3.1 AIR QUALITY

As a result of the Initial Study,[1] the Great Basin Unified Air Pollution Control District (District) determined that the 2008 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan (proposed project) had the potential to result significant impacts to air quality. Therefore, this issue has been carried forward for detailed analysis in this Environmental Impact Report (EIR). This analysis was undertaken to identify opportunities to avoid, reduce, or otherwise mitigate potential significant impacts to air quality and identify potential alternatives.

The analysis of air quality consists of a summary of the regulatory framework that guides the decision-making process, a description of the existing conditions at the proposed project area, thresholds for determining if the proposed project would result in significant impacts, anticipated impacts (direct, indirect, and cumulative), mitigation measures, and level of significance after mitigation. The potential for impacts to air quality has been analyzed in accordance with Appendix G of the State of California Environmental Quality Act (CEQA) Guidelines. Air quality at the proposed project site was evaluated with regard to the Public Safety element of the Inyo County General Plan,[2] the 2003 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan (SIP) EIR,[3] the Great Basin Unified Air Pollution Control District Rules and Regulations,[4] the National Ambient Air Quality Standards (NAAQS),[5] the California Ambient Air Quality Standards (CAAQS),[6] Assembly Bill 32,[7] Assembly Bill 1493,[8] Executive Order S-3-05,[9] the Clean Air Act (CAA),[10] and an air quality analysis of construction emissions conducted for the proposed project (Appendix C, *Air Quality Technical Memorandum*).[11]

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[1] Great Basin Unified Air Pollution Control District. 27 February 2007. *2008 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan Initial Study*. State Clearinghouse Number 2007021127. Bishop, CA.

[2] Inyo County Planning Department. December 2001. *Inyo County General Plan, Public Safety Element*. Independence, CA.

[3] Great Basin Unified Air Pollution Control District. February 2004. *2003 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan Integrated Environmental Impact Report*. State Clearinghouse House Number 2002111020. Prepared by: Sapphos Environmental, Inc., Pasadena, CA.

[4] Great Basin Unified Air Pollution Control District. Accessed 25 January 2006. *Rules and Regulations for the Great Basin Unified Air Pollution Control District*. Bishop, CA. Available at: http://www.gbuapcd.org/rulesandregulations/index.htm.

[5] U.S. Environmental Protection Agency. 7 December 2006. *National Ambient Air Quality Standards*. 40 CFR part 50. Washington, DC. Available at: http://www.epa.gov/ttn/naaqs.

[6] California Air Resources Board. 4 May 2005. *California Ambient Air Quality Standards*. California Health and Safety Code, Section 39606. Sacramento, CA. Available at: http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm.

[7] California Assembly. 2002. Assembly Bill 32 California Climate Solutions Act of 2006. Sacramento, CA. Available at: http://www.climatechange.ca.gov/documents/ab_32_bill_20060927_chaptered.pdf

[8] California Assembly. 2002. Assembly Bill 1493. Sacramento, CA. Available at: http://www.climatechange.ca.gov/documents/ab_1493_bill_20020701_enrol.pdf

[9] California Governor. 2005. Executive Order S-3-05. Sacramento, CA.

[10] U.S. Environmental Protection Agency. 2005. "Title I Air Pollution Prevention and Control." *Federal Clean Air Act* Washington, DC. Available at: http://www.epa.gov/oar/caa/contents.html.

[11] Terry Hayes and Associates. July 2007. *Technical Memorandum: Owens Lake Construction Emissions*. Culver City, CA.

3.1.1 Regulatory Framework

This regulatory framework identifies the federal, state, regional, and local laws that govern the regulation of air quality and must be considered by the District regarding decisions on projects that involve construction, operation, or maintenance activities that would result in air emissions.

Responsibility for attaining and maintaining ambient air quality standards in California is divided between the California Air Resources Board (CARB) and regional air pollution control or air quality management districts. Areas of control for the regional districts are set by CARB, which divides the state into air basins. These air basins are based largely on topography that limits air flow access, or by county boundaries. The proposed project area is in the Inyo County within the Great Basin Valley Air Basin.

Federal

National Environmental Policy Act

The National Environmental Policy Act (NEPA) and its supporting federal regulations establish certain requirements that must be adhered to for any project "…financed, assisted, conducted or approved by a federal agency…." In making a decision on the issuance of federal grant monies or a permit to conduct work on federal lands for components of the proposed project, the federally designated lead agency pursuant to NEPA is required to "…determine whether the proposed action may significantly affect the quality of the human environment." Only those portions of the proposed project conducted of Bureau of Land Management (BLM) may require compliance with this regulation.

National Ambient Air Quality Standards

The U.S. Environmental Protection Agency (EPA) establishes and regularly reviews the National Ambient Air Quality Standards to protect public health with an adequate margin of safety. There are six federally regulated pollutants [ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), carbon monoxide (CO), lead (Pb), and fine particulate matter (PM_{10})]. The ozone standard was historically measured over 1 hour. In 2004, a new 8-hour ozone standard superseded the 1-hour standard. Also in 2004, a new $PM_{2.5}$ standard for very fine particulates (those particulates measuring 2.5 micrograms or less in diameter) was added to the existing PM_{10} (particulates measuring 10 micrograms or less) standard.

Ozone forms in the atmosphere when nitrogen oxides (NO_x) and reactive organic compounds (ROC) combine in the presence of sunlight. Nitrogen oxides are a byproduct of fuel combustion. Sources of NO_x include gasoline-powered vehicle engines, power plants, and refineries. Reactive organic compounds are emitted by vehicles and from industrial and commercial processes, including paints, coatings, and solvents. Nitrogen dioxide is a secondary contaminant formed when NO_x combines in the atmosphere with oxygen. Sulfur dioxide results when sulfur oxides (SO_x), emitted from burning fuel containing high amounts of sulfur, combine with oxygen. Carbon monoxide results from incomplete combustion. Gasoline-fueled automobiles were the major source of CO before extensive controls, including seasonal changes in gasoline composition, were enacted. Lead is no longer a major air pollutant since it was banned in gasoline. Fine particulate matter (PM_{10} and $PM_{2.5}$), as well as larger particulates, are emitted through many natural and man-made sources and processes, including soil disturbance, salts in sea spray, vehicle exhausts, and smokestacks as a byproduct of fuel combustion.

On August 7, 1987, the U.S. EPA designated the southern Owens Valley [known as the Owens Valley Planning Area (OVPA), see Figure 2.2-1, *Owens Valley Planning Area*] as one of the areas in the nation that violated the new PM_{10} NAAQS. Subsequent air quality monitoring by the District has shown that the bed of Owens Lake – most of which is owned by the State of California and managed by the California State Lands Commission (CSLC) – is the major source of PM_{10} emissions contributing to air quality violations in the Owens Valley Planning Area. The Owens Lake bed is considered an anthropogenic (human caused) source of PM_{10} because the City of Los Angeles' Aqueduct diverts water sources that historically supplied the lake. The 1990 Clean Air Act sets CO and PM_{10} attainment deadlines in "serious" non-attainment areas at the year 2000 and 2005, respectively. In January 1993, the southern Owens Valley was reclassified as "serious non-attainment" for PM_{10}.

The U.S. EPA required the State of California to prepare an SIP for the Owens Valley Planning Area that demonstrated how PM_{10} emissions would be decreased to prevent exceedances of the NAAQS. The District is the agency delegated by the State of California to fulfill this requirement. In accordance with Section 189(b) of the CAA, an Attainment SIP that demonstrates conformance with the federal air quality standards through the implementation of a program of control measures was required to be submitted to the U.S. EPA by February 8, 1997. In November of 1998, the District adopted the SIP, which was approved by the U.S. EPA on August 17, 1999.

In July 1997, the EPA promulgated a new 8-hour standard for ozone and a new standard for fine particulate matter ($PM_{2.5}$). On April 15, 2004, the EPA released its list of 8-hour ozone non-attainment areas with the deadline for each non-attainment area to attain the standard. Areas with the highest 8-hour concentrations and the greatest number of days exceeding the new standard were given the longest time to reach attainment.

Federal Clean Air Act

The Federal CAA requires that federally supported activities must conform to the SIP, whose purpose is to attain and maintain the NAAQS (Table 3.1.1-1, *Ambient Air Quality Standards*). Section 176 (c) of the CAA, as amended in 1990, established the criteria and procedures by which the Federal Highway Administration (FHWA) (Title 23 U.S.C.), the Federal Transit Administration (FTA),[12] and metropolitan planning organizations (MPOs) determine the conformity of federally funded or approved highway and transit plans, programs, and projects to SIPs. The provisions of 40 CFR Parts 51 and 93[13] apply in all non-attainment and maintenance areas for transportation-related criteria pollutants for which the area is designated non-attainment or has a maintenance plan.

[12] Federal Transit Administrations. 24 November 1993. *Federal Register*, Part 58, Section 62188. Washington, DC: Office of the Federal Register National Archives and Records Administration.

[13] *Code of Federal Regulations*, Title 40, Parts 51 and 93, Final Rule effective 15 September 1997.

