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## 3.3 Air Quality



### **3.3 AIR QUALITY**

#### **3.3.1 Affected Environment**

##### **3.3.1.1 Introduction**

###### **3.3.1.1.1 Definition**

Air quality is defined by ambient air concentrations of specific pollutants that have been determined to be of concern with respect to the health and welfare of the general public by the United States Environmental Protection Agency (USEPA). The USEPA has established National Ambient Air Quality Standards (NAAQS) for these pollutants. The seven major pollutants of concern, called “criteria pollutants,” are carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), suspended particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>), fine particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>), and lead (Pb). Primary NAAQS are established to protect public health. Secondary NAAQS may also be established to avoid other adverse impacts to the public welfare such as odors or visibility effects. Areas that violate a federal air quality standard are designated as non-attainment areas.

Ambient air quality refers to the atmospheric concentration of a specific compound (amount of pollutants in a specified volume of air) that occurs at a particular geographic location. The ambient air quality levels measured at a particular location are determined by the interactions of emissions, meteorology, and chemistry. Emission considerations include the types, amounts, and locations of pollutants emitted into the atmosphere. Meteorological considerations include wind and precipitation patterns affecting the distribution, dilution, and removal of pollutant emissions. Chemical reactions can transform pollutant emissions into other chemical substances. Ambient air quality data are generally reported as a mass per unit volume (e.g., micrograms per cubic meter [ $\mu\text{g}/\text{m}^3$ ] of air) or as a volume fraction (e.g., parts per million [ppm] by volume).

Pollutant emissions typically refer to the amount of pollutants or pollutant precursors introduced into the atmosphere by a source or group of sources. Pollutant emissions contribute to the ambient air concentrations of criteria pollutants, either by directly affecting the pollutant concentrations measured in the ambient air or by interacting in the atmosphere to form criteria pollutants. Primary pollutants, such as CO, SO<sub>2</sub>, Pb, and some particulates, are emitted directly into the atmosphere from emission sources. Secondary pollutants, such as O<sub>3</sub>, NO<sub>2</sub>, and some particulates, are formed through atmospheric chemical reactions that are influenced by meteorology, ultraviolet light, and other atmospheric processes. PM<sub>10</sub> and PM<sub>2.5</sub> are generated as primary pollutants by various mechanical processes (for example, abrasion, erosion, mixing, or atomization) or combustion processes. However, fine particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) can also be formed as secondary pollutants through chemical reactions or by gaseous pollutants condensing into fine aerosols. In general, emissions that are considered “precursors” to secondary pollutants in the atmosphere (such as Reactive Organic Gases [ROG] and oxides of nitrogen [NO<sub>x</sub>], which are considered precursors for O<sub>3</sub>), are the pollutants for which emissions are evaluated to control the level of O<sub>3</sub> in the ambient air.

The State of California has identified four additional pollutants for ambient air quality standards: visibility reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. The California Air Resources Board (CARB) has also established the more stringent California Ambient Air Quality Standards (CAAQS). Areas within California in which ambient air concentrations of a pollutant are higher than the state and/or federal standard are considered to be non-attainment for that pollutant. Table 3.3-1 details both the federal and state ambient air quality standards.

**Table 3.3-1: Ambient Air Quality Standards**

Pollutant	Averaging Time	NAAQS <sup>1</sup>		CAAQS	
		Primary	Secondary	Concentration	
Ozone (O <sub>3</sub> )	1-Hour	-	Same as Primary Standard	0.09 ppm (180 µg/m <sup>3</sup> )	
	8-Hour	0.075 (147 µg/m <sup>3</sup> ) ppm		0.070 ppm (137 µg/m <sup>3</sup> )	
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m <sup>3</sup> )	None	9.0 ppm (10 mg/m <sup>3</sup> )	
	1-Hour	35 ppm (40 mg/m <sup>3</sup> )		20 ppm (23 mg/m <sup>3</sup> )	
Nitrogen Dioxide (NO <sub>2</sub> )	Annual Average	0.053 ppm (100 µg/m <sup>3</sup> )	Same as Primary Standard	0.030 ppm (56 µg/m <sup>3</sup> )	
	1-Hour	-		0.18 ppm (338 µg/m <sup>3</sup> )	
Sulfur Dioxide (SO <sub>2</sub> )	Annual Average	0.03 ppm (80 µg/m <sup>3</sup> )	-	-	
	24-Hour	0.14 ppm (365 µg/m <sup>3</sup> )	-	0.04 ppm (105 µg/m <sup>3</sup> )	
	3-Hour	-	0.5 ppm (1300 µg/m <sup>3</sup> )	-	
	1-Hour	-	-	0.25 ppm (655 µg/m <sup>3</sup> )	
Suspended Particulate Matter (PM <sub>10</sub> )	24-Hour	150 µg/m <sup>3</sup>	Same as Primary Standard	50 µg/m <sup>3</sup>	
	Annual Arithmetic Mean	-		20 µg/m <sup>3</sup>	
Fine Particulate Matter (PM <sub>2.5</sub> )	24-Hour	35 µg/m <sup>3</sup>	Same as Primary Standard	-	
	Annual Arithmetic Mean	15 µg/m <sup>3</sup>		12 µg/m <sup>3</sup>	
Lead (Pb)	30-Day Average	-	-	1.5 µg/m <sup>3</sup>	
	Calendar Quarter	1.5 µg/m <sup>3</sup>	Same as Primary Standard	-	
	3-Month Rolling Average	0.15 µg/m <sup>3</sup>			
Hydrogen Sulfide (HS)	1-Hour	No Federal Standards		0.03 ppm (42 µg/m <sup>3</sup> )	
Sulfates (SO <sub>4</sub> )	24-Hour			25 µg/m <sup>3</sup>	
Visibility Reducing Particles	8-Hour (10 am to 6 pm, Pacific Standard Time)			In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70%.	
Vinyl chloride <sup>2</sup>	24 Hour			0.01 ppm (26 µg/m <sup>3</sup> )	

