Appendix F – Additional New Jersey Specific Information Concerning the Transport of Lead

The USEPA recognizes that ambient lead concentrations are higher near known sources of lead emissions. Larger particles will deposit from the air quickly and travel short distances compared to smaller particles that are transported over longer distances.[1] In 2011, the USEPA acknowledged that it would be rare for a source's lead emissions to contribute significantly to another state's nonattainment or interfere with the maintenance of the lead NAAQS in another state.[2]

New Jersey has taken a number of actions to address sources of lead within the State. New Jersey's federally approved SIP measures are listed in 40 C.F.R. Part 52, Subpart FF. In New Jersey's 1985 SIP revision for the attainment and maintenance of the 1978 lead standard, the control strategy process for identifying and controlling lead emissions at new or modified and existing sources is outlined.[3] New Jersey's rules that affect lead emissions or can contribute toward maintaining the lead NAAQS are N.J.A.C. 7:27-4, 5, 6, 8, 11 (and 7:26-10.7), 15, 18, 19, and 20.

The control measures implemented in New Jersey address its contributions to downwind areas, ensuring that its sources' emissions do not interfere with the attainment or maintenance of the lead NAAQS or measures that prevent significant deterioration and protect visibility in another state. New Jersey will continue to identify sources of lead and reduce their emissions under its control strategy assessment process.

In order to address the federal requirements for the lead NAAQS, New Jersey utilizes a weight-of-evidence approach, using the best data available, as presented in its designation recommendations submitted to the USEPA on October 15, 2009.[4] The USEPA recommended that states could rely upon the technical data used to support initial area designations for lead to support its conclusions of its analysis for these requirements.[5] Additional technical information for New Jersey's recommendation of attainment was submitted to the USEPA on November 23, 2009.[6] The technical information and the USEPA's response to the State's recommendations are utilized in this proposed SIP revision as evidence that New Jersey does not significantly contribute to a nonattainment area or interferes with the maintenance of the lead NAAQS in another state.

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[1] 73 Fed. Reg. 66971 (November 12, 2008).

[2] USEPA Memorandum from Stephen D. Page, Director, Office of Air Quality Planning and Standards, to Regional Air Directors, "Guidance on State Implementation Plan (SIP) Elements Required Under Sections 110(a)(1) and (2) for the 2008 Lead (Pb) National Ambient Air Quality Standards (NAAQS)," October 14, 2011, page 8.

[3] NJDEP. New Jersey State Implementation Plan for the Attainment and Maintenance of the National Ambient Air Quality Standards for Lead. New Jersey Department of Environmental Protection, April 1985.

[4] Letter dated October 15, 2009 from NJDEP Acting Commissioner Mark N. Mauriello to USEPA Region II Acting Administrator George Pavlou.

[5] Ibid. 2, page 8.

[6] Letter dated November 23, 2009 from NJDEP Air Director Bill O'Sullivan to USEPA Region II Chief Ray Werner.

Most importantly, there are no lead sources in New Jersey with emissions greater than 0.5 tons per year (tpy) that are impacting nearby areas. This conclusion is based on the following:

Main sources of lead in New Jersey have been eliminated, including gasoline

Atmospheric lead originates primarily as a product of fossil fuel combustion. Sources also include lead smelting and manufacturing of batteries and of tetramethyl and tetraethyl lead.[7] These sources are usually located in industrial zones and are classified as point sources. The major point sources of lead in New Jersey have been shut down. The extensive sampling, testing, and mitigation plans of these sources was described in New Jersey's existing lead SIP.[8]

Area sources, on the other hand, are distributed more uniformly throughout the environment. Until the 1980's, the major source of environmental lead exposure was automotive emissions. With the federal phase-out program for lead in gasoline, the significance of vehicular lead emissions is no longer the primary concern. The federal regulations of fuels and fuel additives, along with the necessity for using unleaded gasoline in automobiles equipped with catalytic converters, have proven effective in reducing exposure to atmospheric lead. However, lead is still used in aviation gasoline for piston-engine aircraft.[9]

New Jersey has no sources above the 0.5 tpy or 1.0 tpy monitoring thresholds

The USEPA defines a point source of lead as any stationary source whose actual emissions are 5.0 or more tpy of lead or lead compounds measured as elemental lead.[10] Under 40 C.F.R. 51.117, "The point source inventory on which the summary of the baseline for lead emissions inventory is based must contain all sources that emit 0.5 or more tons of lead per year." In 2010, the USEPA revised the lead emission rate at which monitoring is required for lead sources to 0.5 tpy.[11] The USEPA retained the 1.0 tpy emission threshold for airport facilities and is requiring a monitoring study at 15 airports (none in New Jersey) with lead emission inventories of 0.50 to 1.0 tpy that they identified as having characteristics that may cause or contribute to concentrations that approach or exceed the lead NAAQS. New Jersey's point source and airport facility inventory estimates of lead emissions are below the current monitoring threshold requirements, with one exception discussed next, as documented in the State's 2009 initial area designations.[12]

New Jersey's only source above the 0.5 tpy threshold in 2008 was below the threshold in 2009 and 2010

As outlined in the State's emissions inventory in the initial area designations for the lead NAAQS, the Covanta Essex County Resource Recovery Facility (RRF), a solid waste

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[7] Ibid. 2
[8] 40 C.F.R. 52.1570(c) (last revised 1987 for lead).
[9] USEPA. Aircraft - Nonroad Engines, Equipment, and Vehicles. United States Environmental Protection Agency, http://www.epa.gov/otaq/aviation.htm, July 27, 2011.
[10] 40 C.F.R. 50.100(k)(ii)(2).
[11] 75 Fed. Reg. 81126 (December 27, 2010).
[12] Ibid. 6, Attachment 2

combustor facility, was the highest emitting point source for lead emissions.[13] According to the most recent stack testing, the Covanta facility's lead emissions are below 0.5 tpy. The table below shows the lead emissions reported to the State from 2011 back to 2005.

