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Continued Item: No

Board Agenda Item

TO: Air Pollution Control District Board

FROM: Aeron Arlin Genet, Air Pollution Control Officer

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SUBJECT: Nonattainment-Transitional Ozone Plan Review

RECOMMENDATION:

Receive a report on Santa Barbara County's attainment status for State ozone standards and potential revisions to the District's 2016 Ozone Plan rule adoption schedule.

DISCUSSION:

The California Clean Air Act of 1988 established air quality planning requirements for regions that did not meet state ambient air quality standards. The Santa Barbara County Air Pollution Control District (District) was classified as a moderate nonattainment area for the state ozone standard at that time, and prepared its first Air Quality Attainment Plan in 1991. Ozone is not directly emitted to the atmosphere; it is formed through complex chemical reactions involving precursor pollutants (reactive organic compounds, or ROC, and nitrogen oxides, or NOx) in the presence of heat and sunlight. The District's 1991 Air Quality Attainment Plan included a comprehensive evaluation of the sources of emissions, projections of emissions into the future, and a suite of measures that were designed to reduce ROC and NOx emissions from a variety of sources, including stationary and mobile sources, both onshore and offshore of Santa Barbara County. As required by state law, the 1991 Air Quality Attainment Plan has been updated on a triennial basis. The 2016 Ozone Plan was the most recent update.

If a nonattainment district has three or fewer exceedances of ozone standards during two consecutive years, it will be designated nonattainment-transitional. The designation of nonattainment-transitional is described in the California Clean Air Act, as codified in California Health & Safety Code (HSC) Section 40925.5. Nonattainment-transitional Districts are required

to re-evaluate their planned control measure schedule before adopting any of the measures identified in the plan.

When development of the 2016 Ozone plan began in late 2015, there had only been two exceedances of the state 8-hour ozone standard in 2015. The 2016 Ozone plan committed the District to re-evaluating the plan's control measure schedule if low ozone concentrations continued through 2016 and the District was designated nonattainment-transitional. At the end of 2016, state ozone standards had only been exceeded on three days, so the District is now in the process of being designated nonattainment-transitional and must re-evaluate the 2016 Ozone Plan's control measure schedule.

Ozone Concentrations:

Figure 1 below demonstrates the long-term downward trend in ozone levels at all of the monitoring sites in Santa Barbara County, from 1990 to 2016. In 2015, two 8-hour exceedance days occurred, and in 2016, three 8-hour exceedance days occurred, leading to the change in designation from nonattainment to nonattainment-transitional.

Figure 1: 8-hour and 1-hour Ozone Exceedance Trends

Santa Barbara County, 1990-2016

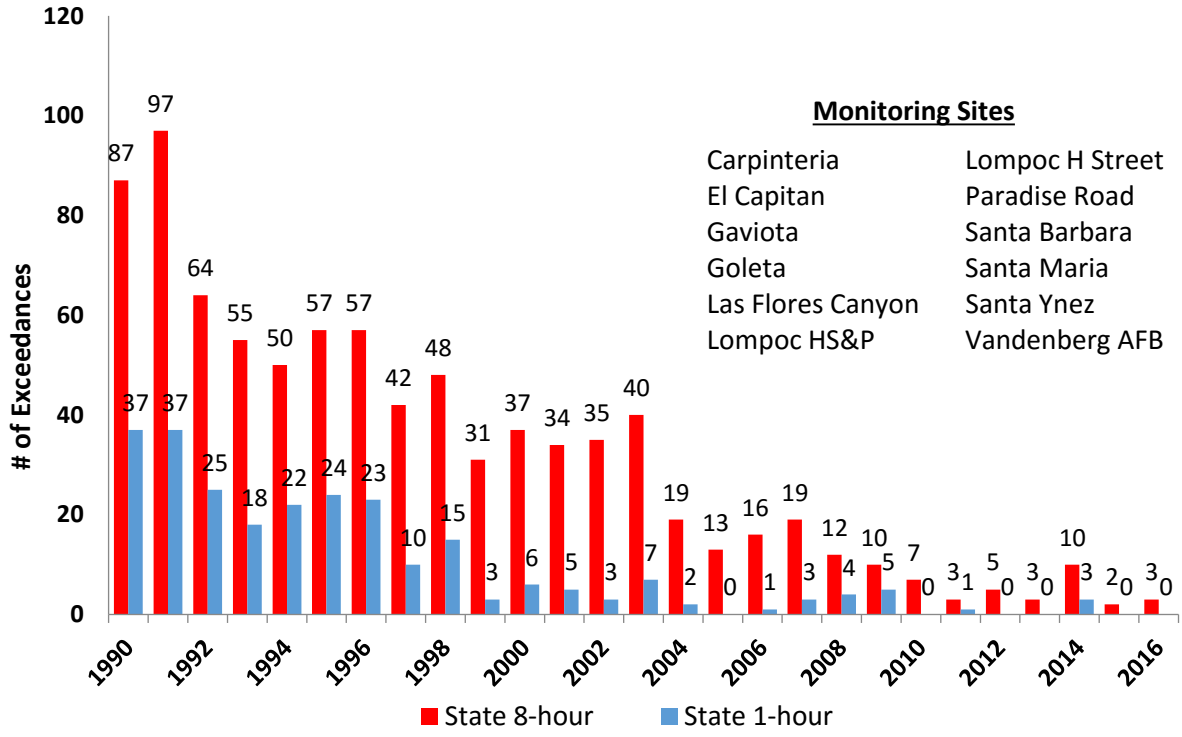

Table 1 shows the number of ozone exceedance days per year at each monitoring station.

