

## **7.7 AIR QUALITY**

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## 7.7 AIR QUALITY

### 7.7.1 INTRODUCTION

#### 7.7.1.1 Content

This section describes the impacts of the Monterey Amendment and the Settlement Agreement on air quality. Only some elements of the proposed project have the potential to directly affect air quality (see Table 7.7-1).

<b>TABLE 7.7-1</b>		
<b>IMPACTS OF PROPOSED PROJECT ELEMENTS ON AIR QUALITY</b>		
Proposed Project Element	Potentially Affected Environmental Resources	Impact Number
<b>Monterey Amendment</b>		
Reallocation of water supplies in droughts	Air emissions associated with changes in amount of agricultural land disturbance	7.7-1
Permanent transfers of water	Air emissions associated with changes in amount of agricultural land disturbance	7.7-1
Transfer of Kern Fan Element lands	Air emissions with construction and operation of percolation ponds, and transfer of Kern Fan lands	7.7-3
Water supply management practices	Air emissions associated with construction and operation of expended groundwater facilities outside service areas, and with changes in recreational traffic and boating as a result of water surface elevation changes	7.7-2, 7.7-4, 7.7-5, 7.7-6, 7.7-7
Restructured financial arrangements	NA	NA
<b>Settlement Agreement</b>		
Substitute Table A amount for entitlement	NA	NA
Disclosure of SWP delivery capabilities	NA	NA
Guidelines on permanent transfers	NA	NA
Guideline for public participation	NA	NA
Restrictions on Kern Fan Element lands	Air emissions associated with development of 490 acres of land in Kern Fan Element	7.7-3
Watershed forum in Plumas	Air emissions associated with development of watershed improvement projects	7.7-8
Amendment of Plumas SWP contract	NA	NA
Funding for plaintiffs	NA	NA
Note: NA – Not Applicable.		

No comment letters related to air quality were received in response to the NOP circulated for the proposed project.

#### 7.7.1.2 Analytical Method

Air quality impacts related to criteria air pollutant emissions and toxic air contaminants were evaluated qualitatively and quantitatively. Factors considered in the analysis included how changes in agricultural practices could affect the amount of land disturbance, how changes in

reservoir water surface elevations could alter shoreline erosion potential or affect boating uses and traffic, and potential for soil erosion as a result of watershed improvement projects.

The URBEMIS 2002 version 8.7.0 computer model was used to estimate construction reactive organic gasses (ROG) and nitrogen oxides (NO<sub>x</sub>) emissions associated with groundwater bank facilities. For this analysis, it was assumed construction would generally occur over a four-month period (July through October) and would involve the following pieces of equipment on a daily basis: one crawler tractor, one grader, one off-highway truck, and one rubber-tired loader. The results were compared to San Joaquin Valley Air Pollution Control District's (SJVAPCD's) threshold for emissions, which is based on an annual (not daily) rate. The SJVAPCD assumes if all required particulate matter (PM<sub>10</sub>) control measures are implemented according to its rules and regulations, PM<sub>10</sub> impacts are not significant.

### **7.7.1.3 Standards of Significance**

The following standards of significance are based on Appendix G of the CEQA Guidelines. For purposes of this EIR, impacts on air quality would be considered significant if the proposed project would:

- conflict with or obstruct implementation of applicable air quality plans;
- violate any air quality standards or contribute substantially to an existing or projected air quality violation;
- cause cumulatively considerable net increases of any criteria pollutant for which an affected region is in non-attainment under applicable federal or state ambient air quality standards; or
- expose sensitive receptors to substantial pollutant concentrations.

## **7.7.2 ENVIRONMENTAL SETTING**

### **7.7.2.1 State Water Project Area Environmental Setting**

The SWP service area comprises a large portion of the State of California. The proposed project's environmental setting for air quality is broad, as air quality varies dramatically throughout the state based on factors such as population and topography. The federal government has divided the state into air basins that roughly follow the geography of a region.

The federal and state governments have set standards for "criteria air pollutants". An air basin may be further divided into "non-attainment areas" depending on whether there are areas in an air basin that do not meet the ambient air quality standards for various criteria air pollutants.

In California, the biggest air quality issues are those that deal with the criteria pollutants PM<sub>10</sub> and ozone, as well as toxic air contaminants (TACs), which are not criteria air pollutants but can have acute and chronic effects.

### 7.7.2.2 Physical Setting in 1995

#### **Southern San Joaquin Valley Portion of Kern and Kings Counties Including Kern Fan Element**

All of the SWP's agricultural contractors are located in Kern County and Kings County except for Oak Flat WD.

Kern and Kings counties are in the San Joaquin Valley Air Basin (SJVAB). This air basin is in non-attainment of federal and state standards for both PM<sub>10</sub> and ozone. The SJVAB also has areas where TACs are problematic. In 1995, the SJVAB was designated by the U.S. Environmental Protection Agency (EPA) as being in "serious" non-attainment for the federal one-hour ozone standard. No other federal ozone standard was in place at the time. This led to the preparation of the 1994 Ozone Attainment Plan, which was prepared by the local air agency and was adopted in November of 1994. The SJVAB was also in "serious" non-attainment of the federal PM<sub>10</sub> standard and developed a plan to bring the basin into attainment of the standard.

