

Technical Support Document for 2008 Ozone NAAQS Designations

California Area Designations for the 2008 Ozone National Ambient Air Quality Standards

Technical Analysis for Riverside County (Coachella Valley)

Figure 1 is a map of the Riverside County (Coachella Valley), CA nonattainment area. The map provides other relevant information including the locations and design values of air quality monitors, county names and boundaries, and indicates EPA's nonattainment designation for Riverside County (Coachella Valley). Also shown is the boundary of the existing area that is designated nonattainment for the 1997 ozone NAAQS.

Riverside County (Coachella Valley), CA

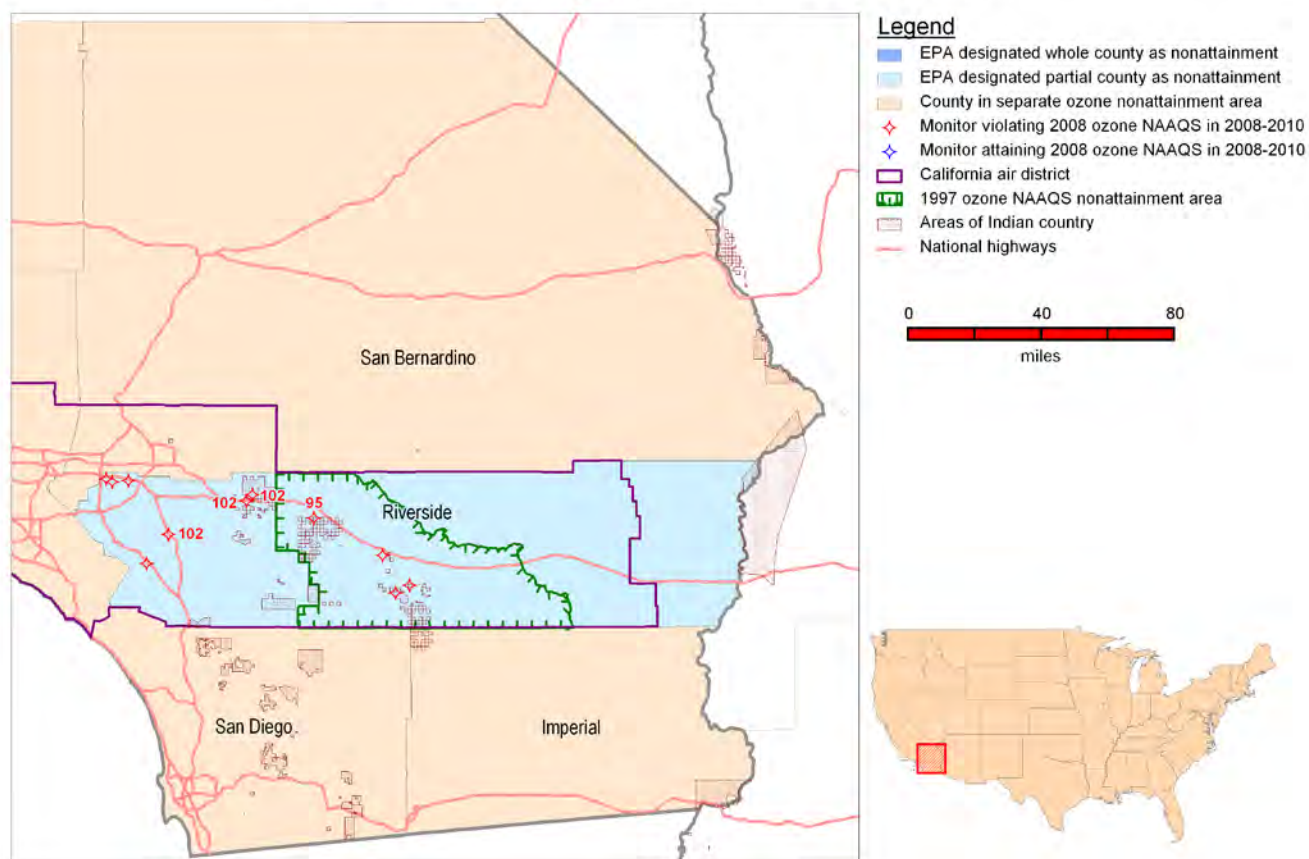


Figure 1

For purposes of the 1997 8-hour ozone NAAQS, this area was designated nonattainment. The boundary for the nonattainment area for the 1997 ozone NAAQS included the same portion of central Riverside County. Areas of Indian country of several federally recognized tribes were included in the nonattainment area. These are the same tribes that are listed in Table 1, below.

