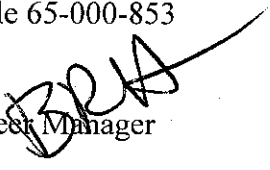


COMMONWEALTH OF PENNSYLVANIA
Department of Environmental Protection
Southwest Regional Office
July 10, 2012

SUBJECT Review of RACT Revision Request and SIP Revision
ArcelorMittal Monessen LLC
Monessen Coke Plant
Monessen, Pennsylvania
Westmoreland County

TO Air Quality Permit File 65-000-853

FROM Barbara R. Hatch, PE 
Environmental Engineer/Manager
Air Quality

THROUGH Mark Alan Wayner, PE 
Regional Manager
Air Quality

BACKGROUND

The Monessen Coke Plant has been in existence since 1942. In 1988, Monessen, Inc. (a wholly owned subsidiary of Sharon Specialty Steel, Inc.) purchased the property from Wheeling-Pittsburgh Steel Corporation. In September, 1992 the plant went on hot idle.

Because this facility had the potential to emit more than 100 tons per year of NOx and 50 tons per year VOCs, it was subject to the Reasonably Available Control Technology (RACT) provisions of PA Code Title 25 § 129.91-129.95. On July 18, 1994, Monessen, Inc. submitted to the Department a RACT proposal developed in accordance with PA Code Title 25 § 129.91-95.

Facility was purchased by Koppers Industries, Inc. (KII) in 1995. DEP issued three Plan Approvals to KII to authorize the reactivation of this operation.

- Plan Approval PA-65-305-048 was issued on April 14, 1995 to authorize the reactivation of the coke oven batteries and associated control equipment. Annual PM, NOx, VOC and CO testing of the coke pushing and Batteries 1B and 2 underfire stacks was a requirement of PA-65-305-048.
- Plan Approval PA-65-305-049 was issued on April 14, 1995 to authorize the reactivation of the coke byproducts recovery plant. The requirements of 40 CFR 61, Subpart L – National Emission Standard for Benzene Emissions from Coke By-Product Recovery Plants, Subpart V – National Emission Standards for Equipment Leaks (Fugitive Emission Sources), and Subpart FF – National Emission Standard for Benzene Waste Operations were included in PA-65-305-049.
- Plan Approval PA-65-302-071 was issued on April 14, 1995 to authorize the installation of two (2) Tampella Power/Keeler COG/NG-fired boilers, each rated at 143 mmbtu/hr. Two existing boilers, each rated at 153.5 mmbtu/hr., were removed from the site.

- Plan Approval PA-65-302-071 was issued on April 14, 1995 to authorize the installation of two (2) Tampella Power/Keeler COG/NG-fired boilers, each rated at 143 mmbtu/hr. Two existing boilers, each rated at 153.5 mmbtu/hr., were removed from the site.

Reactivation of the coke batteries and by-product recovery plant commenced on October 18, 1995; operation of the new boilers commenced on March 11, 1996.

On November 27, 1995, the Department received from KII an administratively complete initial Title V Operating Permit (TVOP) application. TVOP-65-00853 has not yet been issued.

A RACT Operating Permit (OP-65-000-853) was issued to KII on March 20, 1998. It was determined that no additional controls were technically or economically feasible for the sources at this location. RACT for the facility was determined to be operation and maintenance in accordance with good air pollution control practices and manufacturer's specifications, guidelines and procedures.

Facility was acquired by ArcelorMittal in September, 2008. ArcelorMittal submitted a revised TVOP application on September 23, 2008. Monessen Coke Plant went on hot