In 1995, the State as a whole experienced health impacts from TACs, mostly from diesel particulate matter. At that time, Kern County had several areas where the estimated inhalation cancer risk was greater than 250 per million people.

#### **Castaic Lake**

Castaic Lake is located in Los Angeles County in the South Coast Air Basin (SCAB) which in 1995 was designated an "extreme" non-attainment of the federal one-hour ozone standard. The County was also considered to be in non-attainment of the federal PM<sub>10</sub> standards. As with the counties in the San Joaquin Valley, TACs were also a problem in Los Angeles County, with the majority of TACs attributable to diesel particulate matter. In 1995, most of southern Los Angeles County had an estimated TAC inhalation cancer risk greater than 250 per million people.

#### **Lake Perris**

Lake Perris is located in Riverside County, which is also within the SCAB. In 1995, Riverside County had federal designations for ozone and PM<sub>10</sub> that were identical to those of Los Angeles County. The western portion of the County, however, had areas with TAC inhalation risks greater than 250 per million people.

#### **San Luis Reservoir**

The San Luis Reservoir is located in Merced County, which is part of the SJVAB. In 1995 Merced County, along with Kern County, shared the SJVAB's "serious" non-attainment designations for the federal ozone and PM<sub>10</sub> standards. The County had small pockets where the TAC inhalation risk was greater than 250 per million people.

#### **Lake Oroville**

Lake Oroville is located in Butte County. In 1995, Butte County was part of the Northern Sacramento Valley Air Basin (NSVAB). At that time, Butte County was considered "moderate" non-attainment for ozone and PM<sub>10</sub>. An NSVAB Air Quality Attainment Plan was adopted in 1991 that addressed ozone, and, to a lesser extent, PM<sub>10</sub>. As of January 1993, the local air

district had not been able to completely adhere to the implementation schedule established in the ozone plan, although new rules and regulations were adopted. A Butte County Congestion Management Plan, which identified actions to reduce vehicle trips and associated air emissions, was adopted in 1992.<sup>1</sup>

### **7.7.2.3 Changes in Physical Setting between 1996 – 2003**

#### **Southern San Joaquin Valley portion of Kern and Kings Counties including Kern Fan Element**

By 2003, the air basin's attainment status had been changed to "severe" nonattainment for the federal ozone standard. The SJVAPCD was also readying to petition the EPA to reclassify the Basin to "extreme" for one-hour ozone standard to allow the Basin more time to attain the standard. The Basin remained a "serious" non-attainment area for the federal PM<sub>10</sub> standard. The Basin also remained a non-attainment area for State ozone and PM<sub>10</sub> standards. The SJVAPCD thresholds of significance in 2003 was 10 tons/year of ROG, 10 tons/year NO<sub>x</sub>, and an excess cancer risk of 10 in one million from TACs. Risk from diesel particulate matter in the Basin had improved since 1995, but areas still existed where TAC risk was high.

#### **Castaic Lake**

The Basin remained in non-attainment of federal ozone and PM<sub>10</sub> standards, with an "extreme" non-attainment ozone designation. Los Angeles County was also non-attainment of the federal and State carbon monoxide (CO) standards. The Basin also did not attain the state ozone or PM<sub>10</sub> standards.

#### **Lake Perris**

In 2003, Riverside County had federal and state designations for ozone, CO and PM<sub>10</sub> that were identical to those of Los Angeles County, described above.

#### **San Luis Reservoir**

In 2003, Merced County had federal and state designations for ozone and PM<sub>10</sub> that were identical to those of the rest of the SJVAB (i.e., "serious" non-attainment area for the federal PM<sub>10</sub> standard and non-attainment area for State ozone and PM<sub>10</sub> standards.)

#### **Lake Oroville**

In 2003, Butte County was considered a moderate non-attainment area for the federal ozone standard in the NSVAB.

### **7.7.2.4 Regulatory Setting in 1995**

Regulations related to air quality relevant to the proposed project area are described below.

#### **Federal**

The EPA is the federal agency responsible for setting and enforcing the federal ambient air quality standards for atmospheric pollutants. The EPA regulates emission sources that are

under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives.

As part of its enforcement responsibilities, the U.S. EPA requires each state with nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs.

## **State**

The California Air Resources Board (CARB), a part of the California Environmental Protection Agency (Cal EPA), is responsible for the coordination and administration of both federal and State air pollution control programs within California. In this capacity, the CARB conducts research, sets State ambient air quality standards, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. The CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. The CARB also has primary responsibility for the development of California's SIP, for which it works closely with the federal government and the local air districts.

