MEMORANDUM

To: Eric Goehl, Elineth Torres, Brian Shrager, and Larry Sorrels, EPA/OAQPS

From: Brian Palmer, Eastern Research Group, Inc.

Date: May 2019

Subject: Documentation of the cost savings analysis for the proposed rulemaking "Reclassification of Major Sources as Area Sources Under Section 112 of the Clean Air Act."

The purpose of this memorandum is to document the cost savings analysis of the proposed rulemaking titled "Reclassification of Major Sources as Area Sources under Section 112 of Clean Air Act (also known as Major MACT to Area [MM2A] rule). The proposal would implement the plain language reading of the "major source" and "area source" definitions of section 112 of the Clean Air Act (CAA) allowing major sources to reclassify to area source status after the first substantive compliance date of a major source maximum achievable control technology (MACT) standard if the source takes an enforceable limit on its potential to emit (PTE) hazardous air pollutant (HAP) emissions to below the major source thresholds (*i.e.*, 10 tons per year (tpy) of any single HAP or 25 tpy of any combination of HAP).

This memo presents the procedures EPA followed to estimate the potential cost savings as a result of this policy change and the results of that analysis.

Estimating The Number of Facilities Per Source Category and The Fraction That Could Obtain Area Source Status

The EPA's analysis of illustrative cost impacts from removal of the Once In, Always In (OIAI) policy[1] began with review of the emissions data for the 114 source categories subject to major source National Emission standards for Hazardous Air Pollutants (NESHAP) under 40 CFR part 63. The EPA used data from a variety of information sources to estimate individual HAP and total HAP emissions for the 114 source categories. The U.S. EPA used data from risk and technology review (RTR) modeling files to estimate individual HAP and total HAP emissions for individual facilities in 65 source categories (see Table 1). These 65 source categories are those for which the RTR modeling file had been completed (by mid-2018) and for which EPA expected that some facilities might be able to reclassify as area sources and for which EPA identified a reason, such as potential cost savings, that the facilities might be interested in reclassification.[2]

[1] In 1995, EPA issued a memorandum on the "Potential to Emit for MACT Standards – Guidance on Timing Issues" (1995 Seitz Memorandum). Per the 1995 memo any facility subject to major source standards would always remain subject to those standards unless the source reduced its potential to emit (PTE) below major source thresholds before the first substantive compliance date of a MACT standard. This position was commonly known as the "once in, always in" (OIAI) policy.

[2] For each RTR facility, EPA compared source category total HAP emission data from the RTR modeling file with 2014 NEI V2 whole facility HAP emissions. To represent whole facility total HAP emissions for this analysis, EPA choose the higher value of the two.

We identified six source categories for which RTR modeling files were completed that would not be impacted by the change in policy: Decorative Chromium Electroplating, Hard Chromium Electroplating, Other Chromium Electroplating, Secondary Lead, Wool Fiberglass, and Portland Cement. For these sources categories, all facilities were estimated to be well over the major source emission thresholds, or they were subject to NESHAP that regulated major and area sources to essentially the same standard.

Table 1. Source Categories for Which EPA Has Completed RTR Modeling Files

Acetal Resins
Aerospace - federal government owned
Aerospace - privately owned
AMF (Acrylic/Modacrylic Fibers)
Asphalt Processing and Roofing (2 Source Categories)
Auto and Light Duty Truck
Ethylene
Fabric
Ferroalloys
Flexible Foam Production
Friction
GMACT-HF
HCl Production
Integrated Iron and Steel
Large Appliances
Leather
Marine Vessel Loading
Metal Can
Metal Coil
Metal Furniture
Mineral Wool
Misc. Metal Parts
Miscellaneous Coating Manufacturing
Miscellaneous Organics NESHAP
Nutritional Yeast
Organic Liquids Distribution
OSWRO
P&R I (7 Source Categories)
P&R II (2 Source Categories)
P&R III
P&R IV (5 Source Categories)
PAI (Pesticide Active Ingredient Production)
PEPO (Polyether Polyols Production)

Pharmaceuticals
Phosphate Fertilizer
Phosphoric Acid
Plastic Parts
Polycarbonates
POTW
Primary Aluminum
Primary Lead-facility closed
Printing and Publishing
Pulp and Paper Combustion Sources
Refineries (2 Source Categories)
Secondary Aluminum
Shipbuilding
Steel Pickling
Turbines
Vegetable Oil
Wet Formed Fiberglass Mat
Wood Building Products
Wood Furniture

For each of these source categories, the EPA used the modeling file to estimate the total number of major source facilities in the source category, and the number of facilities that would qualify as area sources at the following emission thresholds, based on whole facility HAP emissions:

- 50% of the major source thresholds (5 tpy of a single HAP or 12.5 tpy of all combined HAP);
- 75% of the major source thresholds (7.5 tpy of a single HAP or 18.75 tpy of all combined HAP); and
- 125% of the major source thresholds (12.5 tpy of a single HAP or 31.25 tpy of all combined HAP).

These emissions thresholds represent alternative scenarios employed in the cost savings analysis. We chose three alternative scenarios to adhere to U.S. Office of Management and Budget (OMB) guidance in Circular A-4, which is guidance for analysis of economically significant rulemakings (defined in Executive Order 12866) such as this one. While different thresholds, either higher or lower, could be evaluated, the EPA selected the 75% threshold as the primary scenario in this analysis considering that facilities strive to maintain a reasonable compliance margin when

meeting various types of standards, and while the major source thresholds are not "standards," the concept is the same.[3]

The primary 75% threshold scenario assumes that sources that could potentially reclassify are those whose actual reported HAP emissions are at or below 75% of the major source thresholds (7.5 tpy for a single HAP and 18.75 tpy for all HAP). The alternative 50% threshold scenario assumes that sources that could potentially reclassify are those whose actual reported HAP emissions are at or below 50% of the major source thresholds (5 tpy of a single HAP or 12.5 tpy of all combined HAP). The alternative 125% threshold scenario assumes that sources that could potentially reclassify are those whose actual reported HAP emissions are at or below 125% of the major source thresholds (12.5 tpy of a single HAP or 31.25 tpy of all combined HAP). The alternative 125% threshold scenario differs from the other two alternative scenarios in that facilities with emissions at major source levels would have reduce their actual HAP emissions in order to reclassify. The sources in this alternative scenario would consider the cost associated with reducing emissions below the major source thresholds against the avoided costs associated with no longer having to comply with the major source NESHAP administrative requirements when deciding whether to pursue reclassification. We examine this cost consideration in our analysis of the illustrative 125% threshold scenario as applied to several source categories. This analysis can be found in the RIA for the proposal.[4]

For the remaining source categories (Table 2) the EPA estimated the number of facilities in each source category through a query of the EPA Enforcement and Compliance History Online (ECHO) database. For each source category, the EPA selected operating facilities that were major sources and were subject to each of the listed MACT subparts (40 CFR part 63 NESHAP). There are 33 source categories listed in Table 2.

Table 2. Source categories for which the number of facilities was estimated from the ECHO database.