TABLE 3.1.1-1
AMBIENT AIR QUALITY STANDARDS

Air Pollutant	National		State
	Primary	Secondary	Standard
Ozone (O_3)	0.08 ppm, 8-hr avg.	0.08 ppm, 8-hr avg.	0.09 ppm, 1-hr avg. 0.07 ppm, 8-hour avg.
Carbon monoxide (CO)	9.5 ppm, 8-hr avg. 35 ppm, 1-hr avg.	None	9.0 ppm, 8-hr avg. 20 ppm, 1-hr avg.
Nitrogen dioxide (NO_2)	0.053 ppm, AAM	0.053 ppm, AAM	0.18 ppm, 1-hr avg. 0.03 ppm, AAM
Sulfur dioxide (SO_2)	0.03 ppm, AAM 0.14 ppm, 24-hr avg.	0.50 ppm, 3-hr avg.	0.25 ppm, 1-hr 0.04 ppm, 24-hr avg.
Suspended particulate matter (PM_{10})	150 $\mu g/m^3$, 24-hr avg.	150 $\mu g/m^3$, 24-hr avg.	50 $\mu g/m^3$, 24-hr avg. 20 $\mu g/m^3$, AAM
Particulate matter ($PM_{2.5}$)	35 $\mu g/m^3$, 24-hr avg. 15 $\mu g/m^3$, AAM	35 $\mu g/m^3$, 24-hr avg. 15 $\mu g/m^3$,AAM	12 $\mu g/m^3$, AAM
Sulfates (SO_4)	---	---	25 $\mu g/m^3$, 24-hr avg.
Lead (Pb)	1.5 $\mu g/m^3$, calendar quarter	1.5 $\mu g/m^3$, calendar quarter	1.5 $\mu g/m^3$, monthly avg.
Hydrogen sulfide (H_2S)	---	---	0.03 ppm, 1-hr avg.
Vinyl chloride	---	---	0.01 ppm, 24-hr avg.
Visibility-reducing particles	---	---	Extinction coefficient of 0.23 per kilometer—visibility of 10 miles or more due to particles when relative humidity is less than 70 percent.

NOTE: ppm = parts per million by volume
avg. = average
μg/m3 = micrograms per cubic meter
AAM = annual arithmetic mean

SOURCE: U.S. EPA and California Air Resources Board. 22 February 2007. *Ambient Air Quality Standards*. Available at: http://www.arb.ca.gov/aqs/aaqs2.pdf

In July 1997, the EPA promulgated stricter standards for ozone and fine particulate ($PM_{2.5}$); however, deadlines for attaining the standards were extended over original proposals, with up to 15 years allowed for attaining the $PM_{2.5}$ standard. The PM_{10} standard was revised, but the existing PM_{10} standard remains in effect until attainment is achieved. Until there has been sufficient monitoring for the EPA to designate the $PM_{2.5}$ attainment status for each region, the PM_{10} standard will remain the particulate standard of reference. However, federal enforcement of the new standards are currently on hold pending the outcome of an appeal by EPA of a 2 to 1 decision by a three-judge panel of the U.S. Court of Appeals for the District of Columbia on May 14, 1999. This decision removed the revised federal PM_{10} standard, put a hold on implementing the 8-hour ozone standard, and asked for further comments on the $PM_{2.5}$ standard.

The 1990 amendments to the CAA divide the nation into five categories of planning regions, depending on the severity of their pollution, and set new timetables for attaining the national ambient air quality standards. The categories range from "marginal" to "extreme." Attainment deadlines are from 3 to 20 years, depending on the category.

EPA can withhold certain transportation funds from states that fail to comply with the planning requirements of the CAA. If a state fails to correct these planning deficiencies within two years of federal notification, EPA is required to develop a Federal Implementation Plan (FIP) for the identified non-attainment area or areas.

State

California Clean Air Act

The California CAA (CCAA) of 1988 requires all air-pollution control districts in the state to endeavor to achieve and maintain state ambient air-quality standards for O_3, CO, and NO_2 by the earliest practicable date and to develop plans and regulations specifying how they will meet this goal (Table 3.1.1-1). There are no planning requirements for the state PM_{10} standard. California's ambient air standards are generally stricter than national standards for the same pollutants, but there is no penalty for non-attainment. California has also established state standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles, for which there are no national standards.

California Air Resources Board

The California Air Resources Board, which became part of the California Environmental Protection Agency (CalEPA) in 1991, is responsible for meeting the state requirements of the federal CAA, administering the CCAA, and establishing the CAAQS. The CCAA, as amended in 1992, requires all air districts in the state to endeavor to achieve and maintain the CAAQS. CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. CARB regulates mobile air pollution sources, such as motor vehicles. CARB is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB established passenger vehicle fuel specifications, which became effective on March 1996. CARB oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional and county levels.

Assembly Bill 1493

Signed by Governor Gray Davis in 2002, Assembly Bill (AB) 1493 requires that CARB develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty truck and other vehicles determined by the ARB to be vehicles whose primary use is noncommercial personal transportation in the state." The bill recognizes that "global warming is a matter of increasing concern for public health and the environment in the state."[14]

[14] California Assembly. 2002. Assembly Bill 1493. Sacramento, CA. Available at: http://www.climatechange.ca.gov/documents/ab_1493_bill_20020701_enrol.pdf

Executive Order S-3-05

Signed by Governor Arnold Schwarzenegger in 2005, Executive Order S-3-05 asserts that California has vulnerability to the impacts of climate change.15 The Executive Order puts forth that increased temperatures could reduce the Sierra snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total greenhouse gas (GHG) emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050. The Executive Order directed the Secretary of CalEPA to initiate a multi-agency effort to reduce greenhouse gas emissions to the target levels. The Secretary is responsible for submitting biannual reports to the governor and state legislature that outline: (1) progress made toward reaching the emission targets, (2) impacts of global warming on California's resources, and (3) measures and adaptation plans to mitigate these impacts. To comply with the Executive Order, the Secretary of CalEPA created a Climate Act Team (CAT) comprised of members from various state agencies and commission. CAT released its first report in March 2006. The report proposed to achieve the targets via building on voluntary actions of California businesses, local government and community actions, in addition to state incentive and regulatory programs.

Assembly Bill 32, California Climate Solutions Act of 2006

Signed by Governor Schwarzenegger in September 2006, AB 32, also referred to as the California Climate Solutions Act of 2006, requires that statewide GHG emissions be reduced to 1990 levels by the year 2020.[16] An enforceable statewide cap on GHG emissions that will be phased in starting in 2012 to help accomplish this intended reduction. To effectively implement the cap, AB 32 directs CARB to develop and implement appropriate regulations to reduce statewide GHG emissions from stationary sources. AB 32 provides that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language insisting that if AB 1493 regulations cannot be implemented, then CARB shall develop new regulations to control vehicle GHG emissions under the authorization of AB 32. AB 32 requires that CARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap. Under the bill, CARB must establish a schedule to meet the emissions cap, as well as develop a system of tracking, reporting, and enforcement mechanisms to ensure that the state achieves reductions in GHG emissions necessary to meet the cap. AB 32 also provides guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions. This bill serves as the first enforceable state-wide program in the United States to cap all GHG emissions from major industries and include penalties for non-compliance. While acknowledging that national and international actions will be necessary to fully address the issue of global warming, AB 32 provides a program to inventory and reduce GHG emissions in California and from power generation facilities located outside the state that serve California residents and businesses.

Senate Bill 1368

Signed by Governor Schwarzenegger in September 2006, SB 1368 is the companion bill of AB 32. SB 1368 requires the California Public Utilities Commission (CPUC) to establish a greenhouse gas emission performance standard for baseload generation from investor owned utilities by February 1,

[15] California Governor. 2005. Executive Order S-3-05. Sacramento, CA.

[16] California Assembly. 2002. Assembly Bill 32 California Climate Solutions Act of 2006. Sacramento, CA. Available at: http://www.climatechange.ca.gov/documents/ab_32_bill_20060927_chaptered.pdf

2007. The California Energy Commission (CEC) must establish a similar standard for local publicly owned utilities by June 30, 2007. The statute states that upon establishment of the greenhouse gas standards, any generation assets of a California utility must immediately comply with the standards. These standards cannot exceed the greenhouse gas emission rate from a baseload combined-cycle, natural gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by CPUC and the CEC. SB 1368 makes California the first state in the nation to ensure that electric utilities' new commitments to power plants meet a minimum performance level for global warming pollution. While the City of Los Angeles Department of Water and Power is a local, publicly owned utility, the proposed project would not involve generation of electricity.

Regional

Great Basin Unified Air Pollution Control District Plans, Rules, and Regulations

The Great Basin Unified Air Pollution Control District was formed through a joint power agreement in 1974 for Inyo, Mono, and Alpine Counties, which covers the Great Basin Valleys Air Basin in California. The District regulates PM_{10} emissions in the Owens Valley Planning Area consistent with the requirements of the NAAQS (Figure 2.2-1).

The District has the responsibility to enforce federal, state, and local air quality regulations and to ensure that the federal and state air quality standards are met within the district. These standards are set to protect the health of sensitive individuals by restricting how much pollution is allowed in the air. To meet these standards the District aims to enforce those federal laws and state laws on stationary sources of pollution, and pass and enforce its own regulations as they become necessary for air quality issues.

The federal CAA requires that federally supported activities must conform to the SIP, whose purpose is that of attaining and maintaining the NAAQS. Section 176 (c) of the federal CAA, as amended in 1990, established the criteria and procedures by which the Federal Highway Administration (FHWA) (Title 23 U.S.C.), the Federal Transit Administrations (FTA),[17] and metropolitan planning organizations (MPOs) determine the conformity of federally funded or approved highway and transit plans, programs, and projects to SIPs. The provisions of 40 CFR Parts 51 and 93[18] apply in all non-attainment and maintenance areas for transportation-related criteria pollutants for which the area is designated non-attainment or has a maintenance plan.

For transportation conformity purpose and as required by District Rule 1231(e),[19] areas such as the OVPA, where construction-related fugitive PM_{10} is a contributor to the non-attainment problem, regional PM_{10} emissions analysis must consider construction-related fugitive PM_{10}, including emissions generated by new highway construction projects in the OVPA. Also, the level of construction activity, fugitive PM_{10} control measures in the SIP, and the dust-producing capacity of the proposed activities in the applicable implementation plan must also be included in the analysis.