In March 2009, California recommended that the same partial-county area be designated as “nonattainment” for the 2008 ozone NAAQS based on air quality data from 2006-2008 (letter from James Goldstene, Executive Officer, California Air Resources Board, to Laura Yoshii, Acting Regional Administrator, U.S. EPA Region IX, dated March 11, 2009). California provided an update to the original recommendation in October 2011 based on air quality data from 2008-2010 and preliminary 2009-2011 data, but did not revise its recommendation for Riverside County (Coachella Valley). These 2009 and 2011 recommendations are based on data from Federal Equivalent Method (FEM) monitors sited and operated in accordance with 40 CFR Part 58 (letter from Lynn Terry, Deputy Executive Officer, California Air Resources Board, to Deborah Jordan, Director, U.S. EPA Region IX Air Division, dated October 12, 2011).

After considering these recommendations and based on EPA's technical analysis described below, EPA is designating the Salton Sea Air Basin portion of Riverside County in California and areas of Indian country in the Salton Sea Air Basin portion of Riverside County as “nonattainment” for the 2008 ozone NAAQS as part of the Riverside County (Coachella Valley) multi-jurisdictional nonattainment area.

Table 1. State’s or Tribe’s Recommended and EPA’s 2008 ozone NAAQS Nonattainment Counties or Areas in Indian country for Riverside County (Coachella Valley).

Coachella Valley	State or Tribe-Recommended Nonattainment Counties or Areas in Indian country	EPA’s Nonattainment Counties or Areas in Indian country
Riverside County, CA	Riverside County (p)	Riverside County (p)
Agua Caliente Band of Cahuilla Indians of the Agua Caliente Indian Reservation	N/A	Agua Caliente Band of Cahuilla Indians of the Agua Caliente Indian Reservation
Augustine Band of Cahuilla Indians	N/A	Augustine Band of Cahuilla Indians
Cabazon Band of Mission Indians	N/A	Cabazon Band of Mission Indians
Santa Rosa Band of Cahuilla Indians ¹	N/A	Santa Rosa Band of Cahuilla Indians
Torres Martinez Desert Cahuilla Indians ²	N/A	Torres Martinez Desert Cahuilla Indians
Twenty-Nine Palms Band of Mission Indians of California ³	N/A	Twenty-Nine Palms Band of Mission Indians of California

p = partial

N/A = Tribe did not submit recommendation.

¹ The Santa Rosa Band of Cahuilla Indians (Santa Rosa Cahuilla) has contiguous areas of Indian country in both the Los Angeles-South Coast Air Basin nonattainment area and in the Riverside County (Coachella Valley) nonattainment area. All of Santa Rosa Cahuilla is being designated with the Riverside County (Coachella Valley) nonattainment area.

² The Torres Martinez Desert Cahuilla Indians (Torres Martinez) has non-contiguous areas of Indian country in both the Imperial County and the Riverside County (Coachella Valley) nonattainment areas. Non-contiguous lands of the Torres Martinez are being designated with the surrounding nonattainment areas. This technical analysis addresses only those areas of Indian country within the Riverside County (Coachella Valley) nonattainment area.

³ The Twenty-Nine Palms Band of Mission Indians of California (Twenty-Nine Palms) has non-contiguous areas of Indian country in both the Los Angeles-South Coast Air Basin nonattainment area and the Riverside County (Coachella Valley) nonattainment area. Non-contiguous lands of the Twenty-

Nine Palms are being designated with the surrounding nonattainment areas. This technical analysis addresses only those areas of Indian country within the Riverside County (Coachella Valley) nonattainment area.