Boat Manufacturing
Brick and Structural Clay Products Manufacturing
Carbon Black (GMACT II)
Cellulose Products Manufacturing
Clay Ceramics Manufacturing
Coke Ovens: Charging, Top Side, and Door Leaks
Coke Ovens: Pushing, Quenching, & Battery Stacks

[3] We also evaluated, to the extent possible, the types of sources that have begun the process of reclassification after January 2018. We reviewed permit actions related to 34 sources that have reclassified to area source status or are in the process of reclassifying as of March 2019. We had 2014 NEI emission data for 25 sources of the 34 sources. Our evaluation shows that 22 sources had actual emissions below the major source thresholds; 20 of those 22 sources had actual emissions below 75% of the major source thresholds. The analysis of these reclassifications can be found in the emission analysis technical support memorandum in the docket of this rulemaking.

[4] U.S. EPA. Memorandum from Larry Sorrels, U.S. EPA to EPA Docket No. EPA-HQ-OAR-2019-0282. "Analysis of Illustrative 125% Scenario for MM2A Proposal – Potential Cost Impacts from HAP Major Sources Reducing Emissions as part of Reclassifying to HAP Area Sources." May 22,2019.

Cyanide Chemicals (GMACT II)
Engine Test Cells/Stands
Flexible Foam Fabrication
Gasoline Distribution (Stage 1)
Hazardous Organic NESHAP
Industrial Cooling Towers
Iron and Steel Foundries (Major Sources)
Lime Manufacturing
Magnetic Tape
Mercury Cell Chlor-Alkali Plants
Municipal Solid Waste Landfills
Paper and Other Web Coating
Plywood and Composite Wood Products
Primary Copper
Primary Magnesium Refining
Pulp & Paper (non-combust) MACT
PVC
Reciprocating Internal Combustion Engines (RICE) includes area sources
Refractory Products Manufacturing
Reinforced Plastic Composites Production
Rubber Tire Manufacturing
Semiconductor Manufacturing
Site Remediation
Spandex (GMACT II)
Taconite Iron Ore Processing
Utility NESHAP

The EPA made the following exceptions to the procedure of solely using the ECHO database for estimating the number of major source facilities:

- Industrial process cooling towers: See separate discussion.
- Magnetic tape: EPA project lead confirmed that there are no facilities in the category that are major sources; no further analysis was needed.
- Mercury cell chlor-alkali plants: The search in ECHO indicated seven facilities, but the EPA project lead confirmed that there is only one facility in the category that is a major source because this process is being phased out.
- Primary magnesium: The EPA project lead confirmed that there is only one facility in the category that is a major source and it is not projected to become an area source.
- Reciprocating Internal Combustion Engines (RICE): See separate discussion.

To estimate the number of facilities in the source categories listed in Table 2 that would be likely to reclassify as area sources, the EPA used the North American Industry Classification System (NAICS) primary codes for each source category listed in Tables 1 and 2. In general, the EPA

grouped the source categories in Table 1 at the 3-digit NAICS code and then determined the weighted average fraction of facilities in that 3-digit NAICS code that would be able to reclassify to area source status. We then applied that same fraction to the source categories in Table 2 sharing the same 3-digit NAICS code from Table 1. In some cases, the category in Table 2 matched a category in Table 1 at the 4-, 5-, or 6-digit NAICS code, and the fraction for these were used instead.

The EPA made the following exceptions to the procedure of using matching NAICS codes for estimating the number of facilities that would be likely to obtain area source status:

- Brick and Structural Clay Products Manufacturing: Existing source compliance date is December 26, 2018, so existing sources in this source category are not affected by the change in the once in always in policy. Facilities that have achieved area source status will not have to comply.
- Cellulose Products Manufacturing: The EPA project lead confirmed none were projected to obtain area source status.
- Coke Ovens: Charging, Top Side, and Door Leaks: The EPA project lead confirmed none were projected to obtain area source status.
- Coke Ovens: Pushing, Quenching, & Battery Stacks: The EPA project lead confirmed none were projected to obtain area source status.
- Engine Test Cells/Stands: Primary NAICS is 333120; because there are no other categories beginning with 333, we used the weighted average for other NAICS starting with 336 for extrapolation because most of the facilities in ECHO are in NAICS that begin with 336.
- Gasoline Distribution (Stage 1): Primary NAICS is 324110; instead of matching to Asphalt and Refineries (both have NAICS 324110), this category was matched to Natural Gas Transmission (486210), Turbines (486210), and Organic Liquids Distribution (493110) because they are more comparable source categories. Facilities with the same NAICS (324110) as refineries (46) were removed from the facility count from ECHO (233) because their cost savings would be included in any cost savings estimated for the Refineries category. In other words, 233-46=187 facilities are separately subject to this NESHAP.
- Industrial process cooling towers: Nearly all 286 facilities with an industrial process cooling tower are subject to another NESHAP because these are not standalone emission sources and they are present to cool another industrial process subject to another NESHAP. Cost savings are estimated only for those 27 facilities that could not be associated with another NESHAP based on the NAICS codes reported for the facility in ECHO.
- Iron and Steel Foundries: Industry indicated that while some facilities might be able to change status, they are not moving quickly due to uncertainty. Industry also indicated that facilities close to the thresholds would probably not change status. However, for this analysis, EPA still assumed that the estimated fraction would obtain area source status.

- Natural Gas Transmission and Storage: The number of major sources was based on the number of major source facilities in ECHO. The number of facilities that could obtain area source status was based on the fraction projected for Natural Gas Turbines, which shares the same 6-digit NAICS code.
- Oil and Gas Production: The number of major source facilities was based on the number of major source facilities in ECHO that could be matched to the RTR modeling file that were also estimated to be major sources. Both data sources were believed to overestimate the number of major sources, so the facilities for which they were in agreement were assumed to be major sources for the purposes of this analysis only. The number that were estimated to obtain area source status was based on the overall fraction of facilities in all categories for which there are RTR modeling files and which could obtain area source status, which is 52.9%.
- Reciprocating Internal Combustion Engines (RICE): These engines are located at facilities that are major sources, but the engines are not the reason the facility is a major source. Any costs or savings associated with switching to area source status associated with these engines, including the cost of obtaining area source permits, would be absorbed in the costs and savings associated with the other major source NESHAP to which the facility is subject. Although we calculated costs for these engines for Year 1, they were not included in the totals for this analysis. No cost savings were estimated for year 2 because the same subpart also regulates these engines that are located at area sources, and the requirements are nearly identical for major and area sources, so there is no difference in burden.
- Semiconductor Manufacturing: Primary NAICS is 334413; because there are no other categories beginning with 334, we used the weighted average for all other categories with NAICS starting with "33."
- Taconite Iron Ore Processing: Primary NAICS is 212210; because there are no other categories beginning with 212, we used the weighted average for other iron and steel industries. The EPA project lead confirmed none were projected to obtain area source status.
- Utility Boilers: No facilities were assumed to obtain area source status and no cost savings were estimated because there is no distinction in the regulatory requirements between major and area source utility boilers.

