissions within San Diego County

Source Category	NOx (ton/day)	VOC (ton/day)	PM10 (ton/day)	CO (ton/day)	SOx (ton/day)
San Diego County Totals	219.41	203.74	125.74	1134.36	16.62
Source Category Sub-totals					
Electric Utilities / Cogeneration	3.27	1.78	0.59	2.32	0.03
Construction and Demolition Dust	—	—	27.13	—	---
Off-Road Equipment (All Construction and Mining)	24.68	2.98	1.73	18.20	0.02
Ships and Commercial Boats (Tugboats Maneuvering)	0.29	0.01	0.04	0.07	0.05
On-Road Motor Vehicles (All On-Road Vehicles)	125.57	68.80	4.41	718.86	0.97

Source: 2003 estimated source category emissions from Almanac Emissions Data (CARB, 2004b).

Relatively minor stationary sources are also in use at SONGS. The annual emissions from operations during 2001 at SONGS 2 & 3 are shown in Table D.2-3.

Table D.2-3. Annual Emissions from SONGS 2 & 3

	NOx (tpy)	VOC (tpy)	PM10 (tpy)	CO (tpy)	SOx (tpy)
SONGS 2 & 3 Annual Emissions	32.6	2.4	0.9	8.4	0.5

Source: Reported by SCE for 2001 (SCE, 2004a, PEA Table 4.3-2).

D.2.2 Applicable Regulations, Plans, and Standards

Ambient Air Quality Standards

Air quality is determined by measuring ambient concentrations of criteria pollutants, which are air pollutants for which acceptable levels of exposure can be determined and for which standards have been set. The degree of air quality degradation is then compared to the current National and California Ambient Air Quality Standards (NAAQS and CAAQS). In general, the CAAQS are more stringent than the corresponding NAAQS. The standards currently in effect in California are shown in Table D.2-4.

Air quality standards are designed to protect those people most susceptible to respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise.

Table D.2-4. National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards
Ozone (O3)	1-hour	0.09 ppm	0.12 ppm
	8-hour	—	0.08 ppm
Respirable particulate matter (PM10)	24-hour	50 µg/m^3	150 µg/m^3
	Annual mean	20 µg/m^3	50 µg/m^3
Fine particulate matter (PM2.5)	24-hour	—	65 µg/m^3
	Annual mean	12 µg/m^3	15 µg/m^3
Carbon monoxide (CO)	1-hour	20 ppm	35 pm
	8-hour	9.0 ppm	9.0 ppm
Nitrogen dioxide (NO2)	1-hour	0.25 ppm	—
	Annual mean	—	0.053 ppm
Sulfur dioxide (SO2)	1-hour	0.25 ppm	—
	24-hour	0.04 ppm	0.14 ppm
	Annual mean	—	0.03 ppm

Notes: ppm=parts per million; µg/m3 = micrograms per cubic meter; "—" = no standard
Source: CARB, 2003, Ambient Air Quality Standards Table

Attainment Status

Geographic areas are designated by either the U.S. EPA or CARB as a nonattainment area if violations of the ambient air quality standards are persistent. The San Diego area is classified as a serious nonattainment area for the State ozone standard, and like many areas in the State of California, it is a nonattainment area with respect to the PM10 and PM2.5 CAAQS. San Diego was successfully designated as an attainment area for the federal 1-hour ozone standard in 2003, but the U.S. EPA recently reestablished a federal nonattainment designation for the 8-hour ozone standard. A federal nonattainment designation for PM2.5 was established in early 2005. It is not clear whether San Diego would be likely to attain these more stringent standards because the planning process has only recently begun. A summary of the air quality status relative to the standards is provided in Table D.2-5.

Table D.2-5. Attainment Status of San Diego Air Basin

	Ozone		Particulate Matter		CO		NO2		SO2	
Air Basin	State	Federal	State	Federal	State	Federal	State	Federal	State	Federal
San Diego	Serious Nonattainment	1-hr: A 8-hr: N	PM10: N PM2.5: N	PM10: A PM2.5: N	A	A	A	A	A	A

Note: A = Attains Ambient Air Quality Standards; N = Nonattainment.
Source: CARB, 2004c; and U.S. EPA, 2005.

Air Quality Plans and Regulations

The Federal Clean Air Act, as amended, and the California Clean Air Act both require that air quality management plans be formulated demonstrating how the ambient air quality standards will be achieved in nonattainment areas. These laws also provide the basis for the implementing agencies to develop mobile and stationary source performance standards.