Factor Assessment

Factor 1: Air Quality Data

For this factor, we considered 8-hour ozone design values for air quality monitors in the existing Riverside County (Coachella Valley) nonattainment area, based on data from the 2008-2010 period (i.e., the 2010 design value, or DV), which are the most recent years with fully-certified air quality data. A monitor’s DV is the metric or statistic that indicates whether that monitor attains a specified air quality standard. The 2008 ozone NAAQS are met at a monitor when the annual fourth-highest daily maximum 8-hour average concentration, averaged over 3 years, is 0.075 parts per million (ppm) (75 parts per billion (ppb)) or less. A DV is only valid if minimum data completeness criteria are met. See 40 CFR part 50 Appendix P. Where several monitors are located in a county (or a designated nonattainment area or maintenance area), the DV for the county or area is determined by the monitor with the highest level.

[Note: Monitors that are eligible for providing design value data generally include State and Local Air Monitoring Stations (SLAMS) that are sited in accordance with 40 CFR Part 58, Appendix D (Section 4.1) and operating with a federal reference method (FRM) or federal equivalent method (FEM) monitor that meets the requirements of 40 CFR part 58, Appendix A. All data from a special purpose monitor (SPM) using an FRM or FEM which has operated for more than 24 months is eligible for comparison to the NAAQS unless the monitoring agency demonstrates that the data came from a particular period during which the requirements of Appendix A (quality assurance requirements) or Appendix E (probe and monitoring path siting criteria) were not met.]

The existing Riverside County (Coachella Valley) nonattainment area comprises the Salton Sea Air Basin portion of Riverside County (see Map 9a in Appendix 2). The 2010 DV for the ozone NAAQS for the entirety of Riverside County is shown in Table 2.

Table 2. Air Quality Data.

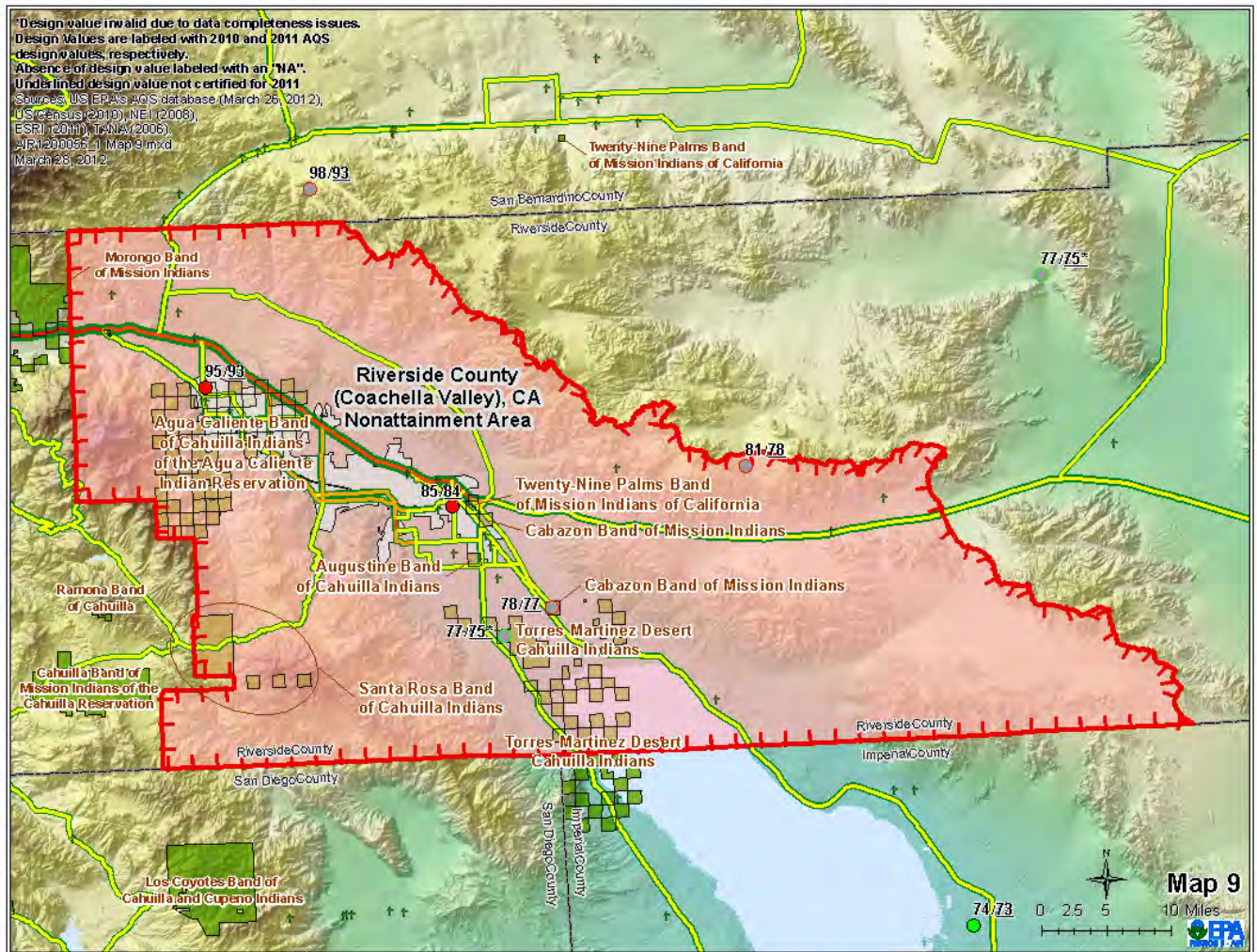
County	State Recommended Nonattainment?	2008-2010 Design Value (ppb)
Riverside, CA	Yes (partial)	102