## **Regional**

### Air Quality Districts

Numerous local agencies throughout California have jurisdiction over local air quality control. The agencies boundaries normally follow political boundaries. These local agencies, called "air quality management districts" or "air pollution control districts" are responsible for permitting many sources of air emissions and developing rules to regulate activities and operations that contribute to the degradation of air quality. Because they are regularly commenting agencies or responsible agencies, many districts also have produced guidance to help project applicants comply with CEQA. These guidance documents normally contain thresholds of significance for criteria pollutants. Thresholds of significance can vary significantly between agencies, but most thresholds are correlated to an air district's attainment plans for the criteria pollutants. Projects that have the potential to generate criteria pollutants in excess of local thresholds are considered significant.

### San Joaquin Valley Air Pollution Control District

The western portion of Kern County (including the Kern Fan Element) and Merced County (San Luis Reservoir), which are in the SJVAB, are regulated by the SJVAPCD. The SJVAPCD sets thresholds of significance for emissions from construction and operational activities for projects. For construction activities, the SJVAPCD specifies that thresholds would not normally be exceeded as long as a project is complying with specific PM<sub>10</sub> control measures. For operational activity, the SJVAPCD specifies a threshold of 10 tons/year of ROG, 10 tons/year of NO<sub>x</sub>, and a cancer risk from TACs of greater than 10 in one million.

### South Coast Air Quality Management District

Orange County, and portions of Los Angeles (Castaic Lake) and Riverside (Lake Perris) counties, fall under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). As with the SJVAPCD, the SCAQMD has thresholds of significance for project emissions. These thresholds are:

- 550 pounds per day of CO
- 75 pounds per day of volatile organic carbons (VOC)
- 100 pounds per day of NO<sub>x</sub>
- 150 pounds per day of sulfur oxides (SO<sub>x</sub>)
- 150 pounds per day of PM<sub>10</sub>.

### Butte County Air Quality Management District

Air quality in Butte County is regulated by the Butte County Air Pollution Control District (BCAPCD). The BCAPCD participates with the Sacramento Metropolitan Air Quality Management District and Sacramento Area Council of Governments in collaborative efforts to address regional ozone and PM<sub>10</sub> air quality problems.<sup>2</sup> Thresholds of significance for air emissions established by the BCAPCD in 1995 were:<sup>3</sup>

- 137 pounds per day of CO
- 50 pounds per day of ROG
- 50 pounds per day of NO<sub>x</sub>
- 80 pounds per day of SO<sub>x</sub>
- 80 pounds per day of PM<sub>10</sub>.

### General Plans

General Plans of Riverside, Merced, Los Angeles, Kern, and Butte counties contain goals and policies to address air quality and pollutant emissions. Based on the impact analyses presented below, there are no aspects of the proposed project that would be considered inconsistent with general plan policies pertaining to air quality.

#### **7.7.2.5 Changes in Regulatory Setting between 1996 – 2003**

There have been no substantial changes in the regulatory framework since 2003 that would affect the analysis of air quality impacts. Changes in attainment status, which are relevant to annual emissions in the SJVAPCD and the types of construction and operational controls that must be implemented by projects, were noted above.

### Plumas County General Plan

#### *Plumas County*

Plumas County is located within the jurisdiction of the Northern Sierra Air Quality Management District. The County is currently in attainment of all the federal standards for criteria air pollutants. The County also attains all of the State standards for criteria air pollutants with the

exception of PM<sub>10</sub>. The Portola Valley, located in the southeast portion of the County, is also in nonattainment of the State PM<sub>2.5</sub> standard.

### 7.7.3 IMPACTS AND MITIGATION MEASURES

**7.7-1 Changes in the amount of agricultural land disturbance occurring in the southern San Joaquin Valley portion of Kern County resulting from reallocation of water supplies during droughts and/or permanent transfers could potentially affect the amount of PM<sub>10</sub> emissions.**

#### 1996 — 2003

Agricultural activity, especially activity associated with the disturbance of soil, such as discing, can be a source of PM<sub>10</sub>, which is a criteria pollutant. Both Kern and Kings counties are located in the SJVAB, which experiences unhealthy levels of PM<sub>10</sub>.

The Monterey Amendment enables various changes in the way the California Department of Water Resources allocates water among contractors during times of shortage and surplus and enables agricultural contractors to retire and transfer a portion of their Table A amounts. The effect of these changes was to increase the reliability of water supplies but decrease the total amount of Table A water available to farmers in Kern County. The reliability and availability of agricultural water supplies is one factor that may contribute to the amount and types of crops and associated land disturbance activities.

It is possible that some land was converted to permanent crops as a result of the proposed project, and that these changes in agricultural practices could have reduced the frequency and type of land disturbance within the KCWA's boundaries. Consequently, associated PM<sub>10</sub> emissions would have been limited or reduced. Therefore, thresholds adopted by the SJVAPCD would not have been exceeded on an annual basis. Therefore, the project would not cause a net increase in criteria air pollutants in a non-attainment area or conflict with an air quality plan. However, because no clear trend can be attributable to the proposed project that can be discerned for the period between 1996 and 2003, the proposed project's impact would be ***less than significant***.