<sup>1</sup>NAAQS (other than O<sub>3</sub>, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O<sub>3</sub> standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM<sub>10</sub>, the 24-hour standard is attained when 99% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. For PM<sub>2.5</sub>, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

<sup>2</sup>The CARB has identified lead and vinyl chloride as “toxic air contaminants” with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

µg/m<sup>3</sup> = micrograms per cubic meter; mg/m<sup>3</sup> = milligrams per cubic meter.  
Source: CARB 2010, USEPA 2010.

Toxic air pollutants, also called hazardous air pollutants (HAPs), are a class of pollutants that do not have ambient air quality standards but are examined on an individual basis when there is a source of these pollutants. The State of California has identified particulate emissions from diesel engines as a toxic air pollutant.

Notwithstanding the lack of USEPA regulation of greenhouse gas emissions, in 2006, the California Legislature adopted Assembly Bill (AB 32), the California Global Warming Solutions Act of 2006. AB 32 requires the CARB, the State agency charged with regulating statewide air quality, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020. As the policy making process continues, CARB is considering a broader set of mitigation measures, including carbon sequestration projects and best management practices that are technologically feasible and cost-effective. Greenhouse gases as defined under AB 32 include: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

### **3.3.1.1.2 Regional Setting**

Silver Strand Training Complex (SSTC) and the portions of Naval Air Station, North Island (NASNI) that are utilized for training are located within San Diego County and are under the jurisdiction of the San Diego Air Pollution Control District (APCD). The APCD is the agency responsible for the administration of federal and state air quality laws, regulations, and policies in the San Diego Air Basin (SDAB), which is contiguous with San Diego County.

The SDAB and all of Southern California lay in a semi-permanent high-pressure zone of the Eastern Pacific Region. The coastal island is characterized by sparse rainfall (most of which occurs in the winter season) and hot, dry summers, tempered by cooling sea breezes. In San Diego County, the months of heaviest precipitation are November through April, averaging 10.29 inches annually. The mean temperature in the San Diego Bay area, as reported by monitors at San Diego International Airport, is 63.2 degrees Fahrenheit (°F) (Western Regional Climate Center [WRCC] 2005). The mean maximum and mean minimum temperatures are 69.9°F and 56.4°F, respectively (Id.).

In December 2002, the APCD submitted a maintenance plan for the 1-hour NAAQS for O<sub>3</sub> and requested redesignation from a serious O<sub>3</sub> nonattainment area to attainment. An attainment area is a geographic area that meets or does better than the NAAQS for a particular pollutant. As of July 28, 2003, the SDAB was reclassified as an attainment area for the 1-hour NAAQS for O<sub>3</sub>. On April 15, 2004, the SDAB was designated a basic nonattainment area for the 8-hour NAAQS for O<sub>3</sub>, and on July 15, 2005, the 1-hour NAAQS for O<sub>3</sub> was rescinded. The Environmental Protection Agency (EPA) was challenged on their justification for “basic” nonattainment designations and published proposed for all “basic” nonattainment areas for the 8-hour NAAQS for O<sub>3</sub>. The SDAB would be classified as a moderate nonattainment area under the revised classification. In 1994, the SDAB attained the standard for CO; the air basin is considered a maintenance area for CO and has been subject to a maintenance plan. The SDAB is currently in attainment for the NAAQS for all other criteria pollutants. The SDAB is currently classified as a nonattainment area under the CAAQS for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>.

The APCD operates a network of ambient air monitoring stations throughout San Diego County. The purpose of the monitoring stations is to measure ambient concentrations of the pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. The nearest ambient monitoring station to the project site is located in Chula Vista, California. Ambient concentrations of pollutants over the last five years, as recorded at the Chula Vista monitoring station are presented in Table 3.3-2.