Ozone monitors relevant for comparison to the NAAQS and information from additional data sources within the existing Riverside County (Coachella Valley) nonattainment area are shown in Appendix 1, Map 9 (inserted below). EPA is designating the western part of Riverside County as part of the Los Angeles-South Coast Air Basin nonattainment area. The design value shown in Table 2 is from a monitor located within this western portion of Riverside County. As shown in Appendix 1, Map 9, the existing Riverside County (Coachella Valley) nonattainment area has a DV of 95 ppb.

California’s ozone season encompasses the entire year. Certified, quality assured data are available in EPA’s Air Quality System (AQS) for all areas through calendar year 2010. Map 9 in Appendix 1 includes preliminary 2011 DVs for the existing Coachella Valley nonattainment area for informational purposes only. For each monitor, Appendix 1 lists the monitor, the 2008-2010 DV (certified and

quality assured in AQS), and the 2009-2011 DV (data that are not yet certified and quality assured in AQS are denoted with an underline). Absence of a DV is symbolized with an “x”.

Appendix 3 lists the DVs for monitors in the existing Riverside County (Coachella Valley) nonattainment area. Monitors shown in bold are the DV monitors (i.e., the monitor with the highest DV) for each individual county. Monitors shown in red font are the DV monitor for the nonattainment area. Values with an asterisk do not meet data completeness, and therefore those DVs are not relevant for comparison to the NAAQS and are solely provided for informational purposes.



From Appendix 1, Map 9: For map legend describing monitors, emissions, traffic, population, and boundaries, see Appendix 1

Monitors within the Salton Sea Air Basin portion of Riverside County show violations of the 2008 8-hour ozone standard based on 2008-2010 data. Therefore, this area is included in the Riverside County (Coachella Valley) 2008 ozone NAAQS nonattainment area.

Factor 2: Emissions and Emissions-Related Data

EPA evaluated emissions of ozone precursors, nitrogen oxides (NO_x) and volatile organic compounds (VOC), and other emissions-related data that provide information on areas contributing to violating monitors.

Emissions data

EPA evaluated county-level emission data for NO_x and VOC derived from the 2008 National Emissions Inventory (NEI), version 1.5. This is the most recently available NEI. (See <http://www.epa.gov/ttn/chief/net/2008inventory.html>) Emissions in a nearby area indicate the potential for the area to contribute to observed violations. Table 3 shows emissions of NO_x and VOC (given in tons per year) for Riverside County.

Table 3. Total 2008 NO_x and VOC Emissions.

County	State Recommended Nonattainment?	NO _x (tpy)	VOC (tpy)
Riverside, CA	Yes (partial)	54,727	28,934
	Areawide:	54,727	28,934

Stationary source emissions in Riverside County are generally clustered in the western portion of Riverside County (designated with the Los Angeles-South Coast Air Basin nonattainment area), with fewer stationary sources in the eastern Coachella Valley nonattainment area portion of the county (see Maps 6 and 9 of Appendix 1). Although stationary source emissions of ozone precursors from Riverside County are quite high, based on the geographic distribution of stationary sources, the eastern portion of the county is expected to represent a relatively smaller fraction of total emissions from Riverside County.