Table 1: Santa Barbara County Exceedance Days and Locations, 2007-2016

	Number of Days > State 8-Hour Standard									
Monitor Location	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Las Flores Canyon	11	3	7	4	2	4	1	4	2	1
Paradise Road	9	2	5	6	3	2	2	1	0	1
Carpinteria	2	4	7	3	1	1	1	7	0	0
El Capitan	1	0	0	1	1	0	0	1	0	2
Vandenberg AFB	3	2	0	1	0	0	1	3	0	0
Santa Barbara	1	0	1	0	1	0	0	3	0	1
Goleta	0	0	1	0	1	0	0	3	0	1
Gaviota - Nojoqui	0	0	0	0	2	0	0	2	0	0
Santa Ynez	2	3	0	1	1	0	0	0	0	0
Lompoc HS&P	0	1	0	0	2	0	1	1	0	0
Lompoc H St.	0	1	0	0	0	0	0	1	0	0
Santa Maria	0	0	0	0	0	0	0	0	0	0
*Total Exceedance Days**	**19**	**12**	**10**	**7**	**3**	**5**	**3**	**10**	**2**	**3**

* *Total Exceedance Days* indicates the number of days within a year where an exceedance was measured in at least one monitoring location in Santa Barbara County.

Emission Inventory:

Table 2 includes the emission inventory for the 2016 Plan base year (2012), and forecast years 2025 and 2035. This inventory includes sources that are within our air district's regulatory control (stationary sources), as well as sources that are generally outside of our local control (area-wide sources and mobile sources). Data for the 2016 Plan emission inventory was compiled by both the air district (for regulated stationary sources as well as some area-wide sources) and the California Air Resources Board (ARB, for some area-wide sources and mobile sources). In order to ascertain the "growth" in emissions over time, growth profiles were developed and were applied to the 2012 base year data to project future year emissions. Also, in order to adjust for the emission reductions that are expected to occur due to existing regulations being implemented over time, control profiles were developed and were applied to the base year data to project future year emission decreases. These growth and control profiles do not estimate emission reductions from any new regulations which may be adopted between now and 2035.

Table 2: ROC and NOx Emission Forecasts (Tons per Day) [1]

Source Category	2012		2025		2035	
	ROC	NOx	ROC	NOx	ROC	NOx
Stationary Sources	11.51	5.35	11.90	5.15	13.59	5.25
Area-wide Sources	12.62	0.46	11.09	0.30	11.44	0.27
On-Road Vehicles	4.88	9.44	1.81	2.65	1.61	2.11
Other Mobile	3.22	6.83	2.18	4.51	1.93	3.83
Marine Shipping	2.13	49.50	4.14	39.36	6.09	36.24
Total	**34.37**	**71.58**	**32.06**	**51.96**	**35.67**	**47.69**

Planning Requirements:

Once a district is designated nonattainment-transitional, HSC Section 40925.5 requires the district to determine whether the stationary source control measures scheduled for adoption or implementation within the next three years are needed to accomplish expeditious attainment. When making this determination, the following factors should be considered:

- Effect of adopted and proposed motor vehicle controls,
- Effect of adopted and proposed area source controls,
- Turnover of the vehicle fleet,
- Impact of measures previously adopted by the district which are in the process of being implemented,
- Impact of measures previously adopted by the state board which are in the process of being implemented,
- Impact of measures previously adopted by the EPA which are in the process of being implemented, and
- Other significant factors that influence emission trends.

By applying both the growth profiles and the control profiles described above to the inventory data to estimate future year emissions, and using the best available emission estimates for mobile sources provided by ARB in consultation with EPA, this inventory reflects all of the changes in emissions that are anticipated due to adopted control measures.

HSC Section 40925.5 also requires consideration of proposed motor vehicle and area source controls. The District is aware of a wide variety of State proposals (both regulatory and voluntary/incentive-based) that would reduce mobile and area source emissions of ozone precursors. For example, expanding infrastructure for zero emission vehicles, reducing "vehicle miles traveled" (VMT), reducing greenhouse gas emissions at residential, commercial, industrial, municipal and agricultural sources, improving energy efficiency, or increasing the use of renewable energy.

Reductions due to proposed measures were not quantified in the 2016 Ozone Plan emission inventory and future year projections. Since proposed measures may or may not be adopted, and their exact impacts would depend on their final form, any quantification of reductions at this time

[1] Includes emissions occurring both onshore and in the Outer Continental Shelf (OCS).

would be speculative, however most proposed measures would further reduce both NOx and ROC emissions.