The San Diego County Air Pollution Control District (SDAPCD) is the primary agency responsible for planning, implementing, and enforcing federal and State ambient standards within the County. In order to demonstrate how the area will eventually meet the standards, the SDAPCD maintains the Regional Air Quality Strategy, most recently revised in 2001. The Regional Air Quality Strategy (RAQS) is a compilation of measures and regulations that govern how the region will manage ozone precursors (NOx and volatile organic compounds or VOCs) to eventually attain and maintain the State ozone standard. No State plan is required to meet State PM10 standards. Federal plans for attaining the 8-hour ozone standard must be completed by SDAPCD by the end of 2007, demonstrating attainment by 2009. Plans for PM2.5 attainment would also be developed around 2007 or 2008.

Emissions limitations are imposed upon sources of air pollutants by rules and regulations promulgated by the federal, State, or local agencies. Mobile sources of air pollutants and exhaust from off-road equipment are controlled by federal and State agencies through emission performance standards and fuel formulation requirements and are exempt from SDAPCD rules and regulations (Regulation XIV, Appendix A – Insignificant Units). Mobile and portable sources and temporary activities that cause emissions of air contaminants are managed through a range of local, State, and national programs mentioned below. Operation of emission sources will not interfere with progress in attainment of State and national ambient air quality standards, provided that they are compliant with the following programs:

- **U.S. EPA, General Conformity Rule.** Any project that requires a federal action for approval, such as MCBCP issuing a Real Estate License, would need to comply with federal general conformity requirements. The general conformity rule specifies that the project conform with the local plan for attaining the federal standards, called the State Implementation Plan (SIP). Although the region was recently designated as a nonattainment area for the 8-hour ozone standard, the severity of the designation is less than serious (as in 40 CFR 93.153 and EPA 2004). Any federal action causing more than 100 tons per year of NOx or VOC must undergo a comprehensive analysis of conformity with the SIP.
- **U.S. EPA/CARB Off-Road Mobile Sources Emission Reduction Program.** The California Clean Air Act mandates CARB to achieve the maximum degree of emission reductions from all off-road mobile sources in order to attain the State ambient air quality standards. Off-road mobile sources include construction equipment. Tier 1 standards for large compression-ignition engines used in off-road mobile sources went into effect in California in 1996. These standards and ongoing rulemaking jointly address NOx emissions and toxic particulate matter from diesel combustion.
- **CARB Portable Equipment Registration Program.** This program allows owners or operators of portable engines and associated equipment to register their units under a statewide portable program to operate their equipment throughout California without having to obtain individual permits from local air districts. Registered engines must comply with technological requirements, which may include injection timing retard, turbochargers, aftercoolers/intercoolers, or catalysts.

- **CARB Diesel Risk Reduction Program.** In 2000, CARB established a number of strategies for reducing the exposure of Californians to toxic diesel particulate matter from on-road heavy-duty vehicles and off-road equipment. Through this program, CARB is implementing standards for lower levels of particulate matter emissions (0.15 grams per horsepower-hour for some engine classes) and cleaner diesel fuel (15 parts per million of sulfur, by 2006). The aim of the strategies is to provide a 75 percent reduction in diesel particulate matter from these sources by 2010 when compared to 2000 conditions (CARB, 2004d).
- **SDAPCD Regulation IV – Prohibitions, Rule 50 – Visible Emissions.** This rule prohibits any activity causing air contaminant emissions darker than Ringelmann Number 1 (20 percent opacity) for more than an aggregate of three minutes in any consecutive 60 minute time period.
- **SDAPCD Regulation IV – Prohibitions, Rule 51 – Nuisance.** This rule prohibits any activity causing the discharge of air contaminants that cause or have a tendency to cause injury, detriment, nuisance, or annoyance to people and/or the public, or damage to any business or property.

D.2.3 Environmental Impacts and Mitigation Measures for the Proposed Project

D.2.3.1 Definition and Use of Significance Criteria

The significance of air quality impacts depends on the criteria established in the State CEQA Guidelines, Appendix G. Air quality impacts would be considered significant if the project would:

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
- Expose sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people.

The SDAPCD has *not* adopted quantitative thresholds for characterizing impacts under CEQA, and the SDAPCD does not provide formal guidance to Lead Agencies. As Lead Agency on other projects in San Diego County, the CPUC aims to quantify project emissions and compare them to thresholds found in the SDAPCD regulations [Rule 20.2(d)(2)] for stationary sources. If emissions during project implementation could exceed these thresholds, then feasible measures to reduce the emissions are identified. Emissions of contaminants (NOx, VOC, CO, SO2, and diesel-related particulate matter) that would routinely occur in the exhaust of heavy-duty construction equipment and marine vessels (e.g., tugboats) are included by SDAPCD in the regionwide inventory that is the basis for regional attainment and are not expected to impede attainment or maintenance of the ambient air quality standards.