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[17] Federal Transit Administrations. 24 November 1993. *Federal Register*, Part 58, Section 62188. Washington, DC: Office of the Federal Register National Archives and Records Administration.

[18] *Code of Federal Regulations*, Title 40, Parts 51 and 93, Final Rule effective 15 September 1997.

[19] Great Basin Unified Air Pollution Control District. Adopted 10 May 1994. Regulation XII--Conformity to State Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved under Title 23 U.S.C. or the Federal Transit Act, District Rule 1231(e) - Procedures for determining regional transportation-related emissions. Available at: http://www.arb.ca.gov/drdb/gbu/curhtml/reg-12.htm

General conformity requirements contained in District Regulation XIII,[20] implements section 176 (c) of the federal CAA, as amended (42 U.S.C. 7401 *et seq.*), and regulations under 40 CFR Part 51 Subpart W. This regulation requires that federal actions and federally funded projects conform to SIP rules and do not interfere with efforts to attain federal air quality standards.

All fugitive dust sources are required to meet District Rule 400[21] and Rule 401,[22] which limit visible emissions to less than 20 percent opacity and require reasonable precautions to be taken to prevent visible emissions from leaving the project area. Reasonable precautions include, but are not limited to, water suppression, chemical stabilizers, windbreaks, and surface coverings. Fugitive dust sources such as vehicles on unpaved roadways, earthmoving, and gravel mining operations are affected by these District Rules.

As a result of a SIP prepared by the District and approved by the U.S. EPA in 1998, the City of Los Angeles Department of Water and Power (LADWP) began constructing dust control measures (DCMs) on the lake bed with a goal of implementing the controls necessary to meet the federal PM_{10} standards by the end of 2006. In the same 1998 SIP, the District committed to continue to study the lake bed and to revise the SIP in 2003 to refine the actual areas necessary for control. Based on those additional studies, in November 2003 the Great Basin Governing Board adopted a revised SIP and ordered the LADWP to implement DCMs on 29.8 square miles of the Owens Lake bed by December 31, 2006. Of these total 29.8 square miles, approximately 5.5 square miles (3,520 acres) of the 10.3 square miles (6,592 acres) of new area covered in the 2003 SIP EIR were analyzed on a project level for environmental impacts.[23] An addendum to the 2003 SIP EIR was prepared in 2005 to exchange 1.3 square miles originally designated for Managed Vegetation to Shallow Flooding and an addition of 223 acres of Shallow Flooding outside the 2003 SIP EIR footprint.[24] As of January 1, 2007, the 29.8 square miles of DCMs designated in the 2003 SIP and 2003 EIR were operational.[25]

In addition to requiring the LADWP to construct and begin operating 29.8 square miles of DCMs on the lake bed by the end of 2006, the 2003 SIP also contained provisions requiring the District to continue monitoring air pollution emissions from the lake bed and identify any additional areas beyond the 29.8 square miles that may require PM_{10} controls in order to meet the standards. The federal CAA requires all SIPs to contain "contingency measures" that will be implemented in case the initial control strategy (29.8 square miles of controls) fails to bring the facility (lake bed) into compliance. One such contingency measure was for the Air Pollution Control Officer (APCO) to complete a Supplemental Control Requirements (SCR) analysis and determination as to whether additional dust controls are required on the lake based on continuous air quality data collected.

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[20] Great Basin Unified Air Pollution Control District. Adopted 10 May 1994. Regulation XIII - Conformity of General Federal Actions to State Implementation Plans. Available at: http://www.arb.ca.gov/drdb/gbu/curhtml/reg-13.htm

[21] Great Basin Unified Air Pollution Control District. Revised 18 January 1979. Rule 400 - Ringelmann Chart. Available at: http://www.arb.ca.gov/DRDB/GBU/CURHTML/R400.HTM

[22] Great Basin Unified Air Pollution Control District. Revised 10 March 1976. Rule 401 - Fugitive Dust. Available at: http://www.arb.ca.gov/DRDB/GBU/CURHTML/R401.HTM

[23] Great Basin Unified Air Pollution Control District. February 2004. *2003 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan Integrated Environmental Impact Report*. State Clearinghouse House Number 2002111020. Prepared by: Sapphos Environmental, Inc., Pasadena, CA.

[24] City of Los Angeles Department of Water and Power. 2004. *Environmental Impact Report Addendum No. 1 to the 2003 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan*. Los Angeles, CA.

[25] Great Basin Unified Air Pollution Control District. November 2003. *Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan*. Bishop, CA.

Based on July 2002 through June 2004 data, on December 21, 2005, the APCO completed the 2003 SIP-required supplemental SCR analysis and issued an SCR determination that additional areas of the lake bed would require DCMs in order to meet the PM_{10} standards. Based on that SCR analysis, and subsequent discussions with the LADWP, an agreement with LADWP has been reached to construct the additional DCMs necessary to bring the lake bed into compliance with the NAAQS for PM_{10}. These additional DCMs beyond the 29.8 square miles completed at the end of 2006 are the subject of the proposed project.

Local

Inyo County General Plan

Safety Element

The Inyo County General Plan contains policies related to air quality in its Safety element.[26] The goal of the Safety element is to foster compatible land use arrangements that contribute to reduced energy consumption and improved air quality. The Safety element contains a summary of the existing conditions in the planning area, major issues, and policies designed to aid the County to achieve their goal. Relevant policies include the following:

> **Policy AQ-1.1: Regulations to Reduce PM_{10}.** Support the implementation of the State Implementation Plan and the agreement between Great Basin Unified Air Pollution Control District and the City of Los Angeles Department of Water and Power
>
> **Policy AQ-1.2: Attainment Programs.** Participate in the Great Basin Unified Air Pollution Control District's attainment programs
>
> **Policy AQ-1.3: Dust Suppression During Construction.** Require dust-suppression measures for grading activities

3.1.2 Existing Conditions

The analysis of existing conditions related to air quality includes a summary of pollutant levels prior to implementation of each component of the proposed project. All of the project components are located within the Great Basin Valley Air Basin; therefore, all air quality data and analysis are presented as an aggregate of the entire proposed project area.

The Great Basin Valley Air Basin is composed of all of Alpine, Inyo, and Mono Counties. It is bounded on the north by the Lake Tahoe Air Basin, on the east by the state of Nevada, on the south by the Mojave Desert Air Basin, and on the west by the San Joaquin Valley Air Basin.

Owens Lake is bounded by the Inyo Mountains to the east and the Sierra Nevada to the west, which rise over 10,000 feet above the lake bed surface. Because it is in the rain shadow of the Sierra Nevada, annual rainfall is very low in the proposed project area. Owens Lake averages approximately 4 inches of rainfall per year with the greatest amount falling from November through April. Temperatures range from 18 to 70 degrees Fahrenheit during the winter, and 45 to 103 degrees Fahrenheit during the summer. High winds in the area can exceed average speeds of 40 miles per hour as measured at a 33-

[26] Inyo County Planning Department. December 2001. *Inyo County General Plan, Public Safety Element.* Independence, CA.

foot height. High winds are generally associated with the counter-clockwise rotating storm systems that pass through the area. High southerly winds usually occur as the storm front approaches the Owens Valley and strong northerly winds result from the passing of the storm. These general wind directions are sometimes complicated by local eddy effects that can cause 180-degree differences in the wind direction from the west to east side of the valley.

Eleven sensitive airsheds exist in the region: John Muir Wilderness, Golden Trout Wilderness, Kings Canyon National Park, Sequoia National Park, Ancient Bristlecone Pine Forest, South Sierra Wilderness, Dome Land Wilderness, Naval Weapons Center China Lake and Naval Weapons Center China Lake Mojave Range B, Fort Irwin National Training Center, Edwards Air Force Base, and Death Valley National Park (Figure 3.1.2-1, *Sensitive Airsheds in the Project Vicinity*). Four of these airsheds, John Muir and Dome Land Wilderness Areas, and King Canyon and Sequoia National Parks, are designated as Class I Prevention of Significant Deterioration (PSD) areas, which are afforded more stringent protection from visibility degradation and for impacts from air pollutants.