Population density and degree of urbanization

EPA evaluated the population and vehicle use characteristics and trends of the area as indicators of the probable location and magnitude of non-point source emissions. These include ozone-creating emissions from on-road and off-road vehicles and engines, consumer products, residential fuel combustion, and consumer services. Areas of dense population or commercial development are an indicator of area source and mobile source NO_x and VOC emissions, which contribute to ozone formation. Rapid population growth or growth in vehicle miles traveled (VMT) (see below) in a county on the urban perimeter signifies increasing integration with the core urban area, and indicates that it may be appropriate to include the area associated with area source and mobile source emissions as part of the nonattainment area. Table 4 shows the population, population density, and population growth information for Riverside County.

Table 4. Population and Growth.

County	State Recommended Nonattainment?	2010 Population	2010 Population Density (1000 pop/sq mi)	Absolute change in population (2000-2010)	Population % change (2000-2010)
Riverside, CA	Yes (partial)	2,189,641	0.30	630,364	+40%
Areawide:		2,189,641	0.30	630,364	+40%

Sources: U.S. Census Bureau population estimates for 2010 as of August 4, 2011

(http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_10_PL_GCT_PL2.STO5&prodType=table)

Maps 9 and 9a in Appendices 1 and 2, respectively, show population in the area. The percent change in population in Riverside County indicates a high level of growth. Population centers in Riverside County are centered in the western portion of the county (see Maps 6a and 9a of Appendix 2). The eastern portion of the county is fairly unpopulated, mountainous terrain. The western and eastern portions of Riverside County are linked by the Banning Pass.

Traffic (VMT) data

EPA evaluated the commuting patterns of residents in the area, as well as the total VMT for each county. In combination with the population/population density data and the location of main transportation arteries (see above), this information helps identify the probable location of non-point source emissions. A county with high VMT indicates the presence of motor vehicle emissions that may contribute to ozone formation and nonattainment in the area. Rapid population or VMT growth in a county on the urban perimeter signifies increasing integration with the core urban area, and indicates that the associated area source and mobile source emissions may be appropriate to include in the nonattainment area. Table 5 shows total 2008 VMT.

Table 5. Traffic (VMT) data.

County	State Recommended Nonattainment?	2008 VMT* (million miles)
Riverside, CA	Yes (partial)	21,704
Areawide:		21,704

*MOBILE model VMTs are those inputs into the NEI version 1.5.

Riverside County exhibits high VMT. However, based on traffic patterns (see Maps 6 and 9 in Appendix 1), most of the non-truck traffic volume is centered in the western portion of Riverside County, with some heavy traffic in the eastern portion of the county limited to two major roadways.

Factor 3: Meteorology (weather/transport patterns)

For this factor, EPA evaluated any available meteorological data to help determine how meteorological conditions, such as weather, transport patterns and stagnation conditions, would affect the fate and transport of precursor emissions contributing to ozone formation.

The Final 2007 Air Quality Management Plan produced by South Coast Air Quality Management District (SCAQMD) discusses the transport patterns and stagnation conditions, and how these patterns

and conditions would affect the fate and transport of precursor emissions that contribute to ozone formation in the Salton Sea Air Basin (SSAB) portion of Riverside County.¹

“Ozone in the atmosphere of the Riverside county portion of SSAB is both directly transported from the Basin and formed principally from precursors emitted upwind. These precursors are emitted in greatest quantity in the coastal and central Los Angeles county areas of the Basin. The Basin’s prevailing sea breeze causes polluted air to be transported inland. As the air is being transported inland, ozone is formed, with peak concentrations occurring in the inland valleys of the Basin in an area extending from eastern San Fernando Valley through the San Gabriel Valley into the Riverside-San Bernardino area and the adjacent mountains. As the air is transported still further inland into the desert areas, ozone concentrations decrease due to dilution.”