Applicant-Proposed Measures

SCE has proposed to include the following measures as part of the Proposed Project in order to control dust during construction (SCE, 2004b):

- **AQ-1: Standard Dust Control Measures** will be applied where necessary. Unpaved surfaces will be dampened with a water truck to minimize fugitive dust if dust generation becomes a problem. Given the existing hard compaction of the unpaved roads on MCBCP and the slow speed of the transport on these roads, dust generation is not expected to be a problem and dust suppression is not expected to be required; however, it will be available if needed. Dust generation on the beach transport is not expected because the beach sand particles are too large to generate dust. Dust generated during concrete crushing will be suppressed with water.

D.2.3.2 Replacement Steam Generator Transport

Delivery and transport of the RSGs to the SONGS site would involve use of a wide range of diesel-powered and gasoline-powered equipment. Mobile and some heavy-duty, yet portable, stationary equipment would be used at Camp Pendleton Del Mar Boat Basin for offloading, and tugboats would be used to maneuver the barges. For each transport option, a range of heavy-duty equipment would be used to move the RSGs, provide portable power, and carry equipment and crew. Creating temporary transitions along transport routes (by grading surfaces, removing obstructions, or placing protective mats or plates) would also involve traditional construction equipment such as loaders, lifts, or small cranes.

Each of these activities would cause short-term emissions from combustion of the fuels (NOx, VOC, CO, SO2, and diesel-related particulate matter). Depending on the transport route, short-term emissions of fugitive dust would also be created during minor grading activity or transport on unpaved surfaces. The equipment used by the Applicant would need to comply with the applicable standards of the U.S. EPA/CARB Off-Road Mobile Source rules and may voluntarily comply with the CARB Portable Equipment Registration Program. The Applicant has also committed to watering unpaved surfaces along the routes to minimize dust generation during transport, if necessary.

All of the emission sources would be temporary, occurring for only a few hours at any single location along the route for each trip. Emissions may occur for a few days at select locations where temporary transitions must be created or when stopping at layover areas. Depending on how deliveries are timed, up to seven one-way trips of the transporters and support equipment and crew would be necessary.

Diesel emissions from equipment may also create objectionable odors. However, it is anticipated that the temporary nature of these emissions in any single location would not affect nearby persons.

Impact A-1: Replacement activities would cause emissions from transport and construction equipment

Transporters and other heavy-duty equipment such as a crane and lifts would be used for RSG offloading and transport along a combination of paved and unpaved surfaces. The duration of transport activity along the Beach and Road Route would be between 8 and 12 days per trip. Along this route, the sources would travel on paved surfaces within the vicinity of military housing and campground facilities in San Onofre State Beach, and much of the remainder of the transport would occur on unpaved roads within MCBCP and along the beach. The inventory of equipment expected to be used during transport on the proposed Beach and Road Route is shown in Table D.2-6.

Emissions from combustion of the fuels (NOx, VOC, CO, SO2, and diesel-related particulate matter) and fugitive dust from these activities would affect local air quality for the brief duration of transport activities. Because San Diego County is a nonattainment area for ozone and particulate matter, these emissions would temporarily contribute to the existing violations of ozone and particulate matter in the region. To characterize the air quality impact, the Applicant prepared an estimate of maximum daily

transport emissions for certain phases of transport. Estimates were provided for those days of transport on Interstate 5 and within San Onofre State Beach, reflecting about 1.3 working hours of transport per day. Independent estimates were developed for those days of transport on other segments such as those within MCBCP, when at least 4 working hours of transport per day are expected to be needed. The estimated emissions that would occur daily during transport along the Beach and Road Route are shown in Table D.2-7.

Table D.2-6. Equipment Inventory for Beach and Road Route Transport

Type of Equipment	Quantity	Size or Power Rating	Fuel Type
Prime Movers			
Tugboat	1	4268 hp	Fuel Oil
Assist prime mover	1	460 hp	Diesel
Service Fleet: Off-Road Equipment			
200 ton crane	1	200 hp	Diesel
Pumps/winches/generators	4	50 hp	Diesel
Hydraulic trailer/power packs	4	450 hp	Diesel
Highbeds/lowboys to shuttle gear	6	435 hp	Diesel
18 ton lifts	2	120 hp	Diesel
5 ton lifts	3	130 hp	Diesel
Light towers	4	11 hp	Diesel
110V generators	6	5 hp	Gasoline
Miscellaneous utilities	4	200 hp	Gasoline
Service Fleet: On-Road Trucks / Traffic Control			
Utility trucks	5	Light Duty Truck	Diesel
Pickup trucks	8	Light Duty Truck	Gasoline
Bucket trucks	3	Light Duty Truck	Gasoline
Traffic control vehicles	6	Light Duty Truck	Gasoline
Worker Vehicles	Up to 1,000 (post-transport)	Mixed	Mixed

Source: SCE Data Responses Question 57 Attachment, May 17, 2004; Aspen Environmental Group, 2004 (for tug).