Visibility in the Owens Valley generally ranges from 37 to 93 miles, with the best visibility occurring during the winter. Visibility is most limited from May through September and during days when Owens Lake dust storms occur. Owens Lake dust storms can reduce visibility to zero near Owens Lake and obscure visibility 150 miles away. The main cause of visibility degradation in the Owens Valley is fine particulates in the atmosphere. In addition to dust from Owens Lake, visibility degradation results from transport of air pollutants from the San Joaquin Valley Air Basin, located to the west, and the South Coast Air Basin, located to the south of the Great Basin Valley Air Basin. Most of the visibility degradation can be attributed to interbasin transport of air pollutants. On days when Owens Lake dust storms do not occur, emissions of fine particulate matter from gasoline and diesel-fueled vehicles and equipment within the Owens Valley are the largest local man-made contributors to visibility degradation. Nitrogen dioxide (NO_2), a light absorbing gas formed during fuel combustion, contributes less than 5 percent to the overall visibility degradation. Other man-made sources of visibility-degrading emissions also represent less than 5 percent of the overall reduction in visibility.[27]

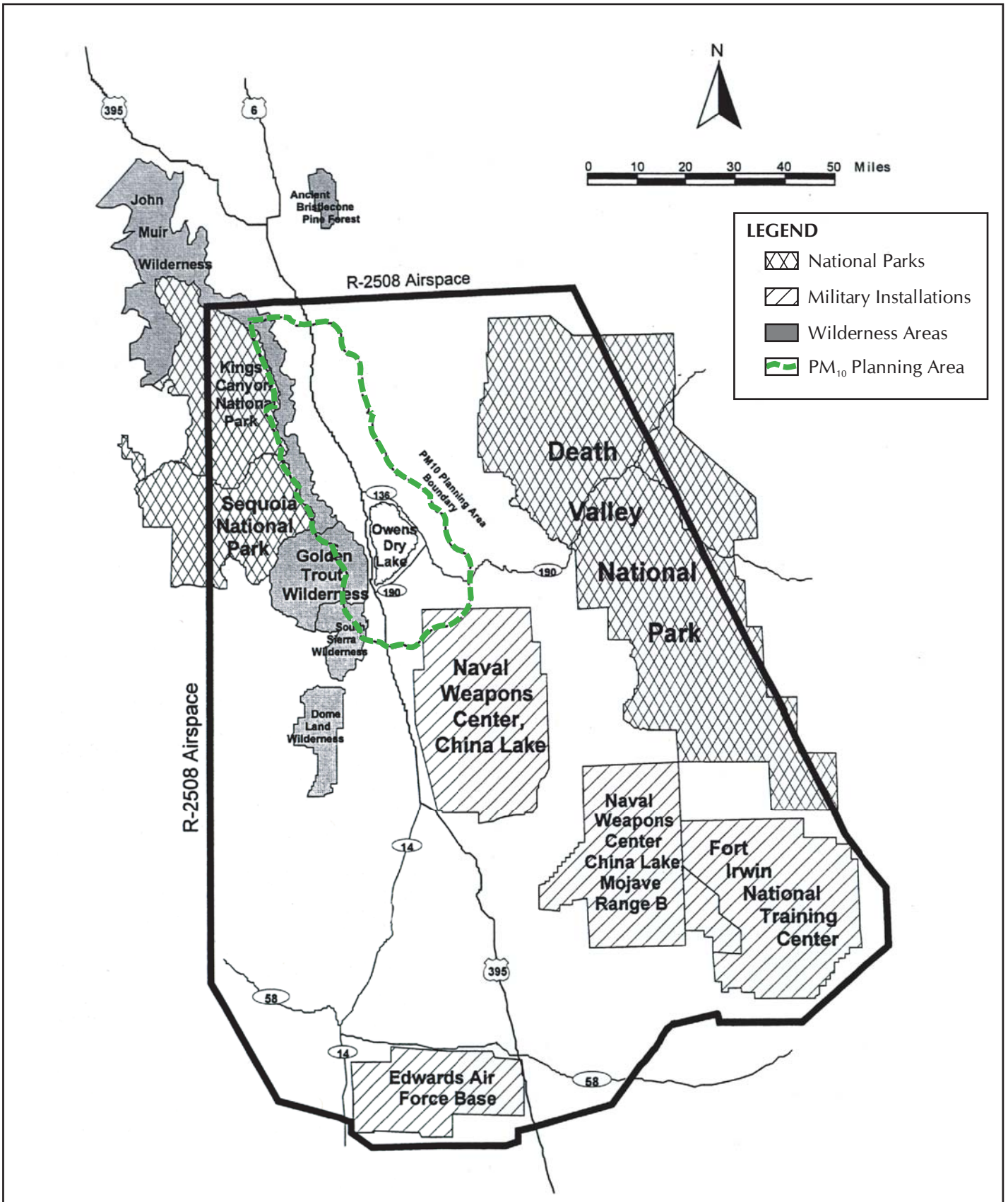
The Owens Lake bed sediments in the clay layer contain hydrogen sulfide gas (H_2S), which is created by chemical reduction of organic materials in the sediments by bacteria that live in anaerobic conditions, and is described as malodorous. Disturbance of the sediments during the construction of berms and reservoirs on the playa will release H_2S from the clay. The loss rate of H_2S is affected by diffusion into the air stream, with the H_2S emission rate increasing with wind speed.

The R-2508 military air space and the China Lake Naval Air Weapons Stations (NAWS) are sensitive sites for visibility impacts from Owens Lake dust events. Good visibility is needed for some military operations, including performance of high precision tests. Owens Lake events can reduce visibility to less than 1 to 2 miles at China Lake.[28]

Air quality in the proposed project area is excellent for most criteria pollutants with the notable exception of a violation of the annual PM_{10} standard and numerous violations of the federal 24-hour PM_{10} standard due to wind blown dust from the Owens Lake bed. Extremely high PM_{10} concentrations, 80 times higher than the NAAQS, have been verified downwind of Owens Lake. Annual PM_{10}

[27] Trijonis, J., McGown, M., Pitchford, M., Blumenthal, D. Roberts, P. White, W. Macias, E. Weiss, R. Waggoner, A. Watson, J. Chow, J. and R. Flocchini. 1998 (RESOLVE Project Final Report). *Visibility Conditions and Causes of Visibility Degradation in the Mojave Desert of California*. Proposal for China Lakes Naval Weapons Center, China Lake, CA.

[28] Stevenson, C.A. 9 May 1996. Letter to Dr. Ellen Hardebeck, Great Basin Unified Air Pollution Control District, Bishop, CA. Subject: Impacts to China Lake Naval Air Weapons Station's visibility by Owens Lake dust events.



SOURCE: Great Basin Unified Air Pollution Control District

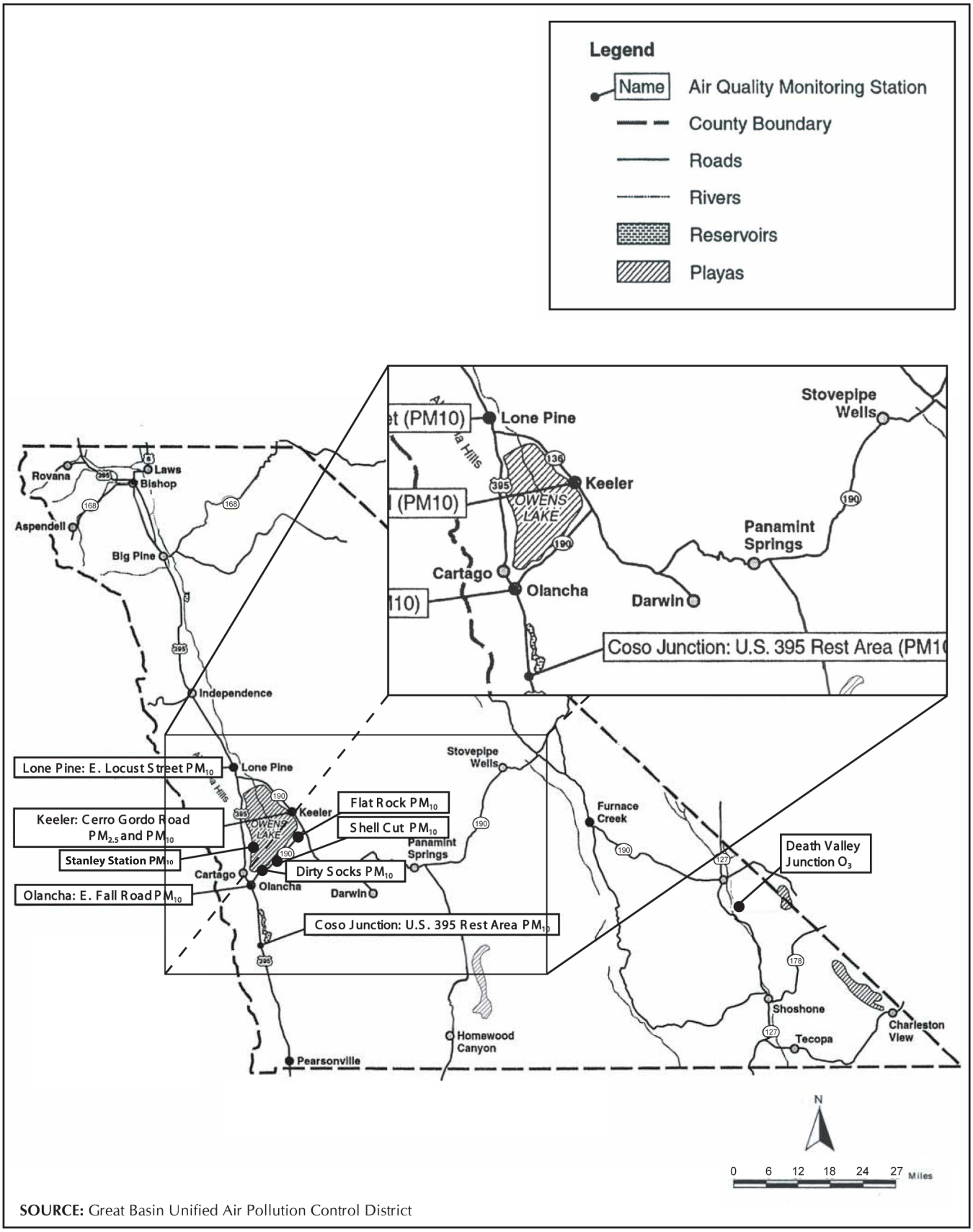
FIGURE 3.1.2-1
Sensitive Airsheds in the Project Vicinity

emissions caused by wind erosion of the Owens Lake bed are estimated at 76,000 tons per year. Readings for ozone and PM_{10} applicable to the proposed project were taken from several air monitoring stations (Figure 3.1.2-2, *Air Quality Monitoring Stations*). Readings for the past four years with available data for the Great Basin Valley Air Basin, with the applicable state and national standards, are provided in Table 3.1.2-1, *Summary of PM_{10} Data*, and Table 3.1.2-2, *Summary of $PM_{2.5}$ Data*.