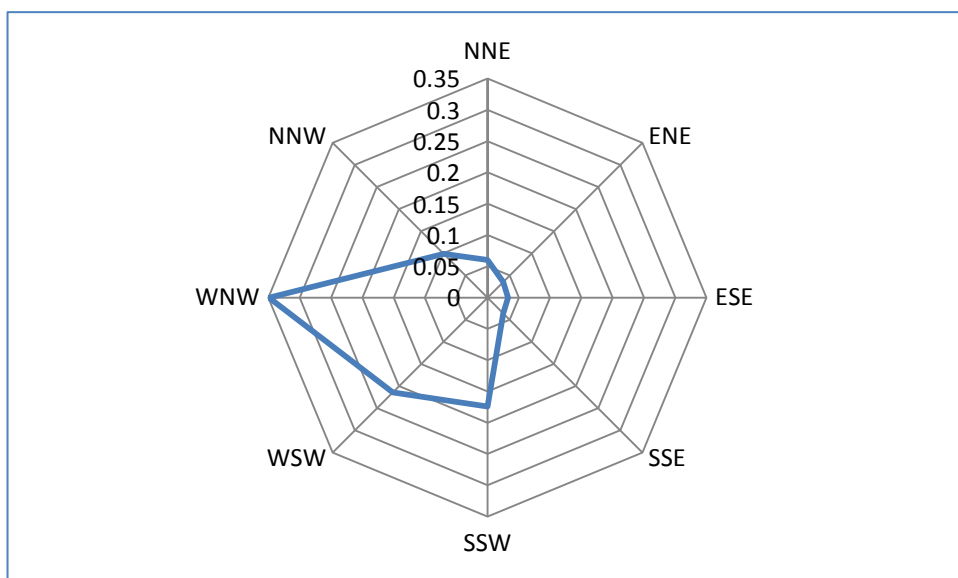


Figure 2: Riverside County - Summer Wind Frequency Distribution

The wind frequency distribution of wind direction data in Figure 2, above, is based on an average of 30 years of National Weather Service information for the months of June, July, and August. The prevailing winds during the ozone season have a strong westerly component.

Factor 4: Geography/topography (mountain ranges or other air basin boundaries)

The geography/topography analysis evaluates the physical features of the land that might affect the airshed and, therefore, the distribution of ozone over the area.

The air basins in this area are shown in Appendix 2, Map 9a. The nonattainment area consists of the northern portion of the Salton Sea Air Basin. The remaining portion of the Salton Sea Air Basin consists of the entirety of Imperial County. EPA is designating a separate nonattainment area for

¹ South Coast Air Quality Management District, June 2007. Final 2007 Air Quality Management Plan, Appendix II. http://www.aqmd.gov/aqmp/07aqmp/aqmp/Appendix_II.pdf

Imperial County, consistent with the existing 1997 ozone nonattainment areas and consistent with the State's recommendations under the 2008 ozone NAAQS.

South Coast Air Quality Management District's Final 2007 Air Quality Management Plan provides a brief description of the Coachella Valley Planning Area.

“The Riverside county portion of the SSAB is bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley. The federal nonattainment area (known as the Coachella Valley Planning Area) is a subregion of Riverside County and the Salton Sea Air Basin that is bounded by the San Jacinto Mountains to the west and the eastern boundary of the Coachella Valley to the east.”²

The “Assessment and Mitigation of the Impacts of Transported Pollutants on Ozone Concentrations within California,” produced by California Air Resources Board, also discusses the physical features of the land that might affect the airshed and distribution of ozone over the area³

“There is only one major pass, San Gorgonio Pass, connecting the Los Angeles Basin and the Colorado (low) Desert. The northern wall of the pass is the foothills and lower ridges of the San Bernardino Mountains which build up to Mount San Gorgonio (11,502 ft MSL). The more imposing southern wall rises abruptly toward Mount San Jacinto (10,805 ft MSL) in the San Jacinto Mountains. The floor of the pass begins about two miles west of Banning (about 2,300 ft MSL) and slopes downward at about 80 feet per mile to its eastern end about two miles east of Whitewater (about 1000 ft MSL).”

