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Technical Support Document for Detroit-Ann Arbor, Michigan
September 2004

1.0 Summary

On July 15, 2004 Steven Chester, Michigan Department of Environmental Quality (MDEQ) Director and Governor's designee, submitted a request to reclassify Detroit-Ann Arbor (Southeast Michigan) from Moderate ozone nonattainment to Marginal ozone nonattainment. The Southeast Michigan Council of Governments (SEMCoG)is the lead local planning agency for the Detroit-Ann Arbor area. MDEQ and SEMCoG worked jointly to prepare the reclassification request. A subsequent submittal supplying additional information was made on September 10, 2004.

The petition is based on the area's Moderate design value of 97 ppb which can be rounded to 5% of the maximum Marginal design value as allowed by the Clean Air Act. Also, MDEQ and SEMCoG have committed to identify and implement control measures that will help the Detroit-Ann Arbor reach attainment by the Marginal deadline of June 15, 2007.

EPA has reviewed this request and believes the area should be reclassified as Marginal ozone nonattainment.

2.0 Introduction

This section describes the statutory provisions and EPA guidance regarding reclassification of ozone nonattainment areas. Sections 181(a)(4) and 182(b)(3) of the Clean Air Act provide that areas may be reclassified under certain circumstances. This technical support document addresses the provisions of section 181(a)(4) and a specific request for reclassifications received by the State of Michigan. The EPA has not received any requests for reclassification under section 182(b)(3) for the 8-hour ozone standard.[1]

Under section 181(a)(4), an ozone nonattainment area may be reclassified "if an area classified under paragraph (1) (Table 1) would have been classified in another category if the design value in the area were 5 percent greater or 5 percent less than the level on which such classification was based." In the April 30, 2004 notice, we indicated that an area with a moderate design value of 96 ppb (or less) would be eligible to request a bump down because five percent less than 96 ppb is 91 ppb, a marginal

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[1]Section 182(b)(3) specifies that EPA would approve any request from a State to reclassify to a higher classification.

design value.

In their petition, Michigan requested EPA to use a rounding convention that would allow the "5 percent" calculation to be a factor of up to 5.49 percent. After reviewing the methodology for handling of percentages in EPA's "Guideline on Data Handling Conventions For the 8-Hour Ozone NAAQS" (December 1998), EPA believes values up to 5.4% are acceptable for the bump down calculation. The Guideline indicates percent values are rounded up for the purpose of determining data completeness (specifically the Guideline states, 74.5% is 75% and 89.5 is 90%). Since there is nothing in the Guideline to suggest this percentage rounding convention is inappropriate for other calculations involving ambient air quality data, EPA believes it is acceptable for the bump down calculation. Using 0.054 as 5% and 97 ppb (moderate) as the design value, then (0.054) * 97 = 91.8, which is a marginal value. Thus, the area is eligible to request a bump down.

The EPA previously described criteria to implement the section 181(a)(4) provisions in a final rule designating and classifying areas published on November 6, 1991 (56 FR 56698). As stated in that notice, the provisions of section 181(a)(4) set out general criteria and grant the Administrator broad discretion in making or determining not to make, a reclassification. As part of the 1991 action, EPA developed more specific criteria to evaluate whether it is appropriate to reclassify a particular area. The EPA also described these criteria in the April 30, 2004 final rule. The general and specific criteria are as follows:

> General: The EPA may consider the number of exceedances of the national primary ambient air quality standard for ozone in the area, the level of pollution transport between the area and other affected areas, including both intrastate and interstate transport, and the mix of sources and air pollutants in the area.
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> Request by State: The EPA does not intend to exercise its authority to bump down areas on EPA's own initiative. Rather, EPA intends to rely on the State to submit a request for a bump down. A Tribe may also submit such a request and, in the case of a multi-state nonattainment area, all affected States must submit the reclassification request.
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> Discontinuity: A five percent reclassification must not result in an illogical or excessive discontinuity relative to surrounding areas. In particular, in light of the area-wide nature of ozone formation, a reclassification should

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not create a "donut hole" where an area of one classification is surrounded by areas of higher classification.

Attainment: Evidence should be available that the proposed area would be able to attain by the earlier date specified by the lower classification in the case of a bump down.