Projected Costs (Savings) Per Source Category

For the source categories for which the EPA had developed RTR modeling files:

A cost of $4,968[5] for 75 labor hours was assumed per facility, regardless of source category, for the cost the facility would incur to apply for and obtain an area source or synthetic minor permit to replace their major source operating permit under the CAA Title V permitting program.

[5] Permitting related costs were estimated using the Synthetic minor NSR permit ICR available at https://www.reginfo.gov/public/do/PRAViewICR?ref_nbr=201702-2060-005 and the cost for an administrative amendment for the title V ICR available at https://www.reginfo.gov/public/do/PRAViewICR?ref_nbr=201506-2060-003. (Both accessed on December 7, 2018)

- Minor NSR Permit: 67 hours for a cost of $4,438.08.
- Rescinding title V permit: 8 hours for a cost of $529.92.

A cost of $3,046 for 55 labor hours was assumed per facility, regardless of source category, for the cost the state permitting agency would incur to process the applications and issue the area source or synthetic minor permit to replace their major source operating permits.

- Minor NSR Permit: 50 hours for a cost of $2,769.00.
- Rescinding title V permit: 5 hours for a cost of $276.90.

For each source category, the EPA reviewed the supporting statement in the most recent OMB-approved information collection request (ICR) for the average labor cost per facility for the compliance requirements for the major source NESHAP regulating that source category. Capital costs of equipment were considered to be sunk costs and were not included in the cost savings estimates. The ICRs the EPA reviewed are listed in Appendix 1.

The projected cost savings per source category is the product of the number of facilities expected to obtain area source status multiplied by the average cost per facility from the ICR supporting statement.

For the compliance cost for facilities after they obtain area source status, the EPA used the burden estimated for area source NESHAP for comparable source categories. If no comparable area source rule was available for a major source category, the average area source cost per existing facility ($2,108) was used as a default, and represents the burden associated with complying with limits on the facility's potential to emit. The average was developed from the costs for Chemical Manufacturing Area Sources (CMAS, subpart VVVVVV), Nine Metal Fabrication and Finishing Area Source Categories (subpart XXXXXX), Acrylic and Modacrylic Fibers (AMF, subpart LLLLLL), Flexible Polyurethane Foam Production and Fabrication (OOOOOO), Gasoline Distribution MACT and GACT (subparts BBBBBB and CCCCCC), Publicly Owned Treatment Works (POTW, subpart VVV), Secondary Aluminum (subpart RRR), and Wood Furniture (subpart JJ).

The EPA selected 2014 as the cost year for this analysis because it is the year for which most of the emissions data were taken that were used in this analysis (2014 NEI). Not all source categories used 2014 data in their RTR modeling files, but 2014 was the year most representative of the emissions used in the cost and emissions analyses. The value used for each source category is included in Table 3.

Table 3. Estimated Compliance Cost Per Facility After They Obtain Area Source Status.

Source Category	Applied Cost for Area Source Compliance: per Existing Source (2014$)	Source of Area Source Cost Estimate
Acetal Resins	$ 1,973	CMAS

Aerospace - Privately Owned	$ 619	Subpart XXXXXX
Aerospace - federal government owned	$ 619	Subpart XXXXXX
AMF	$ 949	AMF
Asphalt	$ 2,108	Average
Auto and Light Duty Truck	$ 2,108	Average
Ethylene	$ 2,108	Average
Fabric	$ 2,108	Average
Ferroalloys	$ 2,108	Average
Flexible Foam Production	$ 498	Flexible Foam Production
Friction	$ 2,108	Average
GMACT-HF	$ 2,108	Average
HCl Production	$ 2,108	Average
Integrated Iron and Steel	$ 2,108	Average
Large Appliances	$ 619	Subpart XXXXXX
Leather	$ 2,108	Average
Marine Vessel Loading	$ 2,108	Average
Metal Can	$ 619	Subpart XXXXXX
Metal Coil	$ 619	Subpart XXXXXX
Metal Furniture	$ 619	Subpart XXXXXX
Mineral Wool	$ 2,108	Average
Miscellaneous Coating Manufacturing	$ 1,973	CMAS
Misc. Metal Parts	$ 2,108	Average
Miscellaneous Organics NESHAP	$ 1,973	CMAS
Natural Gas Transmission	$ 2,108	Average
Nutritional Yeast	$ 2,108	Average
Oil and Gas	$ 2,108	Average
Organic Liquids Distribution	$ 5,967	Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities (subpart BBBBBB), Gasoline Dispensing Facilities (subpart CCCCCC)
OSWRO	$ 2,108	Average
P&R I (7 Source Categories)	$ 1,973	CMAS
P&R II (2 Source Categories)	$ 1,973	CMAS
P&R III	$ 1,973	CMAS
P&R IV (5 Source Categories)	$ 1,973	CMAS
PAI	$ 1,973	CMAS
PEPO	$ 1,973	CMAS
Pharmaceuticals	$ 1,973	CMAS

Phosphate Fertilizer	$ 2,108	Average
Phosphoric Acid	$ 2,108	Average
Plastic Parts	$ 2,108	Average
Polycarbonates	$ 1,973	CMAS
POTW	$ 61	POTW
Primary Aluminum	$ 2,108	Average
Primary Lead-facility closed	$ 2,108	Average
Printing and Publishing	$ 2,108	Average
Pulp and Paper Combustion Sources	$ 2,108	Average
Refineries (2 Source Categories)	$ 2,108	Average
Secondary Aluminum	$ 5,447	Secondary Aluminum
Shipbuilding	$ 2,108	Average
Steel Pickling	$ 2,108	Average
Turbines	$ 2,108	Average
Vegetable Oil	$ 2,108	Average
Wet Formed Fiberglass Mat	$ 2,108	Average
Wood Building Products	$ 2,108	Average
Wood Furniture	$ 1,351	Wood Furniture[6]

For oil and natural gas production, the EPA used a value of $477 for the area source rule burden that was specific to that source category.

For natural gas transmission, the EPA used the average area source rule burden value of $2,108.

The estimated cost of the area source requirements is the product of the number of facilities expected to obtain area source status multiplied by the estimated area source rule burden for that source category.

The projected illustrative net costs (or savings) in the first year after major source facilities obtain area source status is the sum of the permitting costs to the facilities, the permitting costs to the state agencies, the projected annual costs savings from not having to comply with the major source rule, and the estimated costs of the area source rule requirements. The permitting cost to the facilities and the permitting costs to the state agencies are one-time costs and occur only in year 1. That is, they are the cost for each facility to apply for and obtain an area source or synthetic minor permit, and for the state agencies to review and approve those permit applications and issue the permits.