**Table 3.3-2: Background Ambient Air Quality – Chula Vista Monitoring Station**

Pollutant	Averaging Time	2004 <sup>1</sup>	2005 <sup>1</sup>	2006 <sup>1</sup>	2007 <sup>1</sup>	2008 <sup>1</sup>	CAAQS <sup>1</sup>	NAAQS <sup>1</sup>
O <sub>3</sub>	8 hour	0.087	0.081	0.068	0.087	0.083	0.070	0.075
	1 hour	0.097	0.093	0.084	0.105	0.107	0.09	-
PM <sub>10</sub> <sup>2</sup>	Annual Arithmetic Mean	25.8 µg/m <sup>3</sup>	26.5 µg/m <sup>3</sup>	26.3 µg/m <sup>3</sup>	25.5 µg/m <sup>3</sup>	26.2 µg/m <sup>3</sup>	20 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>
	24 hour	44 µg/m <sup>3</sup>	52 µg/m <sup>3</sup>	52 µg/m <sup>3</sup>	57 µg/m <sup>3</sup>	53 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
PM <sub>2.5</sub>	Annual Arithmetic Mean	12.2 µg/m <sup>3</sup>	11.8 µg/m <sup>3</sup>	11.2 µg/m <sup>3</sup>	12.5 µg/m <sup>3</sup>	12.3 µg/m <sup>3</sup>	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
	24 hour	32.7 µg/m <sup>3</sup>	34.3 µg/m <sup>3</sup>	30.2 µg/m <sup>3</sup>	77.8 µg/m <sup>3</sup>	32.9 µg/m <sup>3</sup>	-	35 µg/m <sup>3</sup>
NO <sub>2</sub>	Annual	0.016	0.016	0.017	0.015	0.015	-	0.053
	1 hour	0.072	0.071	0.074	0.082	0.072	0.25	-
CO	8 hour	2.48	2.13	2.20	2.2	1.9	9.0	9
	1 hour	3.9	2.8	2.7	3.1	2.0	20	35
SO <sub>2</sub>	Annual	0.003	0.003	0.003	0.002	0.002	-	0.030
	24 hour	0.016	0.005	0.006	0.004	0.004	0.04	0.14
	3 hour <sup>3</sup>	0.021	0.009	0.013	0.007	0.005	-	0.5
	1 hour	0.042	0.016	0.017	0.012	0.007	0.25	-

<sup>1</sup>Concentrations in ppm unless otherwise indicated

<sup>2</sup>California averages reported for PM<sub>10</sub>

<sup>3</sup>Secondary NAAQS

“-”= not available from current website data

Source: www.arb.ca.gov (all pollutants except 1-hour CO and 1-hour and 3-hour SO<sub>2</sub> and annual data for 2007)

www.epa.gov/air/data/monvals.html (1-hour CO and 1-hour and 3-hour SO<sub>2</sub> and annual data for 2007)

Both the 1-hour CAAQS for O<sub>3</sub> and the federal 8-hour O<sub>3</sub> standards were exceeded once in 2004 as reported by the Chula Vista monitoring station. The previous federal 24-hour PM<sub>2.5</sub> standard was exceeded once in 2003; however, the exceedance occurred during the Cedar Fire event in San Diego County. The Chula Vista monitoring station also recorded measurement exceedances of state PM<sub>10</sub> and PM<sub>2.5</sub> standards during the period from 2003 to 2007. As shown in Table 3.3-2, the data from the monitoring station indicates that air quality is in attainment of all other state and federal standards.

### 3.3.1.1.3 Region of Influence

Specifically identifying the Region of Influence (ROI) for air quality requires knowledge of the type of pollutant, emission rates of the pollutant source, proximity to other emission sources, and local and regional meteorology. The ROI for the SSTC and NASNI is defined by the SDAB. For inert pollutants (all pollutants other than O<sub>3</sub> and its precursors), the ROI is generally limited to a few miles downwind from the source. However, for a photochemical pollutant such as O<sub>3</sub>, the ROI may extend much farther downwind. O<sub>3</sub> is a secondary pollutant that is formed in the atmosphere by photochemical reactions of previously emitted pollutants, or precursors (ROG and NO<sub>x</sub>). The maximum effect on O<sub>3</sub> levels from precursors tends to occur several hours after the time of emission during periods of high solar load and may occur many miles from the source. O<sub>3</sub> and O<sub>3</sub> precursors transported from other regions can also combine with local emissions to produce high local O<sub>3</sub> concentrations.

### 3.3.1.2 Federal Requirements

Under the National Environmental Policy Act (NEPA), air quality impacts must be evaluated and assessed with regard to the significance of their impacts. NEPA is applicable to areas that are within the United States Territory, typically defined as within 12 nautical miles of shore and on land. In addition to NEPA, the Clean Air Act (CAA) and New Source Review (NSR) are applicable to analyses of impacts to air quality. These federal requirements are discussed in the following sections.

#### 3.3.1.2.1 Clean Air Act

The USEPA is the agency responsible for enforcing the CAA of 1970 and its 1977 and 1990 amendments. The purpose of the CAA is to establish NAAQS, which classify areas as to their attainment status relative to NAAQS; develop schedules and strategies to meet the NAAQS; and to regulate emissions of criteria pollutants and air toxics to protect public health and welfare. Under the CAA, individual states are allowed to adopt ambient air quality standards and other regulations, provided they are at least as stringent as federal standards. The Clean Air Act Amendments (CAAA) established new deadlines for achievement of NAAQS, dependent upon the severity of nonattainment.