Factor 5: Jurisdictional boundaries

For each potential nonattainment area, we considered existing jurisdictional boundaries to provide a clearly defined legal boundary and to help identify the areas appropriate for carrying out the air quality planning and enforcement functions for nonattainment areas. Examples of jurisdictional boundaries include existing/prior nonattainment area boundaries for ozone or other urban-scale pollutants, county lines, air district boundaries, township boundaries, areas covered by a metropolitan planning organization, state lines, areas of Indian country, and urban growth boundary. Where existing jurisdictional boundaries were not adequate or appropriate to describe the nonattainment area, other clearly defined and permanent landmarks or geographic coordinates were considered.

The Riverside County (Coachella Valley) area has previously established nonattainment boundaries associated with both the 1-hour and the 1997 8-hour ozone NAAQS. The state has recommended the same boundary for the 2008 ozone NAAQS.

² 1-2. Final 2007 Air Quality Management Plan. South Coast Air Quality Management District.
<http://www.aqmd.gov/aqmp/07aqmp/index.html>

³ Air Resources Board, 1990: Assessment and Mitigation of the Impacts of Transported Pollutants on Ozone Concentrations within California. ARB Staff Report prepared by the Technical Support Division and the Office of Air Quality Planning and Liaison, June 1990.

For the 1-hour ozone NAAQS, the Riverside County (Coachella Valley) nonattainment area was part of the Southeast Desert nonattainment area. For the 1997 ozone NAAQS, however, EPA designated Riverside County (Coachella Valley) as a separate nonattainment area. For the 2008 ozone NAAQS, EPA is designating Riverside County (Coachella Valley), consisting of the northern portion of the Salton Sea Air Basin, as nonattainment. The remaining portion of the Salton Sea Air Basin consists of the entirety of Imperial County. EPA is designating Imperial County as a separate nonattainment area, consistent with the existing 1997 ozone nonattainment areas and consistent with the State's recommendations under the 2008 ozone NAAQS. Imperial Valley has its own air district, and the Salton Sea Air Basin portion of Riverside County is under the air quality jurisdiction of the South Coast Air Quality Management District.

The Riverside County (Coachella Valley) area also includes areas of Indian country. As defined at 18 U.S.C. 1151, "Indian country" refers to: "(a) all land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation, (b) all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state, and (c) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same." EPA recognizes the sovereignty of tribal governments, and has attempted to take the desires of the tribes into account in establishing appropriate nonattainment area boundaries.

The Santa Rosa Band of Cahuilla Indians (Santa Rosa Cahuilla) is a federally recognized tribe with reservation lands in Riverside County. The tribe's areas of Indian country, located in the Riverside County (Coachella Valley) 2008 ozone NAAQS nonattainment area are shown on Map 9a in Appendix 2. In 2004, EPA established the Los Angeles-South Coast Air Basin nonattainment boundaries for the 1997 ozone NAAQS. The Los Angeles-South Coast Air Basin nonattainment area included the entirety of Orange County, the southwestern portion of Los Angeles County, the southwest portion of San Bernardino County, and the western portion of Riverside County (see Map 6 in Appendix 1). In 2004, the western part of the Santa Rosa Cahuilla areas of Indian country in the southwestern portion of Riverside County were designated with the Los Angeles-South Coast Air Basin nonattainment area, while the eastern portion of the Santa Rosa Cahuilla areas of Indian country were designated as part of the Riverside County (Coachella Valley) nonattainment area. Consistent with current EPA policy that discourages splitting contiguous areas of Indian country between two separate nonattainment areas where practically possible, the Santa Rosa Cahuilla areas of Indian country, including those portions that were previously part of the existing Los Angeles-South Coast Air Basin nonattainment area, are being designated as part of the Riverside County (Coachella Valley) 2008 ozone NAAQS nonattainment area.

The Torres Martinez Desert Cahuilla Indians (Torrez Martinez) is a federally recognized tribe that has non-contiguous areas of Indian country in both Riverside County and Imperial County. These portions of Indian country and the surrounding nonattainment areas are shown on Map 9a in Appendix 2. Due to the non-contiguous nature of these lands, the portions of Torres Martinez in Riverside County are being designated as part of the Riverside County (Coachella Valley) nonattainment area. See the technical analysis for the Imperial County 2008 ozone NAAQS nonattainment area for discussion of the portions of Torres Martinez in Imperial County.