The projected illustrative net costs (or savings) in the second year after major source facilities obtain area source status is the sum of the projected annual costs savings from not having to

[6] The Wood Furniture NESHAP (40 CFR subpart JJ) applies to major sources and there is no separate rule for area sources. However, subpart JJ includes minimal recordkeeping requirement for sources to demonstrate that they are not major sources, but they are not subject to any emission reduction requirements. The estimated annual cost is $1,351 per facility, based on the information collection request supporting statement.

comply with the major source rule, and the estimated costs of the area source rule requirements. These projected savings are expected to continue each year beyond the second year for there is no time specified for review of this action under the Clean Air Act. The permitting costs to the facilities and the permitting costs to the state agencies are not included in the second year because it is assumed the permitting changes are all completed in the first year and no action is needed in the second year.[7]

The projected net illustrative costs for the first and second year do not include potential changes in HAP control technology costs, such as for operating and maintenance. That is, potential changes in HAP control technology costs as a result of this policy change are not captured in this analysis. A characterization of potential changes in HAP control technology costs that may be associated with this policy change can be found in the cost considerations memo for the illustrative analysis of the 125% scenario.

The results of the analysis for the source categories for which the EPA had developed RTR modeling data files are included in Appendix 2.

The following four sections describe the specific approach used for four different groups of source categories that were treated slightly differently for the reasons explained below:

- Source categories for which the EPA had not yet developed RTR modeling files;
- Reciprocating Internal Combustion Engines (RICE);
- Industrial Process Cooling Towers; and
- Industrial, Commercial, And Institutional Boilers and Process Heaters.

The results of the analysis for each group of source categories in Appendices 2-4 of this memo are presented as the total results for each of the three alternative scenarios analyzed.

Source categories for which the EPA had not yet developed RTR modeling files:

For each source category for which EPA did not have an RTR modeling file, we summed the projected cost savings in year 1 for the source categories with RTR data that were matched by NAICS code to the category being evaluated. This was then divided by the number of facilities in the matching NAICS code to obtain the average cost savings in year 1 per facility. The same was done for the costs savings in year 2. These were then multiplied by the estimated number of facilities that would obtain area source status in each of the categories for which EPA did not have RTR data to determine the cost savings for each category.

The EPA used this approach for all source categories except the source categories for industrial process cooling towers and for reciprocating internal combustion engines. The approach for these two source categories is discussed in the next two sections.

[7] This analysis also does not account for savings from facilities no longer having to pay emissions-based fees for part 70 (Title V) permit programs.

Reciprocating Internal Combustion Engines (RICE)

The EPA developed a list of facilities in the Reciprocating Internal Combustion Engine (RICE) source category by downloading from ECHO the data for major source facilities subject to 40 CFR 63, subpart ZZZZ, the NESHAP for Reciprocating Internal Combustion Engines.

Using the NAICS code for each facility from ECHO, the list of facilities was grouped so we had a count of the number of facilities at the 3-digit NAICS code.

For each 3-digit NAICS, we used the faction of sources that were estimated to obtain area source status from the source categories for which the EPA had RTR data. If there was no match, then a default value based on all NAICS was used.

For each 3-digit NAICS code, we then estimated the number of facilities that would obtain area source status.

Because subpart ZZZZ regulates both major and area sources and the compliance requirements are similar for RICE at major and area sources, we assumed no cost savings for RICE located at major source facilities that obtain area source status. Although it is expected that these facilities would see some savings, we do not currently have enough detailed data to quantify those savings. However, costs were estimated for year 1 to obtain area source permits as a facility permit cost and a state permit cost. No costs or savings were estimated for year 2. The results of the analysis for the reciprocating internal combustion engines are included in Appendix 3 with the other source categories for which the EPA did not have RTR modeling data files.

Industrial Process Cooling Towers

The EPA developed a list of facilities with industrial process cooling towers by downloading data from ECHO for major source facilities subject to 40 CFR subpart Q NESHAP for Industrial Process Cooling Towers. Nearly all 286 facilities in ECHO with an industrial process cooling tower are subject to another NESHAP because these are not standalone emission sources and they are present to cool another industrial process subject to another NESHAP.

The EPA matched almost all facilities at the 6-digit NAICS code to the NAICS code associated with another major source NESHAP. For these facilities, the EPA assumed that any cost savings would be reflected in the cost savings associated with the primary NESHAP and there would be no separate cost savings for just the process cooling tower.

Only 27 facilities could not be associated with another NESHAP based on the 6-digit NAICS code reported for the facility in ECHO. For these 27 facilities, we estimated the fraction that would be expected to obtain area source status based on the 3-digit NAICS code, matched to those source categories for which the EPA had RTR data.

The costs savings in years 1 and 2, per facility, were assumed to be the same as the average per facility for those for which the EPA had RTR data. These were used to estimate the total cost savings for the 27 facilities with process cooling towers that could not be matched to another NESHAP based on their 6-digit NAICS.

However, two of the 27 facilities could not be matched to a 3-digit NAICS for which EPA had RTR data. These were both universities and these are not likely to actually be major sources of HAP. No cost savings were estimated for these two facilities. The results of the analysis for the 27 industrial process cooling towers not associated with another major source NESHAP are included in Appendix 3 with the other source categories for which the EPA did not have RTR modeling data files.

Industrial, Commercial, And Institutional Boilers and Process Heaters

The EPA developed a list of facilities in the Industrial, Commercial, And Institutional Boilers and Process Heaters (ICI Boilers) source category by downloading from ECHO the data for major source facilities subject to 40 CFR 63, subpart DDDDD, the NESHAP for Industrial, Commercial, And Institutional Boilers and Process Heaters. From these downloaded data, we removed facilities that were identified as actually being in the electricity generating unit (EGU) source category and also ICI boilers that had switched to natural gas, because these two classes of boilers would not be subject to subpart DDDDD.

Using the NAICS code for each facility from ECHO, the list of remaining facilities was grouped so we had a count of the number of facilities at the 3-digit and 6-digit NAICS code.

We then estimated the number of facilities in each NAICS code that would be in the following facility type categories using the percentages provided in parentheses:

- Large solid-fueled or liquid-fueled units (11% of facilities)
- Small solid-fueled or liquid-fueled units (3% of facilities)
- Only have large gas-fueled units (33% of facilities)
- Only have small gas-fueled units (53% of facilities)

The fractions are from the information collection request (the recordkeeping and reporting burden estimate) for subpart DDDDD.

For each 3-digit NAICS, we used the faction of sources that were estimated to obtain area source status from the source categories for which the EPA had RTR data. If there was no match, then a default value based on all NAICS was used.

For each facility type and 3-digit NAICS combination, we then estimated the number of facilities that would obtain area source status.

For each facility type, the subpart DDDDD ICR estimated current operation and maintenance costs to comply per facility. The ICR for the area source rule, subpart JJJJJJ, NESHAP for Industrial, Commercial, and Institutional Boilers at Area Sources, provided the new operation and maintenance costs for facilities that obtain area source status. The difference in these two costs was the annual cost savings for the facilities that obtain area source status.

We also estimated the permitting costs for the facilities and the states in year 1. The projected cost savings in year 1 was the sum of the annual cost savings and the permitting costs.