The USEPA requires each state to prepare a State Implementation Plan (SIP), which describes how that state will achieve compliance with NAAQS. A SIP is a compilation of goals, strategies, schedules, and enforcement actions that will lead the state into compliance with all federal air quality standards. Each change to a compliance schedule or plan must be incorporated into the SIP. In California, the SIP consists of separate elements for each air basin, depending upon the attainment status of the particular air basin.

The CAAA also require that states develop an operating permit program that would require permits for all major sources of pollutants. The program would be designed to reduce criteria pollutant emissions and control emissions of hazardous air pollutants by establishing control technology guidelines for various classes of emission sources. Under the CAA, state and/or local agencies may be delegated authority to administer the requirements of the CAA, including requirements to obtain permits to operate stationary sources on Navy installations. Section 3.3.1.3 discusses the local permitting requirements for equipment that is subject to these requirements.

Under 40 Code of Federal Regulations (CFR) Part 93 and the provisions of Part 51, Subchapter C, Chapter I, Title 40, Appendix W of the CFR, of the CAA as amended, federal agencies are required to demonstrate that federal actions conform with the applicable SIP. In order to ensure that federal activities do not hamper local efforts to control air pollution, Section 176(c) of the CAA, 42 United States Code (USC) 7506(c) prohibits federal agencies, departments, or instrumentalities from engaging in, supporting, providing financial assistance for, licensing, permitting or approving any action which does not conform to an approved SIP or federal implementation plan. The provisions of Part 51, Subchapter C, Chapter I, Title 40, of the CFR, in effect December 27, 1993, applicable to the subparts listed in this regulation were adopted by the APCD as Rule 1501—Conformity of General Federal Actions.

The USEPA general conformity rule applies to federal actions occurring in nonattainment or maintenance areas when the total direct and indirect emissions of nonattainment pollutants (or their precursors) exceed specified thresholds. The emission thresholds that trigger requirements of the conformity rule are called *de minimis* levels. Table 3.3-3 identifies the federal nonattainment pollutants and the relevant *de minimis* emission thresholds.

**Table 3.3-3: *De Minimis* Levels for Determination of Applicability of General Conformity Rule**

Air Basin	<i>De Minimis</i> Levels, (tons/year)						
	CO	NO <sub>x</sub>	ROG	NO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>
SDAB	100	100	100	N/A	N/A	N/A	N/A

Federal actions that are exempt from conformity determinations must also demonstrate that the action's emissions would not be regionally significant. Regionally significant emissions are defined as 10 percent or more of the projected regional emissions in the air basin in which the Proposed Action occurs. Should emissions be regionally significant, a Conformity Determination would be required.

#### **3.3.1.2.2 New Source Review**

A New Source Review (NSR) is required when a source has the potential to emit any pollutant regulated under the CAA in amounts equal to or exceeding specified major source thresholds (100 or 250 tons per year), predicated on the source's industrial category. A major modification to the source also triggers a NSR. Any new or modified stationary emission source requires construction and operating permits from the APCD. Through the APCD's permitting process, all stationary sources are reviewed and are subject to a NSR process. The NSR process ensures that factors such as the availability of emission offsets and their ability to reduce emissions are addressed and conform with the SIP.

#### **3.3.1.2.3 Executive Order 12088**

Executive Order (EO) 12088 requires each federal agency to comply with "applicable pollution control standards" defined as "the same substantive, procedural, and other requirements that would apply to a private person." The EO further requires federal agencies to cooperate with the USEPA, state, and local environmental regulatory officials. To ensure cost-effective and timely compliance with applicable pollution control standards, the USEPA Administrator is required to provide technical advice and assistance to executive agencies. EO 12088 also states that disputes between the USEPA and other federal agencies, regarding environmental violations, shall be elevated to the Office of Management and Budget for resolution. In 2000, Section 1-4 Pollution Control Plan, of EO 12088 was revoked in part by EO 13148, which was later rescinded in January 2007 by EO 13423.

#### **3.3.1.2.4 Executive Order 13423**

EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management, was issued to ensure that all Federal agencies conduct environmental, transportation, and energy-related activities under the law in support of their respective missions in an environmentally, economically, and fiscally sound, integrated, continuously improving, efficient, and sustainable manner. EO 13423 requires (a) that Federal agencies improve energy efficiency and reduce greenhouse gas emissions, (b) the use of renewable energy to the extent feasible, (c) Federal agencies reduce water consumption intensity, (d) the use of goods and services that meet sustainable practices, (e) that Federal agencies reduce the amount of hazardous and toxic waste generated and implement waste management procedures, (f) implementation of sustainable building practices, (g) the agency to reduce fuel consumption for Fleet vehicles, and (h) that Federal agencies use electronic products that meet energy and environmental requirements. Each federal agency is responsible for meeting the goals and requirements of this order.