Annual emissions from all transport activities are calculated by assuming that all transport trips could occur within one 12-month period, although they would likely occur in separate years. The quantity of annual emissions is of interest for comparison with the General Conformity Rule applicability thresholds because the MCBCP would need to issue a Real Estate License for use of this route. Between 8 and 12 days of transport would be necessary for each trip on the Beach and Road Route, and a maximum of seven transport trips would be needed to bring all of the replacement steam generators to the SONGS site. The emissions for each multi-day trip and the sum of emissions from all transport trips are shown in Table D.2-8.

The emissions shown in Table D.2-7 and D.2-8 are based on assumptions of dust suppression along the transport route specified by the Applicant and use of newer, or lower-emitting, construction equipment (i.e., equipment achieving less than 6.9 grams per horsepower-hour of NOx). Proper watering of unpaved surfaces along the route would be necessary to ensure that emissions of dust during the short-term transport would not cause substantial emissions. Similarly, if the transport equipment is poorly maintained or if out-of-date engines are used, then the off-road equipment emissions from transport could temporarily exceed the significance criteria for daily emissions. By implementing the following feasible recommendations, shown in Mitigation Measures A-1a and A-1b, the potentially significant impact of emissions from transport activities would be reduced to a level that is less than significant (Class II).

Table D.2-7. Daily Emissions from Transport for Proposed Project (Beach and Road Route)

Transport Activity	NOx (lb/day)	VOC (lb/day)	PM10 (lb/day)	CO (lb/day)	SOx (lb/day)
Tugboat and Barge (partial day for delivering barge)	432.67	20.93	11.45	117.57	9.20
Off-Road Transport Equipment (within MCBCP)	222.85	27.23	6.01	285.39	0.00
Off-Road Transport Equipment (on I-5)	90.35	14.25	2.65	154.17	0.00
On-Road Trucks / Traffic Control (on I-5)	3.25	1.42	0.17	15.52	0.02
Off-Road Transport Equipment (within State Beach)	75.16	8.85	3.34	66.98	0.00
On-Road Trucks / Traffic Control (within State Beach/MCBCP)	1.67	0.67	0.09	7.14	0.01
Fugitive Dust	—	—	8.38	—	—
Peak Daily Total for Transport (within MCBCP, excludes tug)	224.5	27.9	14.5	292.5	0.0
Significance Criteria	250	None	100	550	250

Source: SCE Data Responses Question 57 Attachment, May 17, 2004; Aspen Environmental Group, 2004 (for tug and MCBCP activity).

Table D.2-8. Annual Emissions from Transport for Proposed Project (Beach and Road Route)

Transport Activity	NOx (ton)	VOC (ton)	PM10 (ton)	CO (ton)	SOx (ton)
Tugboats, up to two deliveries	0.43	0.02	0.01	0.12	0.01
Total on-land emissions per trip	0.87	0.11	0.05	1.15	0.00
Total Emissions, Seven Trips	6.53	0.79	0.39	8.14	0.01
General Conformity Threshold	100	100	None	None	None

Source: Aspen Environmental Group, 2004.

Mitigation Measures for Impact A-1, Replacement activities would cause emissions from transport and construction equipment

A-1a **Suppress dust at all work areas or transport routes and on public roads.** SCE shall (1) pave, apply sufficient water, or apply (non-toxic) soil stabilizers on all unpaved work areas, transport routes, parking areas, and staging areas if activity causes persistent visible emissions of fugitive dust; and (2) sweep public streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.

A-1b **Use low-emission transport equipment.** SCE or its transport contractor shall (1) use diesel engines that meet, at a minimum, 1996 CARB or U.S. EPA certified standards for off-road equipment that has a rating of more than 100 horsepower, or install high-pressure diesel injectors and retard the injection timing on any off-road equipment that was manufactured prior to 1996; (2) maintain construction equipment per manufacturing specifications; and (3) substitute small electric-powered equipment for diesel- and gasoline-powered construction equipment where feasible.

D.2.3.3 Staging and Preparation

Construction equipment and a large temporary workforce would be mobilized to build or fabricate temporary facilities for staging, warehouse, training, fabrication, and office space on the SONGS site. Mobile and heavy-duty off-road equipment would be diesel- and gasoline-powered. The range of equipment would include cranes, lifts, welders, generators, compressors, and other specialized tools. No substantial amount of earthmoving would occur because the temporary facilities would be installed on existing developed property within the OCA.

The construction activities during staging and preparation would involve routine construction equipment and on-road traffic. As identified above, construction equipment emissions are managed by the SDAPCD through the regionwide inventory used for attainment planning. Emissions from on-road traffic would be caused by workers commuting and during the delivery of equipment, materials, or portable facilities (e.g., trailers). Table D.2-9 shows the estimated emissions that would occur daily during the period of peak employment, when up to 1,000 additional workers would commute to the SONGS site.