#### Mitigation Measures

*None required.*

#### **Future Impacts**

As discussed in Section 7.6, Agricultural Resources, the proposed project would have little or no impact on the acreage of irrigated land in the southern San Joaquin Valley in the future. Assuming that any land is taken out of irrigated production as a result of the proposed project, it would remain in agricultural use as dry farmed or fallow land. In addition, the trend of replacing irrigated annual crops with permanent crops is expected to continue in the future with or without the proposed project. While it is possible that additional land could be converted to permanent crops as a result of the proposed project, no clear trend can be attributable to the proposed project that can be discerned for the historical analysis period. Therefore any change in agricultural practices would not be expected to result in a dramatic change in soil disturbance. Because associated PM<sub>10</sub> emissions would not be expected to increase as a result of the proposed project, adopted thresholds would not be exceeded, and the proposed project's

impact would be *less than significant*. There would be no conflict with adopted air quality plans because there would be no increase in emissions that would adversely affect the region's attainment status.

#### Mitigation Measures

*None required.*

#### **7.7-2 Article 56 conditions providing for development or expansion of groundwater storage facilities outside contractor service areas would result in land disturbance and pump operation, which could potentially generate PM<sub>10</sub>, NO<sub>x</sub> and diesel TAC emissions in the southern San Joaquin Valley portion of Kern County (excluding the Kern Fan Element).**

#### **1996 — 2003**

The Monterey Amendment enables SWP contractors to store water outside their service areas for later use within their service areas. To take advantage of this, several contractors entered into agreements with water agencies in the southern San Joaquin Valley to temporarily store SWP water in groundwater banks. Between 1996 and 2003, Semitropic WSD, Arvin-Edison WSD and the KWBA developed or expanded water banks. The water banking program developed by Semitropic WSD project involved the construction of a pipeline connecting the District's service area to the California Aqueduct. Arvin-Edison's water banking program involved the construction of 520 acres of percolation ponds at two sites referred to as the North Canal Spreading Works and the South Canal Spreading Works. Vacant land or cropland was converted to percolation ponds by the construction of one or two-foot high perimeter levees. The Semitropic facility was built prior to the Monterey Amendment. In 2002, the Kern Delta WD Water Banking and In-Lieu Water Supply Project involved the construction of new facilities including groundwater recharge basins, pipelines/canals and associated facilities to deliver supplies from the California Aqueduct to Kern Delta and the Arvin-Edison Canal, a pipeline to convey surface supplies to farmers in the eastern side of Kern Delta as part of an in-lieu banking program, and an extraction well field to recover stored groundwater and convey supplies back to the California Aqueduct. These new facilities were integrated into the existing water management system.

Construction of the groundwater storage facilities required the use of heavy-duty construction equipment. This equipment generated diesel particulate matter, which is a TAC, as well as emissions of ozone precursors such as ROG and NO<sub>x</sub>. The disturbance of the soil associated with the various earthmoving activities also generated PM<sub>10</sub>. Because the proposed project would have implemented all of the SJVAPCD's required PM<sub>10</sub> control measures, PM<sub>10</sub> construction emissions would be below SJVAPCD thresholds. Based on the amount of total acreage disturbed over that time period, NO<sub>x</sub> and ROG emissions would not have exceeded SJVAPCD thresholds on an annual basis. Further, the emission of these pollutants was temporary because they lasted only as long as the construction was occurring.

Operation of a groundwater bank requires pumping to convey water to percolation ponds and to extract water from underground. These pumps would not have existed prior to the creation of the new groundwater banks. However, electric motors that were used for the pumps would be relatively pollution-free. Diesel engines used for back-up power would emit ROG, NO<sub>x</sub> and diesel particulate, but emissions would be infrequent, and it is unlikely that sensitive receptors would be close enough to the pumps to be affected by diesel TAC.

Therefore, because the proposed project did not result in a net increase in criteria air pollutants over SJVAPCD annual thresholds in a non-attainment area, and there would have been no conflict with implementation of the adopted air quality plan for the region, this is considered to be a ***less-than-significant impact***. Further, any construction-related emissions would have been temporary. Operational emissions would not have exceeded adopted criteria.

#### Mitigation Measures

*None required.*

#### **Future Impacts**

The Monterey Amendment enables SWP contractors to store water outside their service areas for later use within their service areas. Several contractors have entered into agreements with water agencies in the southern San Joaquin Valley to temporarily store SWP water in groundwater banks. Between 1996 and 2003, water banks were developed, and 520 acres of percolation ponds were constructed. It is expected that in the future, contractors would increase their use of groundwater banks. If future increased groundwater banking involved active recharge, then new percolation ponds would be built. For purposes of the analysis, it is assumed a similar amount of ponds (approximately 500 acres) would be constructed.