### 3.3.1.2.5 Chief of Naval Operations Instruction 5090.1

The Navy, in fulfilling the requirements of EO 13423, has developed Chief of Naval Operations Instruction (OPNAVINST) 5090.1, which contains guidance for environmental evaluation. Chapter 5 and Appendix F of 5090.1 contain guidance for air quality analysis and general conformity determinations.

In order to demonstrate conformity with the CAA, a project must clearly demonstrate that it does not cause or contribute to any new violation of any standard in any area; increase the frequency or severity of any existing violation of any standard in any area; or delay timely attainment of any standard, any required interim emission reductions, or other milestones in any area. A conformity applicability analysis is required for each of the nonattainment pollutants or its precursor emissions.

Compliance with the conformity rule can be demonstrated in several ways. Compliance is presumed if the net increase in direct and indirect emissions from a federal action would be less than the relevant *de minimis* level. The Proposed Action must also demonstrate that its net emission increase is not regionally significant, where regionally significant is defined as 10 percent of basin-wide emissions. If net emissions exceed the relevant *de minimis* value, or if a project is regionally significant, a formal conformity determination process must be followed.

### 3.3.1.3 Local Requirements

As indicated previously, in San Diego County, the APCD is the agency responsible for the administration of federal and state air quality laws, regulations, and policies. Included in the APCD's tasks are monitoring of air pollution, preparation of the SIP for the SDAB, and the promulgation of rules and regulations. The SIP includes strategies and tactics to be used to attain the federal O<sub>3</sub> standard within San Diego County. The SIP elements are taken from the Regional Air Quality Strategy (RAQS) and the APCD plan for attaining the state O<sub>3</sub> standard, which is more stringent than the federal standard. The APCD's rules and regulations include procedures and requirements to control the emission of pollutants and to prevent adverse impacts.

Applicable APCD rules and regulations include:

- Rule 11 – Exemptions from Rule 10 Permit Requirements. Rule 11 provides exemptions from the requirements of Rule 10 to obtain permits for certain categories of sources. Rule 11 specifically exempts the following sources used at the SSTC: mobile sources; any reciprocating internal combustion engine with a brake horsepower rating of less than 50; any engine mounted on, within, or incorporated into any motor vehicle, train, ship, boat, or barge, that is used exclusively to load or unload cargo; portable pile drivers and construction cranes that are routinely dismantled and transported to noncontiguous locations for temporary use; any portable internal combustion engine or gas turbine engine used exclusively in conjunction with military tactical support equipment (TSE); and any portable equipment that is registered in accordance with District Rule 12.1.
- Rule 12 and Rule 12.1 – Registration of Specified Equipment/Portable Equipment Registration. Rule 12 and 12.1 allow for the registration of internal combustion engines that are registered under the APCD's or CARB's registration program in lieu of permitting under Rule 10.
- Rule 50 – Visible Emissions. Rule 50 limits emissions of visible emissions from any single source of emissions whatsoever and any air contaminant for a period or periods aggregating more than three minutes in any period of 60 consecutive minutes which is darker in shade than that designated as Number 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or of such opacity as to obscure an observer's view to a degree greater than does smoke of a shade designated as Number 1 on the Ringelmann Chart. It should be noted that the use of

obscurants for the purpose of training military personnel and the testing of military equipment by the United States Department of Defense on any military reservation and equipment used exclusively for the purpose of flash-over fire fighting training are exempt from the requirements of Rule 50.

- Rule 51 – Nuisance. Rule 51 requires that a person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property.
- Regulation XV – Federal Conformity. The purpose of Regulation XV and Rule 1501 are to assure that federal agencies do not take or support actions which are in any way inconsistent with the efforts of the APCD to achieve the NAAQS, and that federal agencies do not fail to take advantage of opportunities to assist in the achievement of the NAAQS. Under the CAA Section 176(c), as amended (42 USC 7506(c) et. seq.) and regulations under 40 CFR part 51 Subpart W, no department, agency or instrumentality of the federal government shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to an applicable implementation plan.

These regulations require that facilities constructing, altering, or replacing stationary equipment that may emit air pollutants obtain an Authority to Construct permit. Further, APCD regulations require stationary sources of air pollutants to obtain and maintain Permits to Operate for all stationary sources subject to the requirements of Regulation II. The Navy must submit applications to the APCD for their review and approval. The APCD is responsible for the review of applications and for the approval and issuance of these permits. Once a permit is issued, the Navy is responsible for compliance with the conditions specified in the permit, and is responsible for quantification of emissions associated with the permitted unit. Certain equipment is allowed to be registered under Rule 12 in lieu of obtaining a permit to operate. The APCD does not have quantitative emissions limits for construction activities, nor for long-term emissions that may result from increased vehicle use or other mobile sources. The specific prohibitions set forth in Rules 50 and 51 require compliance with restrictions on emissions of visible matter, nuisance emissions (such as odors or dust), and particulates. These rules would apply to as the use of ordnance and combustion equipment in individual training exercises.