Emissions reductions: Evidence should be available that the area would be very likely to achieve the appropriate total percent emission reduction necessary in order to attain in the shorter time period for a bump down.

Trends: Near- and long-term trends in emissions and air quality should support a reclassification. Historical air quality data should indicate substantial air quality improvement for a bump down. Growth projections and emission trends should support a bump down. In addition, we will consider whether vehicle miles traveled and other indicators of emissions are increasing at higher than normal rates.

Years of data: For the 8-hour ozone standard, the 2001-2003 period is central to determining classification. Data from 2004 may be used to corroborate a bump down request but should not be the sole foundation for the bump down request.

Limitations on Bump Downs
An area may only be reclassified to the next lower classification. An area cannot present data from other years as justification to be reclassified to an even lower classification. In addition, section 181(a)(4) does not permit moving areas from subpart 2 into subpart 1.

In 1991, EPA approved reclassifications when the area met the first requirement (a request by the State to EPA) and at least some of the other criteria and did not violate any of the criteria (emissions, reductions, trends, etc.). In our April 30, 2004 final rule on designations and classifications, we stated our intention to use this method and these criteria once again to evaluate reclassification requests under section 181(a)(4), with minor changes described in that notice. In that notice we also described how we applied these criteria in 1991. For additional information, see section 5, "Areas requesting a 5% downshift per §181(a)(4) and EPA's response to those requests," of the Technical Support Document, October 1991, for the 1991 rule. [Docket A-90-42A.]

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EPA is not basing this reclassification determination on consideration of whether the nonattainment area being reclassified does or does not cause any pollution transport. The EPA is presently addressing ozone pollution transport issues throughout the eastern part of the United States under other Clean Air Act provisions. Specifically, EPA has proposed a determination that emissions from certain states contribute significantly to downwind nonattainment for ozone under CAA section 110(a)(2)(D) through the Clean Air Interstate Rule (CAIR). The CAIR proposal, published in a Federal Register notice dated January 30, 2004, would require upwind States to eliminate emissions that contribute significantly to nonattainment in downwind States. 69 Fed. Reg. 454566. The EPA previously issued the NOx SIP call (63 FR 57356) to address interstate ozone transport. In the event of any intrastate transport issue, states have the obligation to develop attainment SIPs for each area that show timely attainment, and can address any intrastate transport issues in that context.

The April 30, 2004 notice invited States to submit the reclassification requests within 30 days of the effective date of the designations and classifications. The effective date was June 15 which means that reclassification requests were to be submitted by July 15, 2004. This relatively short time frame is necessary because section 181(a)(4) only authorizes the Administrator to make such reclassifications within 90 days after the initial classification, September 15, 2004.

3.0 Background

EPA designated this area as Moderate due to high 8-hour values (design value is 97 ppb) and 1-hour values (126 ppb).

4.0 Reclassification Request by State

The State argues that the Detroit-Ann Arbor area should receive a reclassification from Moderate to Marginal.

In their submittal, MDEQ points out that the ozone episode that occurred in June 2003 was an anomalous event that drastically affected the 2001-2003 design value. But for the irregularly high values from one day, June 25, 2003, the design value for 2001-2003 would be 92 ppb instead of 97 ppb.

The demonstration is based, in part, on a commitment from MDEQ and SEMCoG to augment already existing control programs to obtain emission reductions necessary to reach attainment by the Marginal classification attainment deadline of June 15, 2007. MDEQ and

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SEMCoG have committed to a schedule that will identify appropriate controls by June 2005. These phase-in of the selected control measures will be implemented in the Detroit-Ann Arbor area beginning in 2006.

5.0 EPA Review of the Reclassification Request

5.1 Request by State

The request was submitted by Steven Chester, Director of Michigan Department of Environmental Quality. The MDEQ Director is the Governor's designee.

5.2 Discontinuity

If the Detroit-Ann Arbor area is reclassified from Moderate to Marginal, this will not result in a discontinuity or "donut hole." All adjacent nonattainment areas to the Detroit-Ann Arbor area are Subpart 1 nonattainment.