In addition, the NJDEP recently installed 1 lead monitor at the Newark Firehouse station, and confirmed that the lead emissions of the Covanta Essex County RRF meet the 0.50 tpy criteria.[14] The table below shows the latest emissions of lead from the Covanta facility.

Lead Emissions for Covanta Essex County RRF, 2005-2011*

Year	Emissions (tons per year)
2011	0.35
2010	0.17
2009	0.37
2008	0.85
2007	0.71
2006	0.81
2005	0.61

*Emissions reported to New Jersey's Emission Statement Program

The lead emissions for the years 2009 through 2011 are below the levels (0.5 tpy) that would require ambient air monitoring.

Adjacent and downwind monitors are below the standard for lead

Ambient air monitors in New York and Pennsylvania, which are within New Jersey's shared Combined Statistical Areas (CSAs), are reporting lead concentrations significantly below the NAAQS. Monitoring data for the other states are outlined in New Jersey's 2009 initial area designations.[15] The USEPA did not designate any nonattainment areas in the surrounding nearby areas for the revised lead NAAQS, nor were any nonattainment areas designated in New Jersey.[16] Orange County, New York, which borders Sussex and Passaic counties in Northern

[13] Ibid. 6, Attachment 2
[14] Ambient Air Network Monitoring Plan 2011. New Jersey Department of Environmental Protection, Bureau of Air Quality Monitoring, June 2011. http://www.njaqinow.net/
[15] Ibid. 3
[16] USEPA. Area Designations for 2008 Lead Standards, State Designations. http://www.epa.gov/leaddesignations/2008standards/state.html. Refer to Regions 2 and 3 for the USEPA response letters to New York and Pennsylvania.

New Jersey, was designated "unclassifiable" based upon preliminary 2011 air monitoring data (AQS ID 36-071-3002) indicating a possible violation of the NAAQS in 2008.[17] The New York State Department of Environmental Conservation (NYSDEC) had originally concluded in its 2009 designations analysis that the 2006-2008 air monitoring data at monitors nearby the lead source, Revere Smelting and Refining Corporation, met the NAAQS.[18] The USEPA has not finished the process of designating the nonattainment area surrounding this facility.

The USEPA suggests lead sources with emissions less than 0.5 tpy or greater than 2 miles from a state border generally do not impact a neighboring state by significantly contributing to its nonattainment or interfering with its maintenance of the lead NAAQS.[19] The areas designated by the USEPA as nonattainment in Bucks County, Pennsylvania (Lyons and North Reading)[20] are greater than 2 miles from New Jersey. The closest area, Lyons Nonattainment Area, is approximately 40 miles from the state border but New Jersey analyzed these areas to ensure that their impact was negligible. Based upon the technical analyses by the Pennsylvania Department of Environmental Protection (PADEP) and the USEPA, two distinct areas within Berks County were designated as nonattainment (75 Fed. Reg. 71033, November 22, 2010) due to source-specific lead emissions.[21,22] These facilities were modeled and the data did not support designating any areas to the east. The table below is a summary of the evidence supporting the nonattainment area designations.

Summary Data to Support "Nearby" Nonattainment Areas in Pennsylvania

Designated Area	Nonattainment County	Nonattainment Townships/ Boroughs	Facility >1.0 tpy	2007 Pb Emissions (tpy)	Air Monitor DV ($\mu g/m^3$)
Lyons	Berks (p)	Maxatawny, Richmond, Lyons,	East Penn	2.59	0.22

[17] USEPA. Preliminary Federal Register Notice: Air Quality Designations for the 2008 Lead (Pb) National Ambient Air Quality Standards. http://www.epa.gov/leaddesignations/2008standards/regs.html, November 8, 2011.
[18] Letter dated October 15, 2009 from NYSDEC Assistant Commissioner J. Jared Snyder to USEPA Acting Administrator George Pavlou. (New York's Initial Lead Designation Recommendation)
[19] Ibid. 2, page 8.
[20] USEPA, 2008 Lead Standards - Region 3 Initial Nonattainment Designations, http://www.epa.gov/leaddesignations/2008standards/rec/region3R.html.
[21] PADEP, Designation Recommendations for the 2008 Lead National Ambient Air Quality Standard. Pennsylvania Department of Environmental Protection, December 2009.
[22] USEPA. Technical Support Document - Pennsylvania Area Designations for the 2008 Lead National Ambient Air Quality Standard. United States Environmental Protection Agency, June 2010.

		Kutztown			
North Reading	Berks (p)	Muhlenberg, Laureldale, Alsace	Exide	1.47	0.38

*p=partial, DV=Design Value 2007-2009

All lead monitors measuring concentrations below the 1.5 μg/m^3 lead NAAQS were shutdown in New Jersey

Lead concentrations in New Jersey were so low compared to the 1.5 μg/m^3 NAAQS that many of the monitoring sites were discontinued. New Jersey's lead monitoring location in New Brunswick was discontinued in 2008, after the shutdown of New Jersey's primary lead stationary source, Delco Remy, a battery manufacturer, on February 20, 2007. Historical monitoring data and the 2006-2008 ambient air lead monitoring data for New Jersey are discussed in detail in the 2009 initial area designations.[23] A CBSA population oriented monitor was recently added to a firehouse in Newark, NJ.

[23] Ibid. 6, Attachment 2