Table D.2-9. Daily Emissions from Worker Vehicle Use

Staging and Preparation	NOx (lb/day)	VOC (lb/day)	PM10 (lb/day)	CO (lb/day)	SOx (lb/day)
Worker Vehicles	59.08	54.67	2.65	541.45	0.00

Source: SCE Data Responses Question 57 Attachment, May 17, 2004.

Total emissions during staging and preparation would be greater than those shown in Table D.2-9 above because use of the heavy-duty construction equipment would occur concurrently. Additionally, some of the staging emissions would likely overlap with emissions related to transport of the replacement steam generators (Section D.2.3.2) because staggered delivery of the generators may occur after staging begins. This makes it difficult to quantify the total daily emissions that would occur from staging and preparation activities combined with transport.

As with the emissions from transport of the replacement steam generators, emissions from staging and preparation activities would contribute to the existing violations of ozone and particulate matter in the region during the short-term duration of the work. However, in contrast to the specialized equipment to be used during transport (Impact A-1), staging and preparation would involve emissions from routine construction equipment that are included by SDAPCD in the regionwide inventory that is the basis for regional attainment. This means that the emissions are not expected to impede attainment or maintenance of the ambient air quality standards, and air quality impacts from staging and preparation activities would not be significant (Class III).

D.2.3.4 Original Steam Generator Removal, Staging, and Disposal

Removal, staging, and disposal of the original steam generators would involve typical construction sources, like cranes, lifts, and trucks, along with transporters and specialized power sources related to concrete and steel cutting for creating the containment opening. Heavy-duty equipment used for OSG removal, staging, and disposal would be similar to that needed for facility staging and preparation, as described in Section D.2.3.3 above. Emissions from routine equipment, which would not include the equipment needed for concrete cutting, are not expected to impede attainment or maintenance of the ambient air quality standards because they are included in the regionwide inventory that is the basis for regional attainment. The air quality impacts of routine equipment would not be significant (Class III). Emissions caused by creating the containment opening and off-site disposal are discussed separately below.

Prepare for and Create Containment Opening

Impact A-2: Creating containment opening would cause substantial emissions of ozone precursors and particulate matter from portable engines

Specialized concrete cutting methods would be used to create the containment opening at each unit. The Applicant expects to use a high pressure water (hydro-lazing or hydro-demolition) method or other mechanical technique such as chipping, drilling, or sawing to create the openings in the concrete and steel. Each technique would create notable amounts of concrete dust, which would be either suppressed

or captured in a temporary containment. Crushing the concrete for disposal could also generate notable dust emissions. The temporary power for hydro-lazing or mechanical cutting and chipping methods would be provided by a bank of engines installed on site.

Hydro-lazing would require relatively steady operation of 12 to 18 500-hp diesel-driven water pumps, which would generate substantial levels of combustion emissions for approximately 10 to 14 days. Mechanical cutting and chipping methods would require a less intense temporary power source. This non-routine equipment would create emissions from combustion of diesel fuel (NOx, VOC, CO, SO2, and diesel-related particulate matter) that would affect local air quality for the brief duration of concrete cutting activities. Because San Diego County is a nonattainment area for ozone and particulate matter, these emissions would temporarily contribute to the existing violations of ozone and particulate matter in the region. To manage these emissions, it would be appropriate for the Applicant to either comply with the CARB Portable Equipment Registration Program or obtain a permit to operate from the SDAPCD. The daily emissions that would be caused by creating the containment opening are shown in Table D.2-10.

Table D.2-10. Daily Emissions from Creating Containment Opening

Steam Generator Replacement	NOx (lb/day)	VOC (lb/day)	PM10 (lb/day)	CO (lb/day)	SOx (lb/day)
Hydro-lazing, 14 hours/day	572.40	59.44	22.40	43.10	0.00
Hydro-lazing, 20 hours/day	800.56	83.13	31.33	60.29	0.00
Significance Criteria	250	None	100	550	250

Source: PEA Table 5.3-4 (SCE, 2004a).

The engines used for powering the hydro-lazing or mechanical methods would cause emissions that could temporarily exceed the significance criteria for daily emissions. Participating in the statewide CARB Portable Equipment Registration Program would ensure that CARB-recommended pollution control devices are in place on the engines. Registering the equipment would also provide CARB and SDAPCD with a means of managing and tracking the emissions, allowing them to be included in the regionwide inventory that is the basis for regional attainment. The portable equipment would not be expected to impede attainment or maintenance of the ambient air quality standards if its operation is consistent with the Portable Equipment Registration Program. By implementing the following feasible recommendations, shown in Mitigation Measure A-2a, the potentially significant impact of emissions from water pumping would be reduced to a level that is less than significant (Class II).

Mitigation Measure for Impact A-2, Creating containment opening would cause substantial emissions of ozone precursors from portable engines

A-2a **Use registered water pumping or power generation engines.** SCE or its contractor shall (1) use diesel engines that are registered in the Statewide Portable Equipment Registration Program for water pumping or power generation during the process of creating the containment opening; and (2) maintain the engines according to the specifications of the Program.