5.3 Attainment

The Lake Michigan Air Directors Consortium (LADCo)used modeling results performed to support the 1-hour ozone attainment demonstration for the Lake Michigan area and applied 8-hour ozone metrics. This modeling conducted by LADCo indicates that the Detroit-Ann Arbor area may be very close to attainment (85 ppb) in 2007. However, as noted in Michigan's petition, the LADCO subregional modeling was designed to assess 1-hour ozone and, as such, there are some limitations with using it to assess 8-hour ozone. For example, the episodes and modeling domain were selected for the Lake Michigan region and may not accurately represent other cities in the modeling domain, such as Detroit. On the other hand, it should be noted that three of the four modeled episodes are representative periods for high 8-hour ozone and basecase model performance for 8-hour ozone was found to be as good as (or better than) that for 1-hour ozone (page 7 of the IDEM & LADCo July 2004 "Photochemical Modeling Analysis of 8-Hour Ozone for LaPorte County").

Additional, regional scale, CAIR modeling (January 2004 proposal) indicates the area will be in attainment (84 ppb) by 2010. The CAIR modeling, however, was not designed to provide results for years prior to 2010.

In summary, EPA believes the LADCo and CAIR modeling analyses are not conclusive with respect to the area's attainment status in 2007. Although neither analysis is as comprehensive an

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assessment as would be expected with a SIP attainment demonstration, they do provide support for a decision to reclassify the area. Both modeling analyses indicate air quality will be improving over the next several years. Further decreases can be expected once MDEQ and SEMCoG have selected control measures for the area and these measures are implemented.

5.4 Emissions Reductions

Emissions reductions are already occurring in various sectors throughout the area.

On-Road Mobile Sources: VOC and NOx will decline by 40% and 37%, respectively, between 2002 and 2007, even after accounting for increasing levels of travel. This trend will continue to 2010, reaching reductions of 54% for both pollutants.

Point Sources: Emissions of NOx from implementation of the SIP Call between 2000 and 2007 are estimated to be 288 tons per day.

Additionally, MDEQ and SEMCoG have committed to evaluating a list of measures including:

- vehicle inspection and maintenance
- lower emitting fuels
- degreasing
- architectural and industrial maintenance coatings
- consumer/commercial products
- tighter VOC RACT rules
- gas can replacement

After an analysis, MDEQ and SEMCoG will choose what measures will be implemented and the phase-in of these controls will begin in 2006. The addition of these controls to the already occurring reductions will help the area reach attainment by the Marginal deadline of June 15, 2007.

5.5 Trends

While a long-term trends analysis for the Detroit-Ann Arbor area does not show a declining trend in ozone values, that can be attributed to the abnormally high values experienced in the area in June 2003. The maximum concentration in 2004, to date, is 83 ppb, which may mark the beginning of at least a short term air quality trend downward. It can be expected that ozone values will decrease due to the implementation of various rules such as the NOx SIP Call, Tier II/Low Sulfur, Heavy Duty Diesel Engine

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standards/low sulfur diesel,[2] and other national rules. This decrease will only be accentuated by the additional controls that have been committed to by the State and local governments.

5.6 Years of Data

The design value being used a 2001-2003 value and it is 97 ppb.

5.7 Additional Information

MDEQ and SEMCoG have committed to a schedule that expedites review and selection of control measures sooner than required under any other classification scenario, whether Moderate, Marginal or Subpart 1. The process for choosing appropriate control measures for the area will be completed by June 2005. MDEQ and SEMCoG have also committed to begin the phase-in of these controls in 2006.

5.8 Conclusions

The following factors support the request for downward revision to the 8-hour ozone classification for Detroit-Ann Arbor area: the design value of 97 ppb meets our criteria to qualify for consideration of bump down, local and regional modeling analyses indicate air quality will be improving over the next several years, regional and national regulations will continue this trend in lowering ambient ozone values, and the State and local agencies responsible for air quality planning have committed to an aggressive schedule to identify and implement controls that will help the area attain by 2007.

5.9 EPA Action

The request meets certain criteria EPA established (request, discontinuity, emission reductions, and data) and does not violate any of the criteria (attainment and trends). Therefore, EPA is approving the reclassification request for the Detroit-Ann Arbor area.

6.0 Additional Information

Additional information regarding the bump down request for this area is contained in the docket for this action. This

[2]Engine manufacturers will have flexibility to meet the new standards through a phase-in approach between 2007 and 2010. The fuel provision will go into effect in June 2006 and will be phased-in through 2009

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information includes the State request, supporting documents, and other necessary material.

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