TABLE 3.1.2-1
SUMMARY OF PM_{10} DATA

Pollutant	Year	Monitoring Station	Maximum 24-hour Concentration ($\mu g/m^3$)	State 24-hour Standard Exceed (days)	National 24-hour Standard (150 $\mu g/m^3$) Exceed (days)
Suspended Particulates (PM_{10})	2003	Keeler	1209	28	11
		Lone Pine	724	11	4
		Olancha	379	9	5
		Dirty Socks	10,933	51	32
	2004	Keeler	3,322	33	14
		Lone Pine	349	11	1
		Olancha	1,062	16	6
		Dirty Socks	4,032	45	21
	2005	Keeler	1,441	29	7
		Lone Pine	262	7	1
		Olancha	288	13	5
		Dirty Socks	4,169	36	19
	2006	Keeler	2,101	31	11
		Lone Pine	293	14	2
		Olancha	187	24	2
		Dirty Socks	6,592	53	18

KEY:
ppm = parts per million
$\mu g/m^3$ = micrograms per cubic meter



SOURCE: Great Basin Unified Air Pollution Control District

FIGURE 3.1.2-2
Air Quality Monitoring Stations

TABLE 3.1.2-2
SUMMARY OF $PM_{2.5}$ DATA

Pollutant	Year	Monitoring Station	Maximum 24-hour Concentration (in $\mu g/m^3$)	National 24-hour Standard Exceeded (in days)
Suspended Particulates ($PM_{2.5}$)	2003	Keeler	43.8	0
	2004	Keeler	81.0	1
	2005	Keeler	22.5	0
	2006	Keeler	192.8	1

KEY:
ppm = parts per million
$\mu g/m^3$ = micrograms per cubic meter

The Great Basin Valley Area was in non-attainment for PM_{10} for the Keeler, Lone Pine, Olancha, and Dirty Socks sites between 2004 and 2006, with the greatest number of days exceeding the National standard occurring 21 times at Dirty Socks in 2004, and exceeding the State standard occurring 53 times at Dirty Socks in 2006 (Table 3.1.2-1). Keeler exceeded the $PM_{2.5}$ National standard 1 day in 2004 and 1 day in 2006 (Table 3.1.2-2).

Because of their small size, PM_{10} can easily penetrate deeply into the lungs. Breathing PM_{10} can cause a variety of health problems. Resultant problems include an increase in the number and severity of asthma and bronchitis attacks, breathing difficulties in people with heart or lung disease, as well as the increase in risk for, or complication of, existing respiratory infections. The NAAQS are intended to protect people who are especially sensitive to elevated levels of PM_{10}, including children, the elderly, and people with existing heart and lung problems. The particulate pollution in the form of dust at concentrations higher than that set by the NAAQS can adversely affect even healthy individuals. The provisions of 40 CFR Part 51.151[29] set 600 $\mu g/m^3$ as the level that can pose a significant risk of harm to the health of the general public, including otherwise healthy individuals.

Dust transportation studies from Owens Lake show that the federal standard can be exceeded more than 50 miles away and expose many more people to violations of the PM_{10} standard than just the residents near Owens Lake. The dust from Owens Lake at concentrations above the federal PM_{10} standard annually affects about 40,000 permanent residents between Ridgecrest and Bishop, as well as the many visitors that spend time in the dust-impacted area enjoying the many recreational opportunities that the Eastern Sierra and high desert have to offer.

Greenhouse Gases

The most prominent GHGs that have been identified as contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), ozone (O_3), water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). Emissions of GHGs contributing to global climate change are attributable largely to human activities associated with the industrial/manufacturing, utility, transportation,

[29] Environment Protection Agency. 7 November 1986. *Code of Federal Regulations*, Title 40, Volume 2, Section 51.151. (*Federal Register* 51 FR 40668, as amended at 52 FR 24713, 1 July 1987).

residential, and agricultural sectors.[30] In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation. A byproduct of fossil fuel combustion is CO_2. Methane, a highly potent GHG, results from off-gassing associated with agricultural practices and landfills. Processes that absorb and accumulate CO_2, often called CO_2 "sinks," include uptake by vegetation and dissolution into the ocean.

GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern, respectively. California is the 12th to 16th largest emitter of CO_2 in the world and produced 492 million gross metric tons of carbon dioxide equivalents in 2004.[31] Since regulations do not currently stipulate a standardized methodology for collection of GHG emissions, no measurements of CO_2 or CH_4 have currently been taken within the Great Basin Valley Air Basin. Therefore, past or present GHG emission values are not currently available.

LADWP is a member of the California Climate Action Registry. Through the California Climate Action Registry, LADWP has published its 2005 Annual Emissions Report, which specified GHG emissions from stationary sources at 3,378,577.24 metric tons in carbon dioxide equivalents. The Annual Emissions Report also documents many of the various methods LADWP has instituted for reducing GHG emissions, such as providing rebates to encourage use of energy efficient equipment, retrofitting City-owned facilities for increased energy efficiency, promoting the installation of solar and renewable power, and reducing GHG from vehicles by pursuing electric fleet vehicles.[32]

3.1.3 Significance Thresholds

A project's air quality impacts can be separated into short-term impacts resulting from construction and long-term permanent impacts resulting from project operations.

The threshold for determining if significant impacts on air quality would occur is based on Appendix G of the State CEQA Guidelines. The likelihood for significant impacts on air quality to occur was evaluated based on the potential for the proposed project to have the following effects:

- 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 nonattainment under an applicable federal or state ambient air quality standard (including release in emissions that exceed quantitative thresholds for ozone precursor)
- Expose sensitive receptors to substantial pollutant concentrations
- Create objectionable odors affecting a substantial number of people

[30] California Climate Action Registry. June 2006. *California Climate Action Registry General Reporting Protocol: Reporting Entity-Wide Greenhouse Gas Emissions*. Version 2.1. Los Angeles, CA. Available at: http://www.climateregistry.org/docs/PROTOCOLS/GRP%20V2.1.pdf

[31] California Climate Action Registry. June 2006. *California Climate Action Registry General Reporting Protocol: Reporting Entity-Wide Greenhouse Gas Emissions*. Version 2.1. Los Angeles, CA. Available at: http://www.climateregistry.org/docs/PROTOCOLS/GRP%20V2.1.pdf

[32] California Climate Action Registry. 2005. *LADWP Annual Emissions Report. California Climate Action Registry, 515 S. Flower Street, Suite 1640, Los Angeles, CA*. Available at: http://www.climateregistry.org/CARROT/public/reports.aspx

Ambient air standards are established to protect the average person from health effects associated with air pollution. The standards include an "adequate margin of safety." However, some people are particularly sensitive to some pollutants. These sensitive people include persons with respiratory illnesses or impaired lung function because of other illnesses, the elderly, and children. Facilities and structures where these sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses considered to be sensitive receptors are long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, child care centers, and athletic facilities. Particular to the Great Basin Valley Air Basin, the China Lake Naval Weapons Station is considered a sensitive site for visibility impacts associated with Owens Lake dust events for the reasons mentioned in the previous section.

The District has no significant emission thresholds particular to its air basin. However, the District prepared the 2008 SIP to meet federal requirements of the CAA Amendments of 1990 for PM_{10}. Under the 2008 SIP, any project that violates the NAAQS for PM_{10} is unacceptable.

Specific standards for determining malodor have not been determined. However, the California air quality standard for hydrogen sulfide (H_2S) is 42 $\mu g/m^3$ for one hour. The standard is based on the odor of this gas. Exceeding the state ambient air quality standard for H_2S at an off site location would indicate a significant impact.

Global warming and climate change are receiving increased substantial public attention over the last 15 years. The United States Global Change Research Program was established by the Global Change Research Act of 1990 to enhance the understanding of natural and human-induced changes in the Earth's global environmental system, to monitor, understand and predict global change, and to provide a sound scientific basis for national and international decision-making.

No air district in California, including the Great Basin Unified Air Pollution Control District, has identified a significance threshold for GHG emissions. The state has identified 1990 emission levels as a goal through adoption of AB 32. To meet this goal, California would need to generate lower levels of GHG emissions than current levels. However, no standards have yet been adopted quantifying 1990 emission targets. It is recognized that for most projects there is no simple quantitative measure available to determine if a single project would help or hinder meeting the AB 32 emission goals. In addition, AB 32 currently only applies to stationary source emissions. Current standards for reducing vehicle emissions considered under AB 1493 call for "the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks and other vehicles," and do not provide a quantified target for GHG emissions reductions for vehicles.

The emission of CO_2 into the atmosphere is not itself an adverse environmental effect. An adverse environmental effect occurs when increased concentration of CO_2 in the atmosphere results in global climate change and the associated consequences of the climate change (e.g., sea level rise, loss of snowpack, severe weather events). Although it may be possible to generally estimate a project's incremental contribution of CO_2 into the atmosphere, it is typically not possible to determine whether or how an individual project's relatively small incremental contribution might translate into physical effects on the environment. Given the complex interactions between various global- and regional-scale physical, chemical, atmospheric, terrestrial, and aquatic systems that result amidst global climate change, it is virtually impossible to determine and quantify whether the presence or absence of CO_2 emitted by the proposed project would result in any altered conditions.