Original Steam Generator Disposal

Disposal of the original steam generators would involve brief use of specialized transporters between SONGS 2 & 3 and the rail loading location adjacent to the OCA, and it would also involve shipping off-site via trucks on regional highways. As with the activities related to facility staging and preparation described above (Section D.2.3.3), emissions from on-highway traffic are not expected to impede attainment or maintenance of the ambient air quality standards, and the air quality impacts from disposal activities would be less than significant (Class III).

D.2.3.5 Steam Generator Installation and Return to Service

Installation of the replacement steam generators would involve use of typical construction equipment, like cranes, lifts, trucks, and welders. Use of this equipment would be similar to that needed for facility staging and preparation and OSG removal described above (Sections D.2.3.3 and D.2.3.4). Emissions from this type of equipment are not expected to impede attainment or maintenance of the ambient air quality standards, and the air quality impacts would be less than significant (Class III).

Following completion of the Proposed Project the Integrated Leak Rate Test (IRLT) would involve temporary use of multiple high-powered air compressors. The Applicant indicates that up to eight 440-hp diesel-powered compressors have been used for the IRLT activity in the past, and that the IRLT is subject to permitting requirements overseen by the SDAPCD. Because the IRLT is short-term activity that is not specifically part of the Proposed Project and because SDAPCD oversight is required, no significant air quality impacts are expected. There would be no new permanent emission sources associated with Proposed Project or the return to service, and after project completion, air quality conditions would be unchanged when compared to the existing environmental setting.

D.2.4 Environmental Impacts and Mitigation Measures for the Alternatives

D.2.4.1 Transportation Route Alternatives

I-5/Old Highway 101 Route Alternative

Transport-related activities along the I-5/Old Highway 101 Route would involve mobile sources and equipment similar to that needed for the Proposed Project, except that the duration of each trip would be shorter than eight days and that nearly all transport would occur along paved surfaces. For each day of transport along the I-5/Old Highway 101 Route, daily emissions would generally be greater than those of the Proposed Project (Beach and Road Route) because of the more intensive use of equipment needed to keep up the faster rate of transport per day. The total emissions per trip would, however, be less than the Proposed Project. The inventory of equipment expected to be used during transport on the I-5/Old Highway 101 Route is shown in Table D.2-11. The estimated emissions that would occur daily during transport on the I-5/Old Highway 101 Route are shown in Table D.2-12.

Annual emissions from transport activities along the I-5/Old Highway 101 Route are calculated by assuming that transport could occur within one 12-month period, although it would likely occur over a two-year period. The emissions for each multi-day trip and the sum of emissions from all transport trips along the I-5/Old Highway 101 Route are shown in Table D.2-13.

As with the Proposed Project, the emissions shown above assume that dust suppression measures and use of newer, or lower-emitting, construction equipment (i.e., equipment achieving less than 6.9 grams of NOx per horsepower-hour) would occur. If the transport equipment is poorly maintained or if out-of-date engines are used, then the off-road equipment emissions could temporarily exceed the significance criteria for daily emissions (Impact A-1, Class II). Implementation of Mitigation Measures A-1a and A-1b would reduce this potentially significant impact to a level that is less than significant.

Table D.2-11. Equipment Inventory for I-5/Old Highway 101 Route Transport

Type of Equipment	Quantity	Size or Power Rating	Fuel Type
Prime Movers			
Tugboat	1	4268 hp	Fuel Oil
Prime mover	2	1500 hp	Diesel
Assist prime mover	4	460 hp	Diesel
Service Fleet: Off-Road Equipment			
200 ton crane	1	200 hp	Diesel
Pumps/winches/generators	4	50 hp	Diesel
Hydraulic trailer/power packs	4	450 hp	Diesel
Highbeds/lowboys to shuttle gear	3	435 hp	Diesel
18 ton lifts	2	120 hp	Diesel
Light towers	4	11 hp	Diesel
110V generators	6	5 hp	Gasoline
Miscellaneous utilities	4	200 hp	Gasoline
Service Fleet: On-Road Trucks / Traffic Control			
Utility trucks	5	Light Duty Truck	Diesel
Pickup trucks	8	Light Duty Truck	Gasoline
Bucket trucks	3	Light Duty Truck	Gasoline
Traffic control vehicles	6	Light Duty Truck	Gasoline
Worker Vehicles	Up to 1,000 (post-transport)	Mixed	Mixed

Source: SCE Data Responses Question 57 Attachment, May 17, 2004; Aspen Environmental Group, 2004 (for tug).