The projected cost savings in year 2 was the cost difference for facilities that could obtain area source status between complying with subpart DDDDD and subpart JJJJJJ.

The results of the analysis for the industrial, commercial, and institutional boilers are included in Appendix 4.

Sources of Uncertainty in The Analyses

The number of facilities subject to each NESHAP: The number of facilities in each source category subject to each NESHAP is dependent on assignments for each facility to each NESHAP made by the state agency submitting those data to the NEI. We have not reviewed the operating permit for each facility or contacted the facility to confirm the NESHAP to which each facility is subject. In reviewing permits for facilities in certain categories as part of the RTR analyses, we have found some errors in assignments. These errors would be expected to lead to over-reporting the number of sources in some categories and under-reporting them in others.

The RTR Emissions Datasets: Although the development of the RTR emissions datasets involved quality assurance/quality control processes, the accuracy of emissions values will vary depending on the source of the data, the degree to which data are incomplete or missing, the degree to which assumptions made to complete the datasets are accurate, errors in emission estimates, and other factors. The emission estimates considered in this analysis generally are annual totals for certain years, and they do not reflect variations from year to year. Therefore, the estimate of the number of facilities that could obtain area source status is based on a single year's emission estimate for each facility. A facility would most likely base their decision to reclassify on future projected emissions for several years in the future instead of a single year of emissions data.

Predicting facility behavior: A major assumption in estimating potential cost savings is that all major sources in each source category that can reclassify to an area source will do so subject to limits on HAP potential to emit (PTE). It is possible that major sources may choose not to reclassify because the cost savings may not be a sufficient incentive to do so, or for other reasons. For example, facilities that have already made substantial investments in controls or process changes needed to comply may choose to retain major source status to maintain flexibility to allow for future increases in production. This uncertainty affects the number of facilities that would obtain area source status.

Compliance cost estimates for major and area sources: The current and future compliance costs are based on compliance costs estimated to fulfill Paperwork Reduction Act requirements (44 U.S.C. § 3501 et seq.). Those costs are estimated for each major source subpart for a typical facility using the estimate of hours needed to complete monitoring, recordkeeping, and reporting activities, and other capital and operation and maintenance costs. These estimates are subject to public review and comment, but they are not the actual costs for each facility. The estimated compliance costs after facilities obtain area source status were based on the average estimated compliance costs for a relatively small number of area source rules. Each major source rule does not have a corresponding area source rule, so the average area source rule cost may not be representative of the actual compliance cost for all source categories.

Appendix 1. List of Information Collection Requests (ICRs) Used for Estimating Projected Costs (Savings) Per Source Category
Supporting Statement, NESHAP for Source Categories: Generic Maximum Achievable Control Technology Standards for Acetal Resin; Acrylic and Modacrylic Fiber; Hydrogen Fluoride and Polycarbonate Production (40 CFR Part 63, Subpart YY) (Renewal) U.S. EPA, July 27, 2015
Supporting Statement, NESHAP for Aerospace Manufacturing and Rework Facilities (40 CFR Part 63, Subpart GG) (Renewal) U.S. EPA, October 28, 2016
Supporting Statement, NESHAP for Asphalt Processing and Asphalt Roofing Manufacturing (40 CFR Part 63, Subpart LLLLL) (Renewal) U.S. EPA, September 11, 2015
Supporting Statement, NESHAP for Automobile and Light-duty Truck Surface Coating (40 CFR Part 63, Subpart IIII) (Renewal) U.S. EPA, September 8, 2016
Supporting Statement, NESHAP for Printing, Coating and Dyeing of Fabrics and Other Textiles (40 CFR Part 63, Subpart OOOO) (Renewal) U.S. EPA, September 10, 2015
Supporting Statement, NESHAP for Ferroalloys Production: Ferromanganese and Silicomanganese (40 CFR Part 63, Subpart XXX) (Renewal) U.S. EPA, April 17, 2015
Supporting Statement, NESHAP for Flexible Polyurethane Foam Product (40 CFR Part 63, Subpart III) U.S. EPA, August 15, 2014
Supporting Statement, NESHAP for Friction Materials Manufacturing (40 CFR Part 63, Subpart QQQQQ) (Renewal) U.S. EPA, October 27, 2014
Supporting Statement, NESHAP for Carbon Black, Ethylene, Cyanide and Spandex (40 CFR Part 63, Subpart YY) (Renewal) U.S. EPA, March 17, 2015
Supporting Statement, NESHAP for Hydrochloric Acid Production (40 CFR Part 63, Subpart NNNNN) (Renewal) U.S. EPA, December 23, 2015
Supporting Statement, NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters (40 CFR Part 63, Subpart DDDDD) (Renewal) U.S. EPA, September 17, 2014.
Supporting Statement, NESHAP for Industrial, Commercial, and Institutional Boilers Area Sources (40 CFR Part 63, Subpart JJJJJJ) (Renewal) U.S. EPA, August 18, 2014
Supporting Statement, NESHAP for Integrated Iron and Steel Manufacturing Facilities (40 CFR Part 63, Subpart FFFFF) (Renewal) U.S. EPA, October 6, 2015
Supporting Statement, NESHAP for the Surface Coating of Large Household and Commercial Appliances (40 CFR Part 63, Subpart NNNN) (Renewal) U.S. EPA, September 14, 2015
Supporting Statement, NESHAP for Leather Finishing Operations (40 CFR Part 63, Subpart TTTT) (Renewal) U.S. EPA, December 1, 2015
Supporting Statement, NESHAP for Marine Tank Vessel Loading Operations (40 CFR Part 63, Subpart Y) (Renewal) U.S. EPA, July 28, 2014
Supporting Statement, NESHAP for Metal Can Manufacturing Surface Coating (40 CFR Part 63, Subpart KKKK) (Renewal) U.S. EPA, September 20, 2016
Supporting Statement, NESHAP for Metal Coil Surface Coating Plants (40 CFR Part 63, Subpart SSSS) (Renewal) U.S. EPA, March 17, 2015