Construction of the percolation ponds would involve the use of heavy-duty construction equipment, which would generate diesel particulate matter (a TAC), as well as ozone precursors, ROG and NO<sub>x</sub>. The disturbance of the soil associated with the various earthmoving activities would also generate PM<sub>10</sub>. During construction, the proposed project would be required to implement all of the SJVAPCD's PM<sub>10</sub> control measures; therefore, construction emissions would be below SJVAPCD thresholds. Assuming a similar amount of land disturbance in the future, ROG and NO<sub>x</sub> emissions would not exceed SJVAPCD standards. Further, emissions would be temporary, because they would last only as long as the construction was occurring.

Operation of a groundwater bank would require pumping to convey water to percolation ponds and to extract water from underground. Electric motors would be relatively pollution-free. The only impacts would be construction-related.

Therefore, because the proposed project would not result in a net increase in criteria air pollutants over SJVAPCD annual thresholds in a non-attainment area, and, as a result, there would no conflict with implementation of the adopted air quality plan for the region, this is considered to be a ***less-than-significant impact***. Further, any construction-related emissions would be temporary. Operational emissions, which would generally be limited to electric pumps, would not exceed adopted criteria.

#### Mitigation Measures

*None required.*

**7.7-3 Construction of KWBA percolation ponds and canal and operation of the pumping facilities resulting from the transfer of Kern Fan Element lands could potentially generate air pollutant emissions.**

## 1996 — 2003

In 1995, KWBA constructed 3,034 acres of recharge ponds. From 1998 through 2003, an additional 4,080 acres were converted to shallow percolation ponds, for a total of 7,114 acres in 2003 in the Kern Fan Element. The KWBA also constructed the Kern Water Bank Canal, a 6-mile long earthen canal extending from the Kern River to the California Aqueduct. Elsewhere in Kern County, outside of the Kern Fan Element, approximately 520 acres of percolation ponds were developed as part of other groundwater storage projects.

Construction of the percolation ponds, canal, and other facilities required the use of heavy-duty construction equipment. This equipment generated diesel particulate matter, which is a TAC, as well as emissions of ozone precursors such as ROG and NO<sub>x</sub>. The disturbance of the soil associated with the various earthmoving activities also generated PM<sub>10</sub>. Because the proposed project would have implemented all of the SJVAPCD's suggested PM<sub>10</sub> control measures, PM<sub>10</sub> construction emissions would be below SJVAPCD thresholds. Based on a conservative assumption of 800 acres per year of soil disturbance to construct the ponds, NO<sub>x</sub> and ROG emissions would not have exceeded SJVAPCD thresholds. Further, the duration of construction-generated air pollutant emissions was limited to the construction periods only.

Operation of the facilities requires pumping to convey water to percolation ponds and to extract water from underground. With the proposed project, there would have been increased pumping to convey water through the system, as compared to pre-project conditions. While electric pump use would have increased, this would not have increased air emissions, as electric pumps are relatively pollution-free.

Therefore, because the proposed project did not result in a net increase in criteria air pollutants over SJVAPCD annual thresholds in a non-attainment area, there would have been no conflict with implementation of the adopted air quality plan for the region. This is considered to be a **less-than-significant impact**. Further, any construction-related emissions would have been temporary. Operational emissions would not likely have exceeded adopted criteria.

### Mitigation Measures

*None required.*

### **Future Impacts**

Between 1996 and 2003, the KWBA built approximately 4,700 acres of shallow percolation ponds in the Kern Fan Element as part of a groundwater recharge project designed to take advantage of one of the provisions of the Monterey Agreement. The Habitat Conservation Plan for the Kern Fan Element allows developed uses on about 4,000 acres of the Kern Fan Element.<sup>4</sup> Developed uses include farming, permanent facilities for the Kern Water Bank and commerce. Approximately, 490 acres is designated for possible commercial use. Between 1995 and 2003, no development occurred on the 490-acre parcel. The Settlement Agreement prohibits development of this parcel, so under the proposed project the parcel would remain undeveloped. In the future, it is expected that the KWBA would construct an additional 1,200 acres of percolation ponds.

Construction of the 1,200 acres of percolation ponds would require earthmoving and the use of heavy-duty construction equipment. The KWBA would be required to comply with all the SJVAPCD suggested control measures for the reduction of PM<sub>10</sub> during construction. This

would reduce PM<sub>10</sub> emissions to levels that are less-than-significant, as addressed in the SJVAPCD CEQA Guide for Assessing and Mitigating Air Quality Impacts. Based on the average amount of acreage disturbed on an annual basis between 1995 and 2003, it is unlikely that the entire 1,200 acres would be converted in one year. Therefore, the amount of ROG and NO<sub>x</sub> emissions would not exceed the SJVAPCD thresholds.