Table D.2-12. Daily Emissions from Transport, I-5/Old Highway 101 Route Alternative

Transport Activity	NOx (lb/day)	VOC (lb/day)	PM10 (lb/day)	CO (lb/day)	SOx (lb/day)
Tugboat and Barge (partial day for delivering barge)	432.67	20.93	11.45	117.57	9.20
Off-Road Transport Equipment (on I-5)	387.45	41.73	15.37	377.20	0.00
On-Road Trucks / Traffic Control (on I-5)	2.90	1.49	0.14	16.66	0.01
Off-Road Transport Equipment (within State Beach)	164.10	18.59	7.17	177.68	0.00
On-Road Trucks / Traffic Control (within State Beach)	1.97	0.87	0.10	9.52	0.01
Fugitive Dust	—	—	19.57	—	—
Peak Daily Total for Transport (on I-5, excludes tug)	390.4	43.2	35.1	393.9	0.0
Significance Criteria	250	None	100	550	250

Source: SCE Data Responses Question 57 Attachment, May 17, 2004; Aspen Environmental Group, 2004 (for tug).

Table D.2-13. Annual Emissions from Transport, I-5/Old Highway 101 Route Alternative

Transport Activity	NOx (ton)	VOC (ton)	PM10 (ton)	CO (ton)	SOx (ton)
Tugboats, up to two deliveries	0.43	0.02	0.01	0.12	0.01
Total Emissions per Trip	0.47	0.05	0.04	0.49	0.00
Total Emissions, Seven Trips	3.72	0.37	0.29	3.55	0.04
General Conformity Threshold	100	100	None	None	None

Source: Aspen Environmental Group, 2004.

MCBCP Inland Route Alternative

Transport along the MCBCP Inland Route would involve mobile sources and equipment similar to that needed for the Proposed Project, except that the duration of each trip would be shorter than eight days and that nearly all transport would occur along paved surfaces. As with the I-5/Old Highway 101 Route Alternative, emissions during each day of transport along the MCBCP Inland Route would generally be greater than those of the Proposed Project (Beach and Road Route) because of the more intensive use of equipment needed, but the total emissions per trip would be less than the Proposed Project. The inventory of equipment expected to be used during transport on the MCBCP Inland Route is shown in Table D.2-14. The estimated emissions that would occur daily during transport on this route are shown in Table D.2-15.

Table D.2-14. Equipment Inventory for MCBCP Inland Route Transport

Type of Equipment	Quantity	Size or Power Rating	Fuel Type
Prime Movers			
Tugboat	1	4268 hp	Fuel Oil
Prime mover	2	1500 hp	Diesel
Assist prime mover	4	460 hp	Diesel
Service Fleet: Off-Road Equipment			
200 ton crane	1	200 hp	Diesel
Pumps/winches/generators	4	50 hp	Diesel
Hydraulic trailer/power packs	4	450 hp	Diesel
Highbeds/lowboys to shuttle gear	3	435 hp	Diesel
18 ton lifts	2	120 hp	Diesel
Light towers	4	11 hp	Diesel
110V generators	6	5 hp	Gasoline
Miscellaneous utilities	4	200 hp	Gasoline
Service Fleet: On-Road Trucks / Traffic Control			
Utility trucks	5	Light Duty Truck	Diesel
Pickup trucks	8	Light Duty Truck	Gasoline
Bucket trucks	3	Light Duty Truck	Gasoline
Traffic control vehicles	6	Light Duty Truck	Gasoline
Worker Vehicles	Up to 1,000 (post-transport)	Mixed	Mixed

Source: SCE Data Responses Question 57 Attachment, May 17, 2004; Aspen Environmental Group, 2004 (for tug).

Table D.2-15. Daily Emissions from Transport, MCBCP Inland Route Alternative

Transport Activity	NOx (lb/day)	VOC (lb/day)	PM10 (lb/day)	CO (lb/day)	SOx (lb/day)
Tugboat and Barge (partial day for delivering barge)	432.67	20.93	11.45	117.57	9.20
Off-Road Transport Equipment (within MCBCP)	358.91	35.53	16.29	251.35	0.00
On-Road Trucks / Traffic Control (within MCBCP)	3.29	1.45	0.17	15.86	0.02
Fugitive Dust	—	—	4.77	—	—
Peak Daily Total for Transport (on I-5, excludes tug)	362.2	37.0	21.2	267.2	0.0
Significance Criteria	250	None	100	550	250

Source: SCE Data Responses Question 57 Attachment, May 17, 2004; Aspen Environmental Group, 2004 (for tug).

Emissions from all transport activities including the emissions for each multi-day trip along the MCBCP Inland Route are shown in Table D.2-16.

Table D.2-16. Annual Emissions from Transport, MCBCP Inland Route Alternative

Transport Activity	NOx (ton)	VOC (ton)	PM10 (ton)	CO (ton)	SOx (ton)
Tugboats, up to two deliveries	0.43	0.02	0.01	0.12	0.01
Total Emissions per Trip	0.54	0.06	0.03	0.40	0.00
Total Emissions, Seven Trips	4.24	0.41	0.23	2.92	0.01
General Conformity Threshold	100	100	None	None	None

Source: Aspen Environmental Group, 2004.