The Twenty-Nine Palms Band of Mission Indians of California (Twenty-Nine Palms) is a federally recognized tribe that has non-contiguous areas of Indian country in both Riverside County and San Bernardino County. These portions of Indian country and the surrounding nonattainment areas are

shown on Map 9a in Appendix 2. Due to the non-contiguous nature of these lands, the portions of Twenty-Nine Palms in Riverside County are being designated as part of the Riverside County (Coachella Valley) 2008 ozone NAAQS nonattainment area. See the technical analysis for the Los Angeles-San Bernardino Counties (West Mojave Desert) nonattainment area for discussion of the portions of Torres Martinez in San Bernardino County.

Consistent with the nonattainment boundaries for the 1997 ozone standard, Morongo Band of Cahuilla Mission Indians lands is being included as part of the Los Angeles-South Coast Air Basin 2008 ozone NAAQS nonattainment area. See the technical analysis for the Los Angeles-South Coast Air Basin nonattainment area for further discussion.

Conclusion

Based on the assessment of factors described above, EPA is designating Riverside County (Coachella Valley), CA nonattainment because the area violates the 2008 ozone NAAQS.

The Clean Air Act requires EPA to designate any area as nonattainment if it violates a NAAQS or if it contributes to a violation in a nearby area. Air quality data (Factor 1) show that monitors within the Salton Sea Air Basin portion of Riverside County are violating the 2008 8-hour ozone standard based on 2008-2010 data. Therefore, Factor 1 supports designating the Salton Sea Air Basin portion of Riverside County as nonattainment.

Evaluation of emissions and emission sources (Factor 2) shows that sources of ozone precursor emissions are concentrated on the western side of Riverside County, which EPA is designating nonattainment as part of the Los Angeles-South Coast Air Basin nonattainment area. The central, Salton Sea Air Basin, portion of Riverside County is distinguished from the western (South Coast Air Basin) portion by its lower design values, fewer stationary sources and population centers, and lower volumes of non-truck traffic. Therefore, Factor 2 supports the state's recommendation.

Meteorology and weather or transport patterns (Factor 3) and geography and topography (Factor 4) show that within Riverside County, Coachella Valley is distinguished by mountain ranges to the east and west. The only topographical link of Coachella Valley to other parts of southern California are the Banning Pass to the northwest, with the Los Angeles-South Coast Air Basin nonattainment area on the west side of the pass, and to the south, the remainder of the Salton Sea Air Basin, comprising all of Imperial County. Consistent with the state's recommendation, EPA is designating these areas as separate nonattainment areas.

In considering jurisdictional boundaries (Factor 5), EPA notes that the boundary for the Riverside County (Coachella Valley) nonattainment area is the same as the 1997 8-hour ozone nonattainment boundary and the state's recommended boundary, and is under the jurisdiction of SCAQMD, but in a separate air basin from the Los Angeles-South Coast area.

EPA agrees with the state's recommendation and is designating Riverside County (Coachella Valley) in California and areas of Indian country in Riverside County (Coachella Valley) as "nonattainment" for the 2008 ozone NAAQS as part of the Riverside County (Coachella Valley) multi-jurisdictional nonattainment area.

EPA's boundary for Coachella Valley also includes six tribes' areas of Indian country: the Agua Caliente Band of Cahuilla Indians of the Agua Caliente Indian Reservation, the Augustine Band of

Cahuilla Indians, and the Cabazon Band of Mission Indians areas of Indian country are located wholly within the Riverside County (Coachella Valley) nonattainment area. Three other tribes have land within different nonattainment area boundaries. Where practically possible, current EPA policy discourages splitting contiguous areas of Indian country between two separate nonattainment areas. For the Santa Rosa Band of Cahuilla Indians, EPA is designating all portions, specifically including those areas of Indian country previously included in the Los Angeles-South Coast Air Basin nonattainment area and areas of Indian country within Coachella Valley, as part of the Riverside County (Coachella Valley) nonattainment area. However, due to the nature of the non-contiguous lands of Torres Martinez (in Riverside and Imperial counties) and Twenty-Nine Palms (in Riverside and San Bernardino counties), EPA is designating only the areas of Indian country of Torres Martinez and Twenty-Nine Palms located in Riverside County as part of the Riverside County (Coachella Valley), CA ozone nonattainment area.