The operation of these percolation ponds would require pumping to convey water to the ponds and to extract water from underground. Electric pumps would be relatively clean, and would generate few emissions. Diesel-powered pumps could be used for temporary emergency power, which would generate mostly NO<sub>x</sub> and diesel TAC. However, diesel generator use would be infrequent, and it is unlikely that sensitive receptors would be close enough to the pumps to be adversely affected by diesel TAC. Operational emissions would, therefore, not be substantial.

Construction activities would represent the greatest source of air emissions. Because construction emissions would not generate levels of PM<sub>10</sub>, ROG or NO<sub>x</sub> in excess of SJVAPCD thresholds, the proposed project would not result in a net increase in criteria air pollutants in a non-attainment area that could conflict with implementation of the adopted air quality plan for the region. This is considered to be a ***less-than-significant impact***.

#### Mitigation Measures

*None required.*

**7.7-4 Water supply management practices that allow greater flexibility in reservoir storage would result in fluctuations in water levels at Castaic Lake, Lake Perris, San Luis Reservoir, and Lake Oroville which could potentially alter the amount of recreational boating at the reservoirs, which could affect ROG emissions.**

#### **1996 — 2003**

Article 54 of the Monterey Amendment allowed SWP contractors to borrow water from Castaic Lake and Lake Perris under certain conditions. Article 56 of the Monterey Amendment allowed SWP contractors to store water in San Luis Reservoir when storage space in excess of that needed for SWP operations is available. As described in Section 7.1, Surface Water Hydrology, Water Quality, and Water Supply, the borrowing of water lowered the water surface elevations in Castaic Lake and Lake Perris relative to what they would have been in the absence of borrowing, and there was little effect on average water surface elevations in the post-Monterey Amendment period. Average water surface elevations at the two lakes were actually higher between 1996 and 2003 than in the pre-Monterey Amendment period before 1995. The average water surface elevation at Castaic Lake from 1996 to 2003 was about 23 feet higher than between 1974 and 1995. At Lake Perris, the average surface water elevation was about four feet higher during the same period. The increases at Castaic Lake and Lake Perris were probably attributable to a series of wet years that occurred in the late 1990s, and also as a result of an alteration in reservoir operations designed to accommodate Article 54 borrowing. The range of water level fluctuations were also within the range of historic operating condition fluctuations.

At Lake Oroville and San Luis Reservoir, the changes in the amount of water stored were small and insufficient to have much effect on water surface elevations (see Impact 9.1-4 in Section 7.1).

Recreational boats with engines contribute a disproportionately large amount of emissions to the statewide emissions inventory. The recreational boat category accounts for approximately nine percent of the total ROG emissions from off-road sources statewide according to the CARB's 2003 inventory. This is mostly due to the fact that recreational boats have traditionally not been subject to the same amount of regulation as many other sources. The amount of recreational boat use usually increases with increasing water levels at reservoirs where people normally participate in these types of recreational activities. Conversely, boating decreases when water levels are lower.

Higher water surface elevations tend to create more opportunities for recreational boating and can increase the number of hours these types of vehicles were used. Greater emissions of ROG would have been associated with this greater use of recreational boats, if boating use increased above and beyond previous levels in response to more times when water levels were higher. To exceed the SJVAPCD threshold of significance of ten tons per year for ROG, boat use would have had to increase by approximately eight percent statewide. It is unlikely that higher surface water levels at the reservoirs resulted in increased recreational boat activity that increased statewide use by eight percent or more. Consequently, this would have been a **less-than-significant impact** because it would not have exceeded thresholds that would have adversely affected attainment for the air basins.

#### Mitigation Measures

*None required.*

#### **Future Impacts**

As discussed above, the amount of recreational boat use usually increases with increasing water levels at reservoirs where people normally participate in these types of recreational activities. Conversely, boating decreases when water levels are lower.

Article 54 of the Monterey Amendment allows SWP contractors to borrow water from Castaic Lake and Lake Perris under certain conditions. Article 56 of the Monterey Amendment allows SWP contractors to store water in San Luis Reservoir when storage space in excess of that needed for SWP operations is available. Borrowing of water by contractors has the potential to lower the water surface elevations at Castaic Lake and Lake Perris. Because the difference in water storage would be small in Lake Oroville and San Luis Reservoir (see Impact 7.1-4B in Section 7.1), there would be little, if any, effect on water surface elevations.

Operation of the reservoirs would result in similar fluctuations as those recorded for the period between 1996 and 2003 and are expected to be within the range of more recent (post-Monterey) historical fluctuations. Analysis of reservoir levels for future SWP operations indicate that reservoir water surface elevations would likely be similar to historical recorded reservoir levels. Because future water surface elevation changes would not differ substantially from 1995 conditions, the amount of boating that would generate emissions would be similar. However, as discussed in Sections 7.1 and 7.9, the proposed project could result in changes to water levels in Castaic Lake and Lake Perris greater than those recorded in the past.

Boating would likely be the same as baseline conditions or could decrease due to drawdown conditions at Castaic Lake and Lake Perris. Therefore, boating emissions would not exceed thresholds and would not conflict with the regional air quality plan. Consequently, this would result in a ***less-than-significant impact***.