Under APCD Rule 11(d)(2)(xv), any portable internal combustion engine or gas turbine engine used exclusively in conjunction with military TSE is exempt from the requirements of the APCD to obtain a permit. Military equipment is registered with the CARB, which allows the CARB to account for operation of such equipment in the emissions budgets contained within the SIP.

#### **3.3.1.4 Current Mitigation Measures**

The Navy currently has a comprehensive air quality management program. Mitigation measures that are part of the Navy's air quality management practices are implemented at SSTC. For example, vehicles participating in training exercises that occur on unpaved surfaces travel at slow speeds, which minimizes fugitive dust generation. Training areas at SSTC include beach areas, where vehicles typically travel on hard-packed or wet sand with minimal silt content, which also minimizes fugitive dust generation. Aircraft, marine vessels, ground vehicles, and military equipment are maintained and meet applicable emission standards (such as smog certification for on-road vehicles) in accordance with state requirements.

### 3.3.2 Environmental Consequences

This resource section focuses on groups of activities that have the potential to result in an impact to the ambient air quality. As discussed in Chapter 2, similar types of activities are grouped together to facilitate the impacts analysis. Types of activities that could affect air quality include aircraft activities, marine vessel activities, amphibious activities, ground vehicles activities, and above ground ordnance and small arms usage. Based on the review of Tables 2-1, 2-2, and Appendix C of this document, every training activity involves some type of equipment or activity that would result in air emissions. Components of training activities that do not have the potential to affect air quality include swimming and non-motorized combat raiding rubber crafts (CRRCs), physical training exercises not involving the use of ground vehicles, and underwater detonations, which would not release air emissions to the atmosphere. Also, any aircraft activities occurring higher than 3,000 feet above ground level (AGL) would not affect the ambient air quality because emissions would occur above the atmospheric boundary layer that traps pollutants within the ambient air that could affect ground-level air quality (USEPA 1992).

Activities involving aircraft that could affect air quality include 4, 6, 12, 16, 25, 28-30, 35, 37, 64, 66 (Table 2-1), and N3-N9 (Table 2-2). Activities involving marine vessels that could affect air quality include 1-6, 8-18, 20-30, 32-35, 37-46, 48, 49, 51-55, 60, 64, 71, 73, 77, 78 (Table 2-1), N1-N3, and N9 (Table 2-2). Activities involving ordnance and/or small arms use that could affect air quality include 4, 6, 7, 9, 12, 25, 26-28, 30-35, 43, 48, 57, 60-62, 64, 71, 75-77 (Table 2-1), N2, N8, and N11 (Table 2-2). Activities involving ground vehicles that could affect air quality include 4-12, 14, 15, 17-23, 25-31, 35-43, 45, 46-52, 54-77 (Table 2-1), N1, N2, N8, N10 and N11 (Table 2-2).

#### 3.3.2.1 Approach to Analysis

The data for air quality analyses is based on current and proposed training activities at SSTC and on the southern beaches and nearshore waters of NASNI as described in Chapter 2. Increases in tempo under the Proposed Action from baseline conditions were evaluated using the same methodology for calculating emissions as was used for the baseline evaluation presented below. Training scenarios were used to estimate the number of aircraft, marine vessels, and ordnance participating in SSTC activities for the No Action Alternative (i.e., baseline activities), with increases evaluated for Alternatives 1 and 2.

Emissions were calculated based on information on the types of aircraft, marine vessels, ground vehicles, and TSE involved in each training activity as summarized in Appendix C. Information regarding specific operation of each emission source was based on interviews with training officers involved in the training exercises; this information provided estimates of the duration of training activities and the number of hours that emission sources would be used for each activity. Where information was not available, it was assumed that emission sources would operate for eight hours per day. Training activities were assumed to occur within three nautical miles of the shore unless otherwise indicated. Aircraft activities at SSTC were assumed to occur below an altitude of 3,000 feet AGL.

The Proposed Action would not result in additional personal vehicle emissions.

### **3.3.2.1.1 Emissions Evaluation Methodology**

#### **Aircraft Activities**

The methodology for estimating aircraft emissions involves evaluating the type of activity, the number of hours of operation, the type of engine, and the mode of operation for each type of aircraft. The operational characteristics of aircraft activities for the baseline were obtained from Navy records. Emissions occurring above 3,000 feet were considered to be above the atmospheric inversion layer and would not impact the local air quality. Aircraft flights, for the most part, originate from onshore air stations, but some are from aircraft carriers offshore. It was assumed that landings and takeoffs of aircraft participating in SSTC activities would be counted in the emission inventory for each individual base or carrier where the aircraft originated. It was assumed that training activities would occur regardless of whether the training occurs at SSTC, and that takeoffs and landings would originate from the individual base or carrier where aircraft are based regardless of the Proposed Action requirements. Specific operational modes for aircraft were identified by the Navy for training in which aircraft are involved. Emissions for aircraft activities were then calculated based on the Navy's Aircraft Environmental Support Office (AESO) data for specific aircraft models (AESO 1999a, 1999b, 2000a, 2000b, 2001a, 2001b).