As with the Proposed Project, the emissions shown above assume that dust suppression measures and use of newer, or lower-emitting, construction equipment would occur. If the transport equipment is poorly maintained or if out-of-date engines are used, then the off-road equipment emissions could temporarily exceed the significance criteria for daily emissions (Impact A-1, Class II). Implementation of Mitigation Measures A-1a and A-1b would reduce this potentially significant impact to a level that is less than significant.

D.2.4.2 OSG Disposal Alternative

OSG Onsite Storage Alternative

Storage of the OSGs onsite would involve construction of a storage facility and moving the OSGs into the facility, requiring short-term use of typical construction equipment, such as cranes, lifts, and trucks, and possibly specialized transporters. Heavy-duty equipment used for this work would cause emissions similar to those occurring during construction of the temporary facilities for staging and preparation (see Section D.2.3.3) and during steam generator installation. Excavation for the foundation or floor of the storage facility would generate dust emissions (Impact A-1). This impact would be slightly greater than the impact caused by OSG disposal because no notable excavation would occur under the Proposed Project. Implementation of Mitigation Measure A-1a would ensure that the Applicant-Proposed Mitigation is followed for the OSG Storage Facility site, and that the impact of dust emissions is reduced to a less than significant level.

D.2.5 Environmental Impacts of the No Project Alternative

Development scenarios foreseeable under the No Project Alternative could result in new generation or transmission facilities being installed elsewhere in southern California or Arizona to compensate for the lost generation of SONGS 2 & 3. Although construction and operation of new power plants and transmission lines may be necessary, their locations and development schedules cannot be predicted.

New generation and construction activities would need to comply with local air quality management requirements and may require local permit review or review under CEQA. Stationary sources would be required to implement the Best Available Control Technology, and if occurring in nonattainment areas, new emissions would need to be offset with the shutdown of existing emission sources. These requirements are components of the New Source Review program, which applies to any new major source of emissions in the nation. These requirements are effective at minimizing but not eliminating the air quality impacts of new stationary sources of power generation. Residual impacts could occur if new power plants cause emissions to become localized with areas of substantial existing pollution. The No Project Alternative would cause decommissioning of SONGS 2 & 3 to occur at an earlier date than with the Proposed Project. The short-term air quality effects of eventual decommissioning activities would not change under the No Project Alternative. They would occur only earlier.

D.2.6 Mitigation Monitoring, Compliance, and Reporting Table

Table D.2-17 shows the mitigation monitoring, compliance, and reporting program for Air Quality.

Table D.2-17. Mitigation Monitoring Program – Air Quality

IMPACT A-1	Replacement activities would cause emissions from transport and construction equipment (Class II)
MITIGATION MEASURE	A-1a: Suppress dust at all work areas or transport routes and on public roads. SCE shall (1) pave, apply sufficient water, or apply (non-toxic) soil stabilizers on all unpaved work areas, transport routes, parking areas, and staging areas if activity causes persistent visible emissions of fugitive dust; and (2) sweep public streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
Location	All work areas or transport routes and on public roads
Monitoring / Reporting Action	Monitor visible emissions of fugitive dust
Effectiveness Criteria	Eliminate persistent visible fugitive dust outside the work area
Responsible Agency	CPUC
Timing	During transport of replacement steam generators
MITIGATION MEASURE	A-1b: Use low-emission transport equipment. SCE or its transport contractor shall (1) use diesel engines that meet, at a minimum, 1996 CARB or U.S. EPA certified standards for off-road equipment that has a rating of more than 100 horsepower, or install high-pressure diesel injectors and retard the injection timing on any off-road equipment that was manufactured prior to 1996; (2) maintain construction equipment per manufacturing specifications; and (3) substitute small electric-powered equipment for diesel- and gasoline-powered construction equipment where feasible.
Location	All transport routes
Monitoring / Reporting Action	Monitor equipment fleet, proper maintenance, and commitments in transport contract
Effectiveness Criteria	Evidence of transport contract specifying low-emission equipment
Responsible Agency	CPUC
Timing	Before and during transport of replacement steam generators
IMPACT A-2	Creating containment opening would cause substantial emissions of ozone precursors from portable engines (Class II)
MITIGATION MEASURE	A-2a: Use registered water pumping or power generation engines. SCE or its contractor shall (1) use diesel engines that are registered in the Statewide Portable Equipment Registration Program for water pumping or power generation during the process of creating the containment opening; and (2) maintain the engines according to the specifications of the Program.
Location	On-site
Monitoring / Reporting Action	Register affected sources with CARB
Effectiveness Criteria	Evidence of valid registration for water pumping or power generation engines
Responsible Agency	CPUC, CARB
Timing	Before and during creating containment opening

D.2.7 References

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