Currently, the U.S. EPA does not regulate GHG emissions. In April 2007, the U.S. EPA issued an important ruling in its first case on global warning. In the case of *Massachusetts v. USEPA*, the United States Supreme Court reviewed a U.S. EPA decision not to regulate greenhouse gas emissions from cars and trucks under the CAA. The Court found that Massachusetts was injured by global warming. The lawsuit focused on Section 202 of the CAA. The case resolved the following legal issues: (1) the CAA grants the U.S. EPA authority to regulate GHG, and (2) U.S. EPA did not properly exercise its lawful discretion in deciding not to promulgate regulations.

Given the challenges associated with determining criteria for project-specific significance in regards to GHG emissions, quantitative significance criteria are not components of the proposed project. For this analysis, a project's incremental contribution to global climate change would be considered significant if due to the size or nature of the project it would generate a substantial increase in GHG emissions relative to existing conditions.

3.1.4 Impact Analysis

This section analyzes the potential for significant impacts to air quality that would occur from implementation of the proposed project. Air quality impacts of a project generally fall into four major categories:

- Construction Impacts: temporary impacts, including airborne dust from grading, demolition, and dirt hauling, and gaseous emissions from heavy equipment, delivery and dirt hauling trucks, employee vehicles, and paints and coatings. Construction emissions vary substantially from day to day, depending on the level of construction phase and weather conditions.

- Operational Regional Impacts: primarily gaseous emissions from natural gas and electricity usage and vehicles traveling to and from a project site.

- Operational Local Impacts: increases in pollutant concentrations, primarily carbon monoxide, resulting from traffic increases in the immediate vicinity of a project, as well as any toxic and odor emissions generated on site.

- Cumulative Impacts: air quality changes resulting from the incremental impact of the project when added to other projects in the vicinity.

Air Quality Management Plan (AQMP) Consistency

The proposed project area is located in the southern end of the Owens Valley in Inyo County, within the Great Basin Valley Air Basin. The 2003 SIP prepared by the District in conjunction with the District Rules is considered to be the appropriate AQMP for the OVPA. A consistency determination plays an essential role in local agency project review by linking local planning and unique individual projects to the AQMP in the following ways: informing local agency decision-makers of the environmental costs of the project under consideration at a stage early enough to ensure that air quality concerns are fully addressed and providing the local agency with ongoing information so that local decision-makers are assured that they are making real contributions to clean air goals contained in the AQMP. Only new or amended General Plan elements, Specific Plans, and significant projects need to undergo consistency review. This is because the AQMP strategy is based on projections from local General Plans. Since the proposed project is consistent with the terms and conditions of the Memorandum of Agreement between the City of Los Angeles and the District, and thus the SIP, the proposed project is

also consistent with the region's AQMP. Therefore, the proposed project would not be expected to result in impacts to air quality in relation to conflict with or obstruction of implementation of the applicable air quality plan.

The proposed project would be expected to result in less than significant impacts to air quality in relation to violation of any air quality standard or a substantial contribution to an existing or projected air quality violation. Air pollutant emissions are composed of two basic source categories: (1) construction-related emissions and (2) operational-related emissions.

Construction Impacts

Development of the proposed project would require approximately 1.5 years to complete (August 2008 through March 2010). The new Moat & Row dust DCM areas would be completed and fully operational by October 1, 2009, and the new Shallow Flood DCM area would be complete and operational by April 1, 2010.

The construction elements that would be required for the 15.1 square miles of new DCMs to meet the NAAQS standard for PM_{10} emissions by 2010 consists of eight primary activities:

- Site preparation (surface grading and earth moving)
- Berm construction and access road grading
- Irrigation and drain line construction (trenching, pipeline installation, trench backfilling)
- DCM area dewatering
- Irrigation system installation within the DCM areas
- Power line and DCM controls installation
- Moat and Row DCM shaping and enhancement
- Shallow Flood DCM flooding

Supporting activities would include fence installation, material delivery, and transportation of crews. All site preparation and construction activity would be undertaken in accordance with applicable federal, state, and Inyo County codes.

A summary of the types of construction activities for each component of the proposed project and construction labor and equipment requirements is provided in Table 2.7.2-1, *Anticipated Construction Equipment and Work Crews*. It is anticipated that the peak construction period for the revision of the 2003 SIP (2008 SIP) would not exceed that experienced during installation of the 1998 SIP DCMs. The peak period of construction experienced in conjunction with the 1998 SIP occurred in late spring and early summer of 2002, when approximately 250 pieces of equipment and 200 construction personnel were mobilized on site. Similarly, it is anticipated that peak construction for the 2008 SIP DCMs would be expected between late spring 2008 and early summer 2009, during installation of the Moat & Row DCM. Construction activities are expected to occur six days a week for 12 hours a day. However, construction activities may occur seven days a week for 24 hours a day to complete construction on schedule. It is anticipated that, at the end of each shift, construction crews who have just completed their shift would generally leave the site and return home, and the next crews would already be on site and would start working when the shift changes. During construction, as-needed nighttime lighting would be directed away from the roads and communities to the maximum extent practicable.

The plans and specifications for the proposed project would include operations and maintenance requirements in an effort to reduce impacts related to the construction equipment. Construction equipment would be turned off when not in use. LADWP would ensure that all construction and grading equipment is properly maintained. All vehicles and compressors would utilize exhaust mufflers and engine enclosure covers (as designed by the manufacturer) at all times. It is currently anticipated that up to 200 construction workers would be on site at any given time during the construction of the proposed project.

Ambient Air Quality and Criteria Pollutants

Air quality impacts may occur during project construction on both a regional and local scale. Construction activities for the proposed project can generally be described as surface grading, earth moving, trench excavation, pipeline installation, trench backfilling, power line and controls installation, berm construction, gravel spreading, dewatering, access road grading and maintenance, material delivery, and transportation of crews. The proposed project components requiring construction activities include the following:

- Installation of DCMs (Managed Vegetation, Shallow Flooding, Gravel Cover, and Moat & Row)
- Irrigation system
- Drainage system
- Power supply and control facilities
- Auxiliary facilities and activities
- Monitoring facilities

Construction equipment would create exhaust pollutants from on-site earth movement, vehicles transporting building materials, gravel to the proposed project site, and workers commuting to the site. Construction of roadways, berms, and pipelines, including excavation, earth and gravel moving, and vehicle traffic on unpaved roads, would generate fugitive PM_{10} emissions that are potentially significant without mitigation measures.

In addition, certain construction activities could potentially violate District rules 400 and 401 for fugitive dust emissions without the implementation of mitigation measures. Therefore, the air quality impact related to the violation of any air quality standard or a substantial contribution to an existing or projected air quality violation is found to be significant.

Construction equipment fueled by diesel fuel would produce regulated pollutants from vehicle exhausts (Table 3.1.4-1, *Construction Emissions*). Construction activities considered in the emissions analysis include site preparation, earthmoving activities, construction of storm water control berms, construction of Shallow Flooding and pond berms, dewatering activities, mainline pipeline construction, supply submain installation, lateral drains installation, collector drains installation, Shallow Flood drains installation, power lines and SCADA line installation, road construction, management activities, and environmental mitigation crews activities. Analysis is based on the assumption that most of these activities would occur simultaneously, rather than each individually. Although these activities would produce pollutant emission, these emissions would not result in a cumulative considerable net increase of any criteria pollutant for which the project region in is non-attainment under an applicable federal or state ambient air quality standard.

TABLE 3.1.4-1
CONSTRUCTION EMISSIONS

Construction Activity	Carbon Monoxide (CO) (lb/day)	Reactive Organic Gas (ROG) (lb/day)	Nitrogen Oxide (NO_x) (lb/day)	Sulfur Oxide (SO_x) (lb/day)	PM_{10} (lb/day)
Site preparation*	49	12	111	0.09	5.0
Earth moving*	92	22	195	0.15	8.4
Shallow Flooding and pond berms*	194	47	434	0.40	20.1
Storm water control berms*	41	10	96	0.09	4.5
Mainline construction	48	13	105	0.09	5.3
Lateral drain installation	161	43	337	0.29	17.8
Road construction*	58	15	134	0.12	6.6
Management activities*	9	2.4	23	0.03	1.0
Environmental mitigation crews*	2.6	0.1	0.3	0.001	0.01
Maximum daily emissions	**447**	**108**	**993**	**0.89**	**46**
SCAQMD daily thresholds†	**550**	**75**	**100**	**150**	**150**

NOTE: *Maximum daily emissions would occur when these phases overlap.
† Denotes thresholds for SCAQMD (South Coast Air Quality Management District) for comparison, as thresholds have not been established for the Great Basin Unified Air Pollution Control District. Data for SCAQMD can be found at: http://www.aqmd.gov/ceqa/handbook/signthres.doc.
SOURCE: Terry Hayes and Associates. July 2007. *Technical Memorandum: Owens Lake Construction Emissions*. Culver City, CA.

Shallow Flooding and pond berm construction would produce the highest emission rates: 194 CO lb/day, 47 ROG lb/day, 434 lb/day of NO_x, 0.40 lb/day of SO_x, and 20.1 lb/day PM_{10}.

Diesel generators may be temporarily installed during construction to provide power for a variety of construction activities. Emissions created from such small temporary construction generators are anticipated to be well below the District's stationary source permitting threshold (Table 3.1.4-2, *Diesel Generator Emissions*). Diesel generator emissions will be greatest for NO_x at 186 pounds per day.

TABLE 3.1.4-2
DIESEL GENERATOR EMISSIONS

Pollutants	Emissions
NO_x	186 pounds per day (8.4 tons/year)
SO_x	12.3 pounds per day (0.6 tons/year)
CO	40.08 pounds per day (1.8 tons per year)
PM_{10}	13.2 pounds per day (0.6 tons/year)

NOTE: Based on two 125-hp diesel generators operating 24 hours a day for 90 days for a total of 2,160 hours.
SOURCE: City of Los Angeles Department of Water and Power. 2001. *Mitigated Negative Declaration Southern Zones Dust Control Project, Owens Lake Dust Mitigation Program, Owens Lake, California*. Los Angeles, CA.