#### **Surface Ship Activities**

Marine vessel traffic in the SSTC is composed mainly of vessels providing various services for the military training activities and tests. A number of nonmilitary commercial vessels and recreational vessels are also regularly present at areas surrounding SSTC. Because they are present regardless of military activities, they are not considered to be part of the baseline emissions attributable to Navy activities. For the purpose of determining the baseline emissions, only military vessels and those vessels responsible for providing support are considered. The methodology for estimating marine vessel emissions involves evaluating the type of activity, the number of hours of activity, the type of propulsion engine, and the type of generator used onboard for each type of vessel.

Emission factors for vessels were based on engine emission data and provided by JJMA Consultants (JJMA 2001) and are presented in Appendix C.

#### **Naval Ordnance**

Ordnance emissions result from firing naval flares, smoke grenades, simulated grenades, blanks, simunitions, and land detonations used in the various training activities. Ordnance was classified into various types (smoke, flares, grenades, etc.). Emission factors for specific types of ordnance were obtained from the USEPA's AP-42 emission factor database. For underwater detonations, it was assumed that air emissions would be minimal as emissions would not be released directly into the atmosphere.

#### **Emissions from Ground Vehicles**

Ground vehicles involved in training activities at SSTC include combustion emissions from government vehicles such as trucks, High Mobility Multipurpose Wheeled Vehicles (HMMWVs), Lighter, Amphibious, Resupply, Cargo-5 ton (LARC Vs), logistical vehicles, vans, construction equipment, etc. used in various training activities. Emissions associated with ground vehicles were estimated based on emission factors for specific equipment, or for ground vehicles, from the CARB's Emission Factors (EMFAC) 2007 model, which provides emission factors for on-road vehicles, or the OFFROAD model.

## **Tactical Support Equipment**

Tactical Support Equipment includes equipment such as generators that would be used during training activities. Emissions from TSE have been estimated based on information provided on the usage of TSE for various training activities, using the USEPA's emission factors from AP-42 for combustion equipment.

### **3.3.2.1.2 Baseline Emissions**

The emissions baseline levels provide a basis for evaluating potential emission increases associated with the Proposed Action and alternatives. For the purpose of estimating PM<sub>2.5</sub> emissions, it was assumed that PM<sub>10</sub> emissions associated with combustion would be composed of 99 percent PM<sub>2.5</sub> (South Coast Air Quality Management District [SCAQMD] 2006). Baseline emissions are summarized in Table 3.3-4. Detailed emission calculations are provided in Appendix C.

### **3.3.2.2 No Action Alternative**

The No Action Alternative involves conducting training at the baseline levels. The emissions levels would remain constant for those baseline emission sources that are not affected by other federal, state, or local requirements to reduce air emissions. Emissions associated with motor vehicles may decrease due to the implementation of federal and California CAA requirements to reduce tailpipe emissions.

Emissions for the No Action Alternative reflect baseline levels that are currently occurring in the SSTC. As a result, no net emission increases would result from implementation of the No Action Alternative. With no net emission increases expected, the No Action Alternative is exempt from the General Conformity Rule.

### **3.3.2.3 Alternative 1 (Preferred Alternative)**

Implementation of Alternative 1 would increase the training tempo from 3,926 activities to 5,343 activities annually. Implementation of Alternative 1 would also include the introduction of new types of training activities, conducting existing routine training activities at additional locations within SSTC established training areas, and increasing access to and availability of existing beach and inland training areas.

As discussed in Section 3.3.2.1, operational parameters for increased training were based on interviews with training officers at SSTC. The increased training tempo proposed under Alternative 1 would result in increases in air emissions. Table 3.3-4 presents a summary of the emissions associated with activities at SSTC under Alternatives 1 and 2 in comparison to the No Action Alternative. Emission calculations are provided in Appendix C.

To address the requirements of the General Conformity Rule, the net emissions increase or decrease over the baseline level for Alternative 1 was calculated. Emission calculations are provided in Appendix C. As shown in Table 3.3-4, the emissions increases for CO, NO<sub>x</sub> and ROG are below the *de minimis* thresholds for requiring a full conformity determination and are less than 10 percent of the projected regional emissions in the SDAB, and therefore not regionally significant. The General Conformity Rule is therefore not applicable. A Record of Non-Applicability is included in Appendix D.