#### Mitigation Measures

*None required.*

**7.7-5 Fluctuation in water levels at Castaic Lake, Lake Perris, San Luis Reservoir, and Lake Oroville in response to water supply management practices that provide greater storage flexibility could potentially alter the amount of recreational uses at the reservoirs, which could affect vehicle emissions associated with travel to and from the reservoirs.**

#### **1996 — 2003**

As discussed in Impact 7.7-4, higher water surface elevations at Castaic Lake and Lake Perris, could have created more opportunities for recreational activities. This could have increased the number of vehicle trips to and from the reservoirs on a seasonal basis that would, in turn, result in increases in traffic-generated ROG and NO<sub>x</sub> emissions on a seasonal basis. However, it is unlikely that the number of vehicles would have substantially increased to levels where emissions thresholds would have been exceeded on a permanent basis such that there would have been a conflict with the adopted air quality attainment plan. At Lake Oroville and San Luis Reservoir, the changes in the amount of water stored were small and insufficient to have much effect on water surface elevations (see Impact 7.1-4 in Section 7.1), so recreation-related vehicle traffic air emissions would not be substantially affected. Therefore, this would have been a ***less-than-significant impact***.

#### Mitigation Measures

*None required.*

#### **Future Impacts**

As discussed in Impact 7.7-4, borrowing of water by contractors has the potential to lower the water surface elevations at Castaic Lake and Lake Perris, while water levels at San Luis Reservoir and Lake Oroville would exhibit little, if any, change.

As discussed in Sections 7.1 and 7.9, the proposed project would not result in changes to the reservoir levels beyond those recorded in the past most of the time. Operation of the reservoirs would result in similar fluctuations as those recorded for the period between 1996 and 2004. Therefore, the reservoirs are expected to be within the range of more recent (post-Monterey) historical fluctuations. Analysis of reservoir levels for future SWP operations indicate that reservoir water surface elevations would be similar to historical recorded reservoir levels. However, future water surface elevations at Castaic Lake and Lake Perris could be lower than 2003 conditions, and, therefore, the amount of recreation-generated traffic would be expected to decrease.

With little, if any, net increase in traffic volumes, there would be less potential for generating ROG and NO<sub>x</sub> emissions that would exceed district thresholds. Therefore, there would be a

negligible effect on basin attainment status. Consequently, this would result in a ***less-than-significant impact***.

#### Mitigation Measures

*None required.*

**7.7-6 Fluctuation in water surface elevations at Castaic Lake and Lake Perris as a result of flexible storage and extended carryover practices could potentially alter the amount of shoreline exposed to wind erosion, which could generate wind-blown particulate emissions.**

#### **1996 — 2003**

As described in Impact 7.7-4, average water surface elevations at Castaic Lake and Lake Perris were higher between 1996 and 2003 than in the pre-Monterey Amendment period before 1995. The average water surface elevation at Castaic Lake from 1995 to 2003 was about 23 feet higher than between 1974 and 1995. At Lake Perris, the average surface water elevation was about 4 feet higher during the same period. The increases at Castaic Lake and Lake Perris were probably attributable to a series of wet years that occurred in the late 1990s, and also as a result of an alteration in reservoir operations designed to accommodate Article 54 borrowing. The range of water level fluctuations at Castaic Lake and Lake Perris were also within the range of historic operating condition fluctuations.

For Castaic Lake and Lake Perris, the higher water elevations would have reduced the amount of shoreline exposed to wind erosion, which would have reduced particulate emissions during those periods. Therefore, because there would not be more shoreline exposed to wind erosion, which could be a source of dust emissions, thresholds would not be exceeded, and the impact would be ***less than significant***.

#### Mitigation Measures

*None required.*

#### **Future Impacts**

As noted earlier, Article 54 of the Monterey Amendment allows SWP contractors to borrow water from Castaic Lake and Lake Perris under certain conditions. The effects of borrowing of water on water surface elevations in the two reservoirs in the future will depend on the extent to which the contractors that can borrow from the reservoir make use of Article 54 and future hydrologic conditions. Table 6-27 shows MWDSC's expected future use of flexible storage in Castaic Lake and Lake Perris. It is quite possible that future borrowing would draw down the reservoirs to a greater extent than occurred between 1996 and 2003, a relatively wet period.

If the contractors borrowed the maximum amounts of water provided for under Article 54 and the water was not replaced for the maximum permitted duration of five years, 160,000 AF would be borrowed from Castaic Lake, about half its maximum capacity of 323,700 AF, and 65,000 AF would be borrowed from Lake Perris, about half its maximum capacity of 131,500 AF. The reservoirs would remain drawn down for five years. Although this worst-case condition could occur, it would be unlikely (see Section 6.4.3.1).