Supporting Statement, NESHAP for Metal Furniture Surface Coating (40 CFR Part 63, Subpart RRRR) (Renewal) U.S. EPA, December 8, 2015
Supporting Statement, NESHAP for Mineral Wool Production (40 CFR Part 63, Subpart DDD) (Renewal) U.S. EPA, June 16, 2015
Supporting Statement, NESHAP for Miscellaneous Metal Parts and Products (40 CFR Part 63, Subpart MMMM) (Renewal) U.S. EPA, July 22, 2015
Supporting Statement, NESHAP for Natural Gas Transmission and Storage (40 CFR Part 63, Subpart HHH) (Renewal) U.S. EPA, April 17, 2015
Supporting Statement, NESHAP for Nutritional Yeast Manufacturing Residual Risk and Technology Review (40 CFR part 63, subpart CCCC), November 8, 2017
Supporting Statement, NESHAP for Oil and Natural Gas Production (40 CFR Part 63, Subpart HH) (Renewal) U.S. EPA, June 13, 2016
Supporting Statement, NESHAP for Off-Site Waste and Recovery Operations (40 CFR Part 63, Subpart DD) (Renewal) U.S. EPA, September 2, 2016
Supporting Statement, NESHAP for Group I Polymers and Resins (40 CFR Part 63, Subpart U) (Renewal) U.S. EPA, June 12, 2014
Supporting Statement, NESHAP for Epoxy Resin and Non-Nylon Polyamide Production (40 CFR Part 63, Subpart W) (Renewal) U.S. EPA, June 6, 2014
Supporting Statement, NESHAP for the Manufacture of Amino/Phenolic Resins (40 CFR Part 63, Subpart OOO) (Renewal) U.S. EPA, September 19, 2016
Supporting Statement, NESHAP for Group IV Polymers and Resins (40 CFR Part 63, Subpart JJJ) (Renewal) U.S. EPA, March 9, 2017
Supporting Statement, NESHAP for Pesticide Active Ingredient Production (40 CFR Part 63, Subpart MMM) (Renewal) U.S. EPA, June 24, 2015
Supporting Statement, NESHAP for Polyether Polyols Production (40 CFR Part 63, Subpart PPP) (Renewal) U.S. EPA, March 29, 2017
Supporting Statement, NESHAP for Pharmaceuticals Production (40 CFR Part 63, Subpart GGG) (Renewal) U.S. EPA, May 9, 2014
Supporting Statement, NESHAP for Phosphoric Acid Manufacturing and Phosphate Fertilizers Production (40 CFR Part 63, Subparts AA and BB) (Renewal) U.S. EPA, June 15, 2016
Supporting Statement, NESHAP for Plastic Parts and Products Surface Coating (40 CFR Part 63, Subpart PPPP) (RenewalU.S. EPA, May 3, 2016
Supporting Statement, Publicly Owned Treatment Works (40 CFR Part 63, Subpart VVV) U.S. EPA, October 11, 2017
Supporting Statement, NESHAP for Primary Aluminum Reduction Plants (40 CFR Part 63, Subpart LL) (Renewal) U.S. EPA, May 21, 2015
Supporting Statement, NESHAP for Primary Lead Smelters (40 CFR Part 63, Subpart TTT) (Renewal) U.S. EPA, February 20, 2015
Supporting Statement, NESHAP for Printing and Publishing Industry (40 CFR Part 63, Subpart KK) (Renewal) U.S. EPA, April 5, 2016

Supporting Statement, NESHAP for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills (40 CFR Part 63, Subpart MM) (Renewal) U.S. EPA, January 22, 2015
Supporting Statement, NESHAP for Petroleum Refineries (40 CFR Part 63, Subpart CC) (Renewal) U.S. EPA, March 11, 2016
Supporting Statement, NESHAP for Secondary Aluminum Production (40 CFR Part 63, Subpart RRR) (Renewal) U.S. EPA, December 23, 2015
Supporting Statement, NESHAP for Shipbuilding and Ship Repair Facilities - Surface Coating (40 CFR Part 63, Subpart II) (Renewal) U.S. EPA, February 18, 2015
Supporting Statement, NESHAP for Steel Pickling, HCl Process Facilities and Hydrochloric Acid Regeneration Plants (40 CFR Part 63, Subpart CCC) (Renewal) U.S. EPA, June 23, 2015
Supporting Statement, NESHAP for Stationary Combustion Turbines (40 CFR Part 63, Subpart YYYY) (Renewal) U.S. EPA, August 26, 2016
Supporting Statement, NESHAP for Solvent Extraction for Vegetable Oil Production (40 CFR Part 63, Subpart GGGG) (Renewal) U.S. EPA, December 15, 2017
Supporting Statement, NESHAP for Wet-Formed Fiberglass Mat Production (40 CFR Part 63, Subpart HHHH) (Renewal) U.S. EPA, December 1, 2015
Supporting Statement, NESHAP for the Wood Building Products Surface Coating Industry (40 CFR Part 63, Subpart QQQQ) (Renewal) U.S. EPA, December 23, 2015
Supporting Statement, NESHAP for Wood Furniture Manufacturing Operations (40 CFR Part 63, Subpart JJ) (Renewal) U.S. EPA, December 16, 2014
Supporting Statement, NSPS/NESHAP for Wool Fiberglass Insulation Manufacturing Plants (40 CFR Part 60, Subpart PPP and 40 CFR Part 63, Subpart NNN) (Renewal) U.S. EPA, May 16, 2016

Appendix 2: Source categories for which the EPA had RTR modeling data files.										
		50% of Major Source Threshold			75% of Major Source Threshold			125% of Major Source Threshold		
Category	Facilities in Category Subject to MACT	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1),$	Projected net costs (savings) (year 2),$	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $
Acetal Resins	3	0	$ -	$ -	0	$ -	$ -	0	$ -	$ -
Aerospace - federal government owned*	36	25	$(1,068,905)	$(1,269,255)	26	$(1,111,661)	$(1,320,025)	31	$(1,325,442)	$(1,573,876)
Aerospace - Privately Owned*	108	74	$(7,583,402)	$(8,176,438)	87	$(8,915,621)	$(9,612,839)	92	$(9,428,014)	$(10,165,302)
AMF (Acrylic/Modacrylic Fibers)	1	0	$ -	$ -	0	$ -	$ -	0	$ -	$ -
Asphalt (2 Source Categories)	8	0	$ -	$ -	0	$ -	$ -	1	$(39,508)	$(47,522)
Auto and Light Duty Truck	43	5	$(160,928)	$(200,998)	17	$(547,157)	$(683,395)	19	$(611,528)	$(763,794)
Ethylene	32	0	$ -	$ -	1	$(58,710)	$(66,724)	0	$ -	$ -
Fabric	43	17	$(89,912)	$(226,150)	25	$(132,224)	$(332,574)	29	$(153,380)	$(385,786)
Ferroalloys	2	0	$ -	$ -	0	$ -	$ -	0	$ -	$ -
Flexible Foam Production	12	12	$55,334	$(40,834)	12	$55,334	$(40,834)	12	$55,334	$(40,834)
Friction	2	0	$ -	$ -	1	$(21,482)	$(29,496)	0	$ -	$ -
GMACT-HF	2	0	$ -	$ -	0	$ -	$ -	0	$ -	$ -