**Table 3.3-4: Operational Emissions at SSTC and Portions of NASNI with Evaluation of Conformity**

Emission Source	Emissions (tons/year)					
	CO	NO <sub>x</sub>	ROG	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>No Action Alternative</b>						
Aircraft	6.0	5.1	0.6	0.3	3.1	3.1
Surface Ships	170.1	124.8	45.8	53.5	21.5	21.5
Ordnance	0.22	0.0	0.0	0.1	0.3	0.3
Ground Vehicles/Military equipment	24.0	46.6	5.7	2.1	3.3	3.3
<b>Total</b>	<b>200.4</b>	<b>176.5</b>	<b>52.1</b>	<b>56.0</b>	<b>28.2</b>	<b>28.2</b>
<b>Alternatives 1 and 2</b>						
Aircraft	21.6	16.5	2.7	1.1	9.0	9.0
Surface Ships	199.2	155.3	55.2	73.9	27.6	27.6
Ordnance	0.3	0.0	0.0	0.2	0.4	0.4
Ground Vehicles/Military equipment	27.1	44.5	6.2	2.6	3.8	3.8
<b>Total</b>	<b>248.2</b>	<b>216.3</b>	<b>64.1</b>	<b>77.8</b>	<b>40.8</b>	<b>40.8</b>
<b>Alternatives 1 and 2 Increases over Baseline</b>	<b>47.8</b>	<b>39.8</b>	<b>12.0</b>	<b>21.8</b>	<b>12.6</b>	<b>12.6</b>
<i>De minimis</i> Limits	100.00	100.00	100.00	N/A	N/A	N/A
San Diego Air Basin forecast emissions for 2010 <sup>1</sup>	270,793	57,451	63,035			

<sup>1</sup>Emissions for year 2010 are from CARB emissions inventory website, [http://www.arb.ca.gov/app/emsmv/emseic1\\_query.php](http://www.arb.ca.gov/app/emsmv/emseic1_query.php)

### 3.3.2.4 Hazardous Air Pollutants

As discussed above, the USEPA has listed 188 substances that are regulated under Section 112 of the CAA, and the state of California has identified additional substances that are regulated under state and local air toxics rule. HAPs are emitted from a variety of processes that are associated with Southern California (SOCAL) Range Operations, including combustion sources and ordnance use. Trace amounts of HAPs are emitted from sources participating in SSTC training activities, including aircraft, marine vessels, ground vehicles, ground support equipment, and ordnance. The amounts that would be emitted are small in comparison with the emissions of criteria pollutants; emission factors for most HAPs from combustion sources are roughly three or more orders of magnitude lower than emission factors for criteria pollutants. Emissions of HAPs from ordnance use are smaller still, with emission factors ranging from roughly 10<sup>-5</sup> to 10<sup>-15</sup> lbs of individual HAP per item for cartridges to 10<sup>-4</sup> to 10<sup>-13</sup> lbs of individual HAPs per item for mines and smoke pots (USEPA 2006).

Emissions of HAPs would occur over the entire training complex and would be subject to dispersion due to wind mixing and other dissipation factors. Because the majority of activities occur in restricted areas where no sensitive receptors (i.e., residents, schools, hospitals, etc.) are located, no health effects would be anticipated from emissions of HAPs.

### 3.3.2.5 Alternative 2

The only difference between Alternative 1 and 2 is that, under Alternative 2, all SSTC-North oceanside beach training areas would be available for Navy training, regardless of time of year. Therefore, activity emissions associated with Alternative 2 would be the same as those described above for Alternative 1 (Table 3.3-4). Under Alternative 2, the proposed change in access and availability to existing beach and inland training areas would not result in a change in activity emissions from Alternative 1.

As discussed under Alternative 1, the emissions increases for CO, NO<sub>x</sub> and ROG are below the *de minimis* thresholds for requiring a full conformity determination, and the General Conformity Rule is therefore not applicable. A Record of Non-Applicability is included in Appendix D.

### 3.3.3 Proposed Mitigation Measures

No adverse effects on air quality were identified for any of the alternatives described; therefore, no proposed mitigation measures are necessary. However, current mitigation measures, implemented as part of the Navy's air quality management program and practices, would continue to be implemented at SSTC.

### 3.3.4 Unavoidable Adverse Environmental Effects

There are no unavoidable adverse environmental effects to air quality as a result of implementation of any of the alternatives.

### 3.3.5 Summary of Effects

Table 3.3-5 summarizes the effects of and mitigation measures for the No Action Alternative, Alternative 1, and Alternative 2.

**Table 3.3-5: Summary of Effects**

<b>Alternative</b>	<b>Effects</b>
<b>No Action Alternative</b>	<ul style="list-style-type: none"> <li>No increases in emissions above baseline.</li> </ul>
<b>Alternative 1</b>	<ul style="list-style-type: none"> <li>Emission increases would be less than the <i>de minimis</i> thresholds under the General Conformity Rule. No conformity determination is required.</li> </ul>
<b>Alternative 2</b>	<ul style="list-style-type: none"> <li>Emission increases would be less than the <i>de minimis</i> thresholds under the General Conformity Rule. No conformity determination is required.</li> </ul>
<b>Mitigation Measures</b>	<ul style="list-style-type: none"> <li>The Navy currently has a comprehensive air quality management program. Mitigation measures that are part of the Navy's air quality management practices are implemented at SSTC. Areas that are used for training exercises are typically vegetated, which reduces fugitive dust emissions associated with ground disturbance. Aircraft, marine vessels, ground vehicles, and TSE are required to be maintained and meet applicable emission standards (such as smog certification for on-road vehicles) in accordance with state requirements.</li> </ul>

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