Stationary Source Control Measures Included in the 2016 Ozone Plan:

The 2016 Ozone Plan identified six different stationary source control measures that were considered feasible and cost-effective to implement during the 3-year plan period, 2017 to 2019. These stationary source control measures focus on achieving both NOx reductions and ROC reductions by promoting the use of ultra-low NOx burners and low-ROC solvents.

Table 3: Implementation Schedule in the Adopted 2016 Ozone Plan

Rule	Description	2016 Plan Adoption Schedule	2016 Plan Emission Reductions, Tons/Day (Tons/Year)	
			ROC	NO_X
360	**Boilers, Water Heaters, and Process Heaters (0.075 - 2 MMBtu/hr)** Revisions to reduce the NOx limits to 20 ppmv at 3% oxygen for newly installed natural gas fired units.	2017	-	0.05 (19.8)
361	**Boilers, Steam Generators, and Process Heaters (2 - 5 MMBtu/hr)** Revisions to reduce the NOx limits to 9 or 12 ppmv at 3% oxygen for newly installed natural gas fired units. Higher limits for other fuels.	2017	-	0.03 (10.42)
342	**Boilers, Steam Generators, and Process Heaters (5+ MMBtu/hr)** Revisions to reduce the NOx limits to 9 or 15 ppmv at 3% oxygen for newly installed natural gas fired units. Higher limits for other fuels.	2017	-	0.02 (6.36)
321	**Solvent Cleaning Machines and Solvent Cleaning** Revisions to lower the general cleaning ROC limit from 50 grams per liter to 25 g/L.	2018	0.02 (6.35)	-
351	**Surface Coating of Wood Products** Revisions to include solvent cleaning provisions at 25 g/L.	2018	0.001 (0.42)	-
354	**Graphic Arts** Revisions to include solvent cleaning provisions at 25 – 100 g/L and additional requirements for Rotogravure, Flexographic, Lithographic, Letterpress, and Screen Printing operations. Existing facilities would have to be permitted to enforce the rule.	2019	0.27 (98.21)	-
		Totals:	**0.29 (104.98)**	**0.10 (36.58)**

Public Process:

On February 8, 2017 staff met with the Community Advisory Council (CAC) during a public meeting to discuss the District's nonattainment-transitional status and receive input from the CAC. The implementation schedule was re-evaluated to determine whether revisions are necessary. The CAC received a presentation, and then discussed a range of options that included:

Option 1: Retain the control measure implementation schedule identified in the 2016 Ozone Plan,

Option 2: Proceed with the implementation schedule for the NOx control measures (i.e., Rule 360, 361, 342) to further control boilers, water heaters, steam generators, process heaters, and similar equipment, and move the ROC control measures (i.e., Rules 321, 351, 354) for solvents and graphic arts equipment to "contingency measures",

Option 3: Proceed with the implementation schedule for two NOx control measures (i.e., Rule 360 and 361) to control small and medium sized boilers, water heaters, and process heaters and one ROC control measure (i.e., Rule 321) for solvent usage. Move the adoption dates for NOx control rule (i.e., Rule 342) for large boilers, steam generators, and process heaters plus two ROC control rules (i.e., Rule 351 and 354) for solvents and graphic arts equipment to 2020, and

Option 4: Move all of the control measures in the plan to "contingency measures".

Under all of these options, any measure moved to "contingency measures" would not be implemented in the next three years and the District would then re-evaluate the implementation schedule during the 2019 Ozone Plan update.

The district recommended Option 2, implementing the NOx control measures and shifting the ROC control measures to contingency measures. This recommendation was based on the following:

- Air quality modeling has shown that reducing NOx emissions is critical to reducing ozone concentrations.
- Although we are not able to determine the precise amount of emission reductions needed to achieve attainment, we believe that additional reductions of NOx emissions will help to ensure that we eventually achieve attainment of the state ozone standards.
- Implementing cost-effective control measures is aligned with our mission to protect public health.
- The NOx control measures have been revised in such a way as to minimize their economic impact on businesses.
- The NOx control measures, by design, involve long-term investments in cleaner combustion technology, and ensure that the anticipated emission reductions will continue to occur for long periods of time (in most cases, for decades).

- Although we are aware of state proposals to implement measures that would reduce mobile and area-wide ozone precursors, there are no assurances that the proposals will be implemented.
- The federal ozone standard, although it differs from the state standard in how designations are determined, is now set at the same level as the state standard. Moving forward with feasible, cost-effective NOx control measures would help avoid a situation where both the state and the federal ozone standard are exceeded in the future.

After considering the options, the CAC recommended by a vote of 16 to 3 to recommend the APCD Board proceed with the staff recommended Option 2.

At this date, the District's official status as "nonattainment-transitional" has not been published by the Office of Administrative Law. Once published, staff will return to your Board to take action on the 2016 Ozone Plan control measure implementation schedule.