The values of on-road emissions from worker vehicle travel are listed in Table 3.1.4-3, *Daily Worker Vehicle Emissions*. Daily worker vehicle emissions would be greatest during the lateral drain installation, amounting to 50.9 lb/day of CO, 2.52 lb/day of ROG, 6.7 lb/day NO_x, 0.018 lb/day So_x, and 0.11 lb/day of PM_{10}.

TABLE 3.1.4-3
DAILY WORKER VEHICLE EMISSIONS

Construction Activity	Carbon Monoxide (CO) (lb/day)	Reactive Organic Gas (ROG) (lb/day)	Nitrogen Oxide (NO_x) (lb/day)	Sulfur Oxide (SOx) (lb/day)	PM_{10} (lb/day)
Site preparation	12.7	0.63	1.7	0.005	0.03
Mainline construction	13.9	0.69	1.8	0.005	0.03
Lateral drain installation	50.9	2.52	6.7	0.018	0.11
Shallow Flooding and pond berms	43.9	2.17	5.8	0.016	0.09
Maximum daily emissions	**146**	**7**	**19**	**0.05**	**0.31**

NOTE: Data based on assumption that 50 percent of workers are from Lone Pine (5 miles from project site), 20 percent from Ridgecrest (48 miles from project site), 20 percent from Bishop (61 miles from project site), and 10 percent from Los Angeles (200 miles from project site).
SOURCE: Terry Hayes and Associates. July 2007. *Technical Memorandum: Owens Lake Construction Emissions*. Culver City, CA.

Areas where Managed Vegetation would be implemented could result in a new source of PM_{10} emissions generated from wind erosion of fields prior to planting. The existing dust emissions from areas that would be tilled and the potential emissions of areas after they have been tilled are primarily dependent on soil ability to erode, salt crust presence, and surface roughness. Pre-project conditions indicate that the lowest wind erosion would occur in areas where salt crust remains cemented year-round and the highest wind erosion would occur in areas where salt crust is not present. However, salt crust conditions fluctuate as varying degrees of roughness, durability, and presence exist at different times of the year in different areas of the lake bed. Therefore, tilling activities associated with the implementation of the Managed Vegetation DCM would result in significant impacts in relation to

cumulative net increase in PM_{10} emissions, requiring the implementation of mitigation measures to reduce the impacts to below the level of significance.

Sensitive Receptors

The proposed project would result in less than significant impacts to air quality in relation to exposure of sensitive receptors to substantial pollutant concentrations. Potential pollutants emitting from project construction include gas and diesel fumes associated with motor vehicles and heavy equipment engines. However, given the distance of residential sensitive receptors to the proposed project site from Keeler (1,500 feet) and Cartago (2,500 feet), fumes associated with construction of the proposed project would not be expected to be detectable from Keeler, Cartago, or Olancha (2 miles from proposed project site). Implementation of the proposed project would greatly decrease the exposure of residents to PM_{10} emissions from the Owens Lake in the long term. Therefore, the proposed project would not result in significant impacts to air quality related to exposure of sensitive receptors.

Objectionable Odors

The proposed project would result in less than significant impacts to air quality in relation to objectionable odors. Potential odors emitting from project construction include gas and diesel fumes associated with motor vehicles and heavy equipment engines and H_2S odors associated with open trenching operations. Given the distance of residential sensitive receptors to the proposed project site from Keeler (1,500 feet) and Cartago (2,500 feet), odors associated with construction of the proposed project would not be expected to be detectable from Keeler, Cartago, or Olancha. Disturbance of clay sediments during the construction of berms and reservoirs on the playa would release H_2S from the clay. Malodorous scents naturally existing in the clay would be released when clay soils are disturbed during construction. Previously, emission rates were estimated to be from 0.6 to 17.4 pounds per hour for a disturbance of 10,000 square feet of clay. The maximum distance for impact would be at 300 feet from the disturbance and would be less than 5 $\mu g/m^3$, at or below the detectable level for this gas. The nearest sensitive receptor to the proposed project site is 1,500 feet away. Therefore, the H_2S odor impact would be less than significant.[33]

Greenhouse Gas Emissions

Given the challenges associated with determining criteria for project-specific significance in regards to GHG emissions, quantitative significance criteria are not components of the proposed project. For this analysis, a project's incremental contribution to global climate change would be considered significant if due to the size or nature of the project it would generate a substantial increase in GHG emissions relative to existing conditions. No quantitative measures to describe emissions profiles for the Great Basin Valley Air Basin presently have been established and standardized. Heavy-duty construction equipment emissions profiles were obtained from the South Coast Air Quality Management District. The air quality analysis assumed that the emissions profile for heavy-duty equipment in the South Coast Air Basin would be similar to the emissions profile for the Great Basin Valleys Air Basin. GHG emissions were calculated for CO_2 and methane (CH_4) (Table 3.1.4-4, *Construction GHG Emissions*). Since the SCAQMD emissions profile did not contain emissions factors for CH_4, the rates were obtained using CARB's Off-Road Model. Calculations of GHG emissions typically focus on CO_2

[33] Great Basin Unified Air Pollution Control District. 2 July 1997. *Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan Final Environmental Impact Report*. State Clearinghouse Number 96122077. Bishop, CA.

because it is the most commonly produced GHG in terms of both number of sources and volume generated, and because it is among the easiest GHGs to measure.

TABLE 3.1.4-4
CONSTRUCTION GHG EMISSIONS

Construction Activity	Construction Equipment Carbon Dioxide (CO2) (tons/year)	Construction Equipment Methane (CH4) (tons/year)	Worker Vehicle Carbon Dioxide (CO2) (tons/year)	Worker Vehicle Methane (CH4) (tons/year)
Site preparation*	137	0.015	7	0.001
Earth moving*	444	0.048	10	0.002
Shallow Flooding and pond berms*	2,886	0.307	124	0.020
Storm water control berms*	127	0.013	8	0.001
Mainline construction	255	0.033	16	0.003
Lateral drain installation	1627	0.226	115	0.019
Road construction*	434	0.047	23	0.004
Management activities*	383	0.034	102	0.017
Environmental mitigation crews*	23	0.0003	190	0.031
Maximum yearly emissions	**8,111**	**0.98**	**725**	**0.12**

NOTE: *Maximum daily emissions would occur when these phases overlap.

The methodology used to analyze and calculate emissions of GHGs assumes that all emissions sources (e.g., worker vehicles and heavy-duty equipment) are new sources and that emissions from these sources are 100 percent additive to existing conditions. Construction of the proposed project would result in GHG emissions of 8,111 tons of CO_2 equivalent and one ton of CH_4 (Table 3.1.4-4). Since no standard exists for measuring GHGs, this approach is generally the path taken for air quality analyses and models. As in many cases, such an assumption can be deemed appropriate because it is impossible to determine whether emissions sources associated with a project move from outside the air basin and are in effect new emissions sources, or whether they are sources that were already in the air basin and just shifted to a new location. However, because the effects of GHGs are global, a project that merely shifts the location of a GHG-emitting activity (e.g., where people live and/or where vehicles drive) would result in no net change in global GHG emissions levels. For instance, if a substantial portion of California's population relocated from the South Coast Air Basin (managed by the South Coast Air Quality Management District) to the Great Basin Valley Air Basin (managed by the District), this would likely result in decreased emissions in the South Coast Air Basin and increased emissions in the Great Basin Valley Air Basin, but little change in overall global GHG emissions.

Operational Impacts

Project operation and maintenance would occur year-round. Facility maintenance would include changing valves, pipeline sections, pumps, and electronic components. Monitoring of the Managed Vegetation, Shallow Flooding, habitat Shallow Flooding, and Moat & Row would also occur. Access roads would be maintained through the use of a tracked dozer and compactor. Loose soils surrounding the roads would be collected and then compacted. The activity taking place during operations under the proposed project would be substantially less than under existing conditions or during construction.

Ambient Air Quality and Criteria Pollutants

The proposed project would result in major beneficial impacts to air quality in the OVPA. Air quality in the Great Basin Valley Air Basin is generally very good, meeting all of the federal and state standards, except for particulates. Because of this non-attainment, the federal EPA has designated the southern portion of the Owens Valley as a serious non-attainment area for PM_{10}. However the objective of the proposed project is to reduce PM_{10} emissions in accordance with the District's SIP.

Implementation of the proposed project would result in the reduction of 73,174 tons/year of PM_{10} emissions, to below the federal 24-hour PM_{10} standard, by the end of 2010. As a result, particulate pollution associated with significant health risks and degradation in people's quality of life would be reduced.[34]

Emissions from the long-term operation of the proposed project would not have a significant impact to air quality related to the violation of any air quality standard or a substantial contribution to an existing or projected air quality violation.

The Owens Valley PM_{10} Planning Area is in attainment of all state and national air pollution standards except for PM_{10}. Operation of the proposed project would not cause any new violation of any national or state ambient air quality standard. In fact, operation of the project would enhance the implementation of the applicable air quality plan, reducing total cumulative emissions. Therefore, there would be no expected impacts to air quality related to cumulative net increase of any criteria pollutant.

Sensitive Receptors

The nearest sensitive receptors to the proposed project site are at Keeler (1,500 feet) and Cartago (2,500 feet). Operation of the proposed project would reduce exposure of these receptors to harmful concentrations of PM_{10}; therefore, there would be no expected air quality impacts related to exposure of sensitive receptors to substantial pollutant concentrations.