Appendix 2: Source categories for which the EPA had RTR modeling data files.										
		50% of Major Source Threshold			75% of Major Source Threshold			125% of Major Source Threshold		
Category	Facilities in Category Subject to MACT	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1),$	Projected net costs (savings) (year 2),$	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $
HCl Production	19	3	$(362,737)	$(386,779)	3	$(362,737)	$(386,779)	5	$(604,562)	$(644,632)
Integrated Iron and Steel	11	0	$ -	$ -	0	$ -	$ -	0	$ -	$ -
Large Appliances	10	8	$(188,482)	$(252,594)	8	$(188,482)	$(252,594)	8	$(188,482)	$(252,594)
Leather	4	3	$20,571	$(3,471)	3	$20,571	$(3,471)	3	$20,571	$(3,471)
Marine Vessel Loading	152	68	$606,441	$ 61,489	75	$668,869	$67,819	91	$811,561	$82,287
Metal Can	5	1	$(31,367)	$(39,381)	1	$(31,367)	$(39,381)	3	$(94,102)	$(118,144)
Metal Coil	48	26	$(494,715)	$(703,079)	32	$(608,880)	$(865,328)	39	$(742,073)	$(1,054,619)
Metal Furniture	16	6	$(144,773)	$(192,857)	10	$(241,289)	$(321,429)	14	$(337,804)	$(450,000)
Mineral Wool	7	2	$(49,506)	$(65,534)	2	$(49,506)	$(65,534)	2	$(49,506)	$(65,534)
Misc. Metal Parts	371	215	$(7,686,550)	$(9,409,560)	285	$(10,189,148)	$(12,473,138)	316	$(11,297,442)	$(13,829,866)
Miscellaneous Coating Manufacturing	46	21	$(2,539,353)	$(2,707,647)	24	$(2,902,118)	$(3,094,454)	32	$(3,869,491)	$(4,125,939)
Miscellaneous Organics NESHAP	215	61	$(9,189,314)	$(9,678,168)	80	$(12,051,559)	$(12,692,679)	106	$(15,968,315)	$(16,817,799)
Nutritional Yeast	4	0	$ -	$ -	0	$ -	$ -	0	$ -	$ -

Appendix 2: Source categories for which the EPA had RTR modeling data files.

Category	Facilities in Category Subject to MACT	50% of Major Source Threshold			75% of Major Source Threshold			125% of Major Source Threshold		
		Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1),$	Projected net costs (savings) (year 2),$	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $
Organic Liquids Distribution	178	75	$(1,293,933)	$(1,894,983)	86	$(1,483,709)	$(2,172,913)	106	$(1,828,758)	$(2,678,242)
OSWRO	38	19	$(1,576,793)	$(1,729,059)	24	$(1,991,739)	$(2,184,075)	29	$(2,406,684)	$(2,639,090)
P&R I (7 Source Categories)	20	2	$18,207	$ 2,179	3	$27,311	$3,269	3	$27,311	$3,269
P&R II (2 Source Categories)	7	3	$(133,315)	$(157,357)	3	$(133,315)	$(157,357)	3	$(133,315)	$(157,357)
P&R III	19	6	$(697,970)	$(746,054)	9	$(1,046,955)	$(1,119,081)	12	$(1,395,940)	$(1,492,108)
P&R IV (5 Source Categories)	34	4	$(524,050)	$(556,106)	7	$(917,088)	$(973,186)	15	$(1,965,189)	$(2,085,399)
PAI (Pesticide Active Ingredient Production)	18	1	$(55,451)	$(63,465)	5	$(277,256)	$(317,326)	5	$(277,256)	$(317,326)
PEPO (Polyether Polyols Production)	23	10	$(66,648)	$(146,788)	11	$(73,312)	$(161,466)	12	$(79,977)	$(176,145)
Pharmaceuticals	26	5	$(751,961)	$(792,031)	8	$(1,203,138)	$(1,267,250)	12	$(1,804,707)	$(1,900,875)
Phosphate Fertilizer	11	0	$ -	$ -	0	$ -	$ -	0	$ -	$ -
Phosphoric Acid	12	0	$ -	$ -	0	$ -	$ -	0	$ -	$ -
Plastic Parts	125	57	$(1,641,609)	$(2,098,407)	84	$(2,419,213)	$(3,092,389)	84	$(2,419,213)	$(3,092,389)

Appendix 2: Source categories for which the EPA had RTR modeling data files.										
		50% of Major Source Threshold			75% of Major Source Threshold			125% of Major Source Threshold		
Category	Facilities in Category Subject to MACT	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1),$	Projected net costs (savings) (year 2),$	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $
Polycarbonates	4	1	$(21,300)	$(29,314)	1	$(21,300)	$(29,314)	1	$(21,300)	$(29,314)
POTW	12	5	$40,070	$ -	6	$48,084	$ -	7	$56,098	$ -
Primary Aluminum	13	0	$ -	$ -	0	$ -	$ -	0	$ -	$ -
Primary Lead-facility closed	1	0	$ -	$ -	0	$ -	$ -	0	$ -	$ -
Printing and Publishing	172	87	$(604,812)	$(1,302,030)	101	$(702,138)	$(1,511,552)	115	$(799,464)	$(1,721,074)
Pulp and Paper Combustion Sources	108	0	$ -	$ -	0	$ -	$ -	1	$(101,193)	$(109,207)
Refineries (2 Source Categories)	142	25	$(19,157,075)	$(19,357,425)	29	$(22,222,207)	$(22,454,613)	39	$(29,885,037)	$(30,197,583)
Secondary Aluminum	49	19	$13,838	$(138,428)	21	$15,295	$(152,999)	25	$18,209	$(182,142)
Shipbuilding	84	43	$(1,714,284)	$(2,058,886)	51	$(2,033,221)	$(2,441,935)	68	$(2,710,961)	$(3,255,913)
Steel Pickling	51	40	$(1,005,764)	$(1,326,324)	42	$(1,056,052)	$(1,392,640)	45	$(1,131,485)	$(1,492,115)
Turbines	244	112	$923,434	$ 25,866	139	$1,146,048	$32,102	160	$1,319,192	$36,952
Vegetable Oil	88	2	$(58,632)	$(74,660)	11	$(322,478)	$(410,632)	2	$(58,632)	$(74,660)

Appendix 2: Source categories for which the EPA had RTR modeling data files.										
		50% of Major Source Threshold			75% of Major Source Threshold			125% of Major Source Threshold		
Category	Facilities in Category Subject to MACT	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1),$	Projected net costs (savings) (year 2),$	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $
Wet Formed Fiberglass Mat	7	4	$(41,077)	$(73,133)	5	$(51,346)	$(91,416)	5	$(51,346)	$(91,416)
Wood Building Products	46	26	$(588,552)	$(796,916)	33	$(747,008)	$(1,011,470)	34	$(769,645)	$(1,042,121)
Wood Furniture	333	229	$(1,155,353)	$(2,990,559)	250	$(1,261,302)	$(3,264,802)	277	$(1,397,523)	$(3,617,401)
TOTALS for categories assessed by RTR	3065	1322	$(59,000,628)	$(69,595,136	1621	$(73,393,206)	$(86,383,900)	1863	$(91,638,998)	$(106,569,081)

Appendix 3: Source categories for which the EPA extrapolated the number of facilities that would be able to obtain area source status.