If the worst-condition were to occur, the reduction in reservoir elevations would expose soil to wind. Because the soils at Castaic Lake are characterized as clays; the exposed soil would be subject to limited wind and/or water erosion potential and therefore, limited levels of particulate matter would be generated. Soils at Lake Perris are characterized as sandy which would be subject to increased rates of wind-induced soil erosion and associated particulate matter emissions. Due to the size of the air quality basin in comparison to Lake Perris, the dense population of the area, and the relatively high levels of pollutants normally found in the area, it would be difficult to determine what effects an extended drawdown at Lake Perris would have on air quality. Therefore, the potential for wind erosion of soil at Lake Perris could be greater under future conditions than baseline conditions. Mitigation measures such as hydroseeding or spraying water over exposed soils would be economically and physically infeasible because of the potential area of exposed soils and scale of effort to reduce wind erosion. Therefore, impacts would be ***potentially significant and unavoidable***.

#### Mitigation Measures

*None available.*

**7.7-7 Fluctuation in water surface elevations at San Luis Reservoir and Lake Oroville as a result of flexible storage and extended carryover practices could potentially alter the amount of shoreline exposed to wind erosion, which could generate wind-blown particulate emissions.**

#### **1996 — 2003**

At Lake Oroville and San Luis Reservoir, the changes in the amount of water stored were small and insufficient to have much effect on water surface elevations (see Impact 7.1-4 in Section 7.1). The amount of shoreline exposed to wind erosion would not have differed substantially from pre-Monterey conditions. Therefore, because there would not be more shoreline exposed to wind erosion, which could be a source of dust emissions, thresholds would not be exceeded, and the impact would be ***less than significant***.

#### Mitigation Measures

*None required.*

#### **Future Impacts**

Article 56 of the Monterey Amendment allows SWP contractors to store water in San Luis Reservoir when storage space in excess of that needed for SWP operations is available. In the future, contractors can be expected to continue to take advantage of Article 56 of the Monterey Amendment and store water in San Luis Reservoir when storage space in excess of that needed for SWP operations is available. As noted in Impact 7.7-4, water surface elevations in Lake Oroville and San Luis Reservoir would show little change. Therefore, the amount of shoreline exposed to wind erosion, which would be a source of particulate dust emissions, would not differ substantially in the future. Therefore, because there would not be more shoreline exposed to wind erosion, which could be a source of dust emissions, thresholds would not be exceeded, and the impact would be ***less than significant***.

Mitigation Measures

*None required.*

### **7.7-8 Construction and operation of watershed improvements in Plumas County could potentially generate air pollutant emissions.**

#### **1996 — 2003**

Because the Settlement Agreement was not completed in this period, there were no watershed improvement project as a result of the proposed project and there was ***no impact***.

Mitigation Measures

*None required.*

**Future Impacts**

The Settlement Agreement provides funds to Plumas County to establish a watershed forum and implement watershed improvement projects. The watershed forum would identify opportunities for watershed improvements and would oversee the implementation of individual projects. Watershed improvement projects take many forms but most involve actions to prevent erosion and restore wildlife habitat along streams and rivers. In general, projects of this type improve the stability of stream banks and native vegetation by returning them to a more natural condition. The types of projects that are anticipated would include stream restoration (revegetation of stream banks and removal of non-native species, for example), preventing stream down-cutting and gullying through the creation of a series of ponds and drop structures, well drilling, and unpaved road improvements to reduce erosion and sedimentation.

Construction activities could result in ground disturbance (grading or excavation for bank stabilization, ground disturbance for soil enrichment or planting), which could require the use of heavy-duty construction equipment. The heavy equipment would be a source of diesel particulate matter, which is a TAC, as well as emissions of ozone precursors such as ROG and NO<sub>x</sub>. The disturbance of the soil associated with the various earthmoving activities could also generate PM<sub>10</sub>. The number and size of watershed improvement projects that would result from the proposed project are relatively small, and the number of pieces of heavy equipment operating at any one time and the amount of acreage disturbed on a daily basis would be commensurately limited. Therefore, emissions would not be substantial. Further, air emissions would be temporary and would occur only as long as the construction activities, so there would be no adverse, permanent effect on air quality in the region.

Additionally, the projects would be expected to improve soil erosion conditions along a few miles of streambank in a county with thousands of miles of stream channels, such that the potential for wind-generated PM<sub>10</sub> emissions from exposed soils would ultimately be reduced over the long-term. Therefore, this is considered a ***less-than-significant impact***.

Mitigation Measures

*None required.*

## ENDNOTES

1. City of Chico, *Master Environmental Assessment for Chico General Plan*, Section 7 (Air Quality), January 1994.
2. City of Chico, *Master Environmental Assessment for Chico General Plan*, Section 7 (Air Quality), January 1994.
3. Butte County Planning Department, Gateway Chico Project Draft Program EIR, April 1994, p.44.
4. Kern Water Bank Authority, *Kern Water Bank Habitat Conservation Plan/Natural Community Conservation Plan*, October 1997.