Objectionable Odors

Odors associated with the proposed project would not be detectable at the distances of the nearest sensitive receptors. The tail water area of the Managed Vegetation and Shallow Flooding areas are not likely to produce H_2S because the pH of the alkaline brine would be greater than 9.0, which would substantially prevent the formation of H_2S. The accumulation of organics in the tail water may allow

[34] Great Basin Unified Air Pollution Control District. February 2004. *2003 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan Integrated Environmental Impact Report*. State Clearinghouse House Number 2002111020. Prepared by: Sapphos Environmental, Inc., Pasadena, CA.

the formation of sulfide-containing mercaptans that have an odor sometimes associated with crude oil. These odors would dissipate in one to two days after a surface crust forms. Given the distance of residential sensitive receptors to the proposed project site from Keeler (1,500 feet) and Cartago (2,500 feet), odors associated with operation of the proposed project would not be expected to be detectable from Keeler, Cartago, or Olancha. The distance of sensitive receptors from the proposed project site would further reduce the detectable concentration. The impact to air quality related to the creation of objectionable odors would be less than significant.

Greenhouse Gas Emissions

Net contribution of operational impacts to GHG were not evaluated as it is very likely the net CO_2 contribution would likely be much less than the value calculated of CO_2 during the construction phase of the proposed project. However, mitigation measure Air-6 addresses and reduces operational related GHG emissions.

Cumulative Impacts

The proposed project would not result in significant cumulative impacts to air quality. A total of three related projects were identified in the vicinity of the proposed project in Section 2.9, *Related Projects*. The potential impacts of the proposed project can be evaluated within the context of the cumulative impacts of all ongoing and proposed development.

When considered in relation to the effects of the 2003 SIP, temporary significant impacts to air quality would occur during the construction phase, which would be mitigated to below the level of significance. The 2003 SIP's significant impacts are related to activities where gravel is used as a DCM. The implementation of the proposed project would occur at a time when the 2003 SIP would have concluded its construction phase and begun its operational phase, where air quality would not be significantly impacted. Therefore, the cumulative effect would not be considerable.

When considered in relation to the Lower Owens River Project (LORP) the cumulative impacts to air quality would not be considerable. Implementation of the LORP does not result in any impacts to air quality. The Lower Owens River Project's main objective is to mitigate impacts related to groundwater pumping by the LADWP.

When considered in relation to the U.S. Borax Owens Lake Expansion Project/Conditional Use Permit #02-13/Reclamation Plant #02-1 the cumulative impacts to air quality would not be considerable. The proposed project would only result in temporary impacts to air quality during the construction phase. However, the proposed project would require the incorporation of best available control measures (BACMs) during construction activities to avoid adverse impacts to air quality. Incorporation of mitigation measures would reduce impacts to air quality to below the level of significance. Therefore, the implementation of the proposed project when considered in conjunction with the U.S. Borax Owens Lake Expansion Project/Conditional Use Permit #02-13/Reclamation Plant #02-1 and its impacts to air quality would not be considerable.

The incremental air quality impact of the combined components of the proposed project, when considered with the contribution of the related past, present, or reasonably foreseeable, probable future projects in the OVPA as determined in consultation with the District would not result in significant impacts to air quality.

Green House Gas Emissions

CO_2 emissions in California totaled approximately 391 million tons in 2004.[35] Based on GHG analysis and related assumptions, total CO_2 emissions from the proposed project, as estimated above, would not even account for 0.0001 percent of this statewide total.

Although it is clear that the proposed project's overall net contribution of CO_2 to global climate change would be much less than a quantitatively significant amount, a great deal of uncertainty exists regarding what the net CO_2 emissions would actually be. In addition, it is uncertain how current regulations might affect CO_2 emissions attributable to the proposed project and cumulative CO_2 emissions from other sources in the state. Also, it cannot be determined how CO_2 emissions associated with the proposed project may or may not influence actual physical effects of global climate change. Based on the analysis and reasons provided, it is uncertain whether the proposed project would be expected to generate a substantial increase in GHG emissions relative to existing conditions, and whether emissions from the proposed project would result in a cumulatively considerable incremental contribution to the significant cumulative impact of global climate change.

Because current regulations and standards in regards to GHG have not been developed and finalized, it cannot be determined to a reasonable degree of certainty that the proposed project would not result in a cumulatively considerable incremental contribution to the significant cumulative impact of global climate change. Mitigation measures Air-3 through Air-6 would reduce construction- and operation-related GHG emissions to below the level of significance. While the overall contribution to GHG emissions is considered quantitatively small to overall state GHG emissions and mitigation measures are included, the impacts of the proposed project on global climate change may be considered significant and unavoidable.

3.1.5 Mitigation Measures

Measure Air-1, Fugitive Dust Emissions Control and Minimization

Fugitive dust emissions shall be controlled and minimized, to comply with Great Basin Unified Air Pollution Control District Rules 400 and 401 (EPA 1992), through the City of Los Angeles Department of Water and Power's application of best available control measures during construction activities from unpaved roads and areas affected by the construction work specified in this 2008 Revised SIP, or related transportation and staging of equipment and materials. This may include, but would not be limited to, the use of chemical soil stabilizers, surface coverings, windbreaks, water trucks, and water sprays twice a day, or comparable measures that prevent visible dust from occurring. At a minimum, active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type that is part of the active operation. The City of Los Angeles Department of Water and Power shall demonstrate compliance with this measure through the submission of weekly monitoring reports to the Great Basin Unified Air Pollution Control District and the California State Lands Commission, which will, in return, monitor the application of best available control measures at least once a week on an ongoing basis during the construction phase of the proposed project, and maintain a monitoring log on file.

[35] California Climate Action Registry. June 2006. *California Climate Action Registry General Reporting Protocol: Reporting Entity-Wide Greenhouse Gas Emissions*. Version 2.1. Los Angeles, CA. Available at: http://www.climateregistry.org/docs/PROTOCOLS/GRP%20V2.1.pdf

Measure Air-2, Low Emissions Tune-ups Schedule

To mitigate the air quality impact related to greenhouse gas emissions, the City of Los Angeles Department of Water and Power shall develop a schedule of low emissions tune-ups for all equipment operating on site for more than 10 working days, and maintain a log of required tune-ups and submit a monthly copy to the Great Basin Unified Air Pollution Control District during the project's construction phase. Prior to implementation of the schedule, the City of Los Angeles Department of Water and Power shall submit the schedule to the Great Basin Unified Air Pollution Control District and the California State Lands Commission for its review and approval. The Great Basin Unified Air Pollution Control District shall ensure conformance of the equipment operation with the approved schedule.

Measure Air-3, Low-emission Equipment Utilization

To mitigate the air quality impact related to greenhouse gas emissions, the City of Los Angeles Department of Water and Power shall apply best available control measures during construction by utilizing low-emission equipment/mobile construction equipment for the proposed project site, unless the City of Los Angeles Department of Water and Power submits documentation and receives approval from the Great Basin Unified Air Pollution Control District and the California State Lands Commission that use of such equipment is not practical, feasible, or available. The Great Basin Unified Air Pollution Control District should monitor the application of low-emission equipment/mobile construction equipment, or other approved equipment at least once a week on an ongoing basis during the project's construction phase and should maintain a monitoring log on file during this phase.

Measure Air-4, Low-sulfur Fuel Utilization

To mitigate the air quality impact related to greenhouse gas emissions, the City of Los Angeles Department of Water and Power shall apply best available control measures during construction by utilizing low-sulfur and/or alternative fuels for on-site stationary equipment. Stationary sources of air emissions, such as pumps, compressors, and generators shall be line-powered, unless the City of Los Angeles Department of Water and Power submits documentation and receives approval from the Great Basin Unified Air Pollution Control District and the California State Lands Commission that the use of such equipment is not practical, feasible, or available. The Great Basin Unified Air Pollution Control District should monitor the application of low-sulfur and/or alternative fuels for on-site stationary equipment, or other approved on-site stationary equipment at least once a week on an ongoing basis during the project's construction phase and should maintain a monitoring log on file during this phase.

Measure Air-5, Low-emission Mobile Vehicle Utilization during Construction

To mitigate the air quality impact related to greenhouse gas emissions, low-emission or alternative-fueled mobile vehicles during the proposed project's construction shall be utilized for the proposed project site, unless the City of Los Angeles Department of Water and Power submits documentation and receives approval from the Great Basin Unified Air Pollution Control District and the California State Lands Commission that use of such equipment is not practical, feasible, or available. In addition, carpooling of construction workers should be considered and encouraged by the City of Los Angeles Department of Water and Power to reduce vehicular emissions.

Measure Air-6, Low-emission Mobile Vehicle Utilization during Operation

To mitigate the air quality impact related to greenhouse gas emissions during the proposed project's operation, hybrid, low-emission (CA LEV II; PZEV, SULEV; or ULEV) or alternative-fueled mobile vehicles, such as electric or fuel cells, shall be utilized for the proposed project site, unless the City of Los Angeles Department of Water and Power submits documentation and receives approval from the Great Basin Unified Air Pollution Control District and the California State Lands Commission that use of such equipment is not practical, feasible, or available. In addition, carpooling of operations and maintenance workers should be considered and encouraged by the City of Los Angeles Department of Water and Power to reduce vehicular green house gas emissions.

3.1.6 Level of Significance after Mitigation

Implementation of mitigation measure Air-1 would reduce potential impacts on air quality in relation to fugitive dust from the construction of the proposed project to below the level of significance. Impacts to air quality in terms of greenhouse gas emissions were found to be significant and unavoidable, but mitigation measures Air-2 through Air-6 would reduce impacts of the proposed project on global warming.