Category	Facilities in Category Subject to MACT	50% of Major Source Threshold			75% of Major Source Threshold			125% of Major Source Threshold		
		Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1),$	Projected net costs (savings) (year 2),$	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $
Boat Manufacturing	120	62	$(4,829,931)	$(5,329,186)	79	$(5,870,297)	$(6,504,597)	91	$(6,510,895)	$(7,243,409)
Brick and Structural Clay Products Manufacturing	44	-	$-	$-	-	$-	$-	-	$-	$-
Carbon Black (GMACT II)	16	6	$ 1,502	$(44,100)	6	$ 1,305	$(49,126)	7	$(1,847)	$(61,936)
Cellulose Products Manufacturing	11	-	$-	$-	-	$-	$-	-	$-	$-
Clay Ceramics Manufacturing	3	1	$(19,411)	$(29,714)	2	$(21,611)	$(33,632)	2	$(21,611)	$(33,632)
Coke Ovens: Charging, Top Side, and Door Leaks	22	-	$-	$-	-	$-	$-	-	$-	$-
Coke Ovens: Pushing, Quenching, & Battery Stacks	17	-	$-	$-	-	$-	$-	-	$-	$-
Cyanide Chemicals (GMACT II)	80	28	$ 7,512	$(220,502)	31	$ 6,525	$(245,631)	37	$(9,236)	$(309,678)

Appendix 3: Source categories for which the EPA extrapolated the number of facilities that would be able to obtain area source status.

Category	Facilities in Category Subject to MACT	50% of Major Source Threshold			75% of Major Source Threshold			125% of Major Source Threshold		
		Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1),$	Projected net costs (savings) (year 2),$	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $
Engine Test Cells/Stands	25	13	$(1,006,236)	$(1,110,247)	16	$(1,222,979)	$(1,355,124)	19	$(1,356,436)	$(1,509,043)
Flexible Foam Fabrication	5	5	$23,056	$(17,014)	5	$23,056	$(17,014)	5	$23,056	$(17,014)
Gasoline Distribution (Stage 1)	187	83	$(164,178)	$(828,258)	100	$(149,627)	$(948,653)	118	$(225,803)	$(1,170,429)
Hazardous Organic NESHAP	365	130	$34,271	$(1,006,040)	144	$29,771	$(1,120,691)	171	$(42,141)	$(1,412,904)
Industrial Process Cooling Towers	27	7	$(419,384)	$(475,482)	9	$(547,633)	$(619,759)	10	$(658,871)	$(739,011)
Iron and Steel Foundries (Major Sources)	69	32	$(538,920)	$(795,810)	34	$(565,451)	$(839,757)	38	$(604,851)	$(909,635)
Lime Manufacturing	40	17	$(258,809)	$(396,192)	20	$(288,150)	$(448,430)	20	$(288,150)	$(448,430)
Magnetic Tape	0	-	$-	$-	-	$-	$-	-	$-	$-
Mercury Cell Chlor-Alkali Plants	1	-	$ 94	$(2,756)	-	$ 82	$(3,070)	-	$(115)	$(3,871)

Appendix 3: Source categories for which the EPA extrapolated the number of facilities that would be able to obtain area source status.

Category	Facilities in Category Subject to MACT	50% of Major Source Threshold			75% of Major Source Threshold			125% of Major Source Threshold		
		Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1),$	Projected net costs (savings) (year 2),$	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $
Municipal Solid Waste Landfills	516	258	$(21,411,191)	$(23,478,803)	326	$(27,045,715)	$(29,657,435)	394	$(32,680,238)	$(35,836,067)
Paper and Other Web Coating	210	99	$(1,349,141)	$(2,144,376)	132	$(1,710,241)	$(2,764,390)	157	$(2,066,429)	$(3,324,011)
Plywood and Composite Wood Products	206	116	$(2,635,690)	$(3,568,798)	148	$(3,345,299)	$(4,529,629)	152	$(3,446,672)	$(4,666,890)
Primary Copper	0	-	$-	$-	-	$-	$-	-	$-	$-
Primary Magnesium Refining	1	-	$-	$-	-	$-	$-	-	$-	$-
Pulp & Paper (non-combust) MACT	114	-	$-	$-	-	$-	$-	1	$-	$-
PVC	4	1	$(166,874)	$(175,936)	2	$(221,072)	$(233,110)	2	$(293,068)	$(309,028)
Reciprocating Internal Combustion Engines (RICE) **includes area sources**	4205	-	$4,960,666	$-	-	$6,587,508	$-	-	$7,276,712	$-

Appendix 3: Source categories for which the EPA extrapolated the number of facilities that would be able to obtain area source status.

Category	Facilities in Category Subject to MACT	50% of Major Source Threshold			75% of Major Source Threshold			125% of Major Source Threshold		
		Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1),$	Projected net costs (savings) (year 2),$	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $
Refractory Products Manufacturing	8	3	$(51,762)	$(79,238)	4	$(57,630)	$(89,686)	4	$(57,630)	$(89,686)
Reinforced Plastic Composites Production	409	116	$(17,062,865)	$(17,989,480)	154	$(22,604,609)	$(23,835,485)	204	$(29,966,163)	$(31,598,111)
Rubber Tire Manufacturing	21	9	$(271,447)	$(346,981)	14	$(403,579)	$(516,217)	14	$(400,027)	$(511,340)
Semiconductor Manufacturing	23	13	$(404,796)	$(512,008)	16	$(503,333)	$(632,761)	18	$(560,863)	$(706,710)
Site Remediation	97	27	$(4,046,694)	$(4,266,454)	36	$(5,360,995)	$(5,652,914)	48	$(7,106,890)	$(7,493,929)
Spandex (GMACT II)	5	1	$(208,592)	$(219,920)	2	$(276,340)	$(291,387)	2	$(366,335)	$(386,285)
Taconite Iron Ore Processing	6	-	$-	$-	-	$-	$-	-	$-	$-
Utility NESHAP	193	-	$-	$-	-	$-	$-	-	$-	$-
Oil and Gas	106	46	$97,005	$ (271,639)	56	$118,093	$ (330,691)	106	$134,964	$ (377,932)
Natural Gas Transmission	83	38	$173,699	$ (130,833)	47	$214,838	$ (161,820)	83	$246,835	$ (185,921)

Appendix 3: Source categories for which the EPA extrapolated the number of facilities that would be able to obtain area source status.										
		50% of Major Source Threshold			75% of Major Source Threshold			125% of Major Source Threshold		
Category	Facilities in Category Subject to MACT	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1),$	Projected net costs (savings) (year 2),$	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $
TOTALS for categories not assessed by RTR	3034	1111	($54,508,782)	($63,439,767)	1383	($69,800,891)	($80,881,009)	1703	($86,259,416)	($99,344,902)

Appendix 4: Industrial, Commercial, Institutional Boilers and Process Heaters (3 source categories).										
		50% of Major Source Threshold			75% of Major Source Threshold			125% of Major Source Threshold		
Category	Facilities in Category Subject to MACT	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1),$	Projected net costs (savings) (year 2),$	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $	Facilities Projected to Obtain Area Source Status	Projected net costs (savings) (year 1), $	Projected net costs (savings) (year 2), $
ICI Boilers and Process Heaters	1821	658	$(18,283,484)	$(23,556,696)	908	$(25,795,704)	$(33,072,416)	1,022	$(29,688,228)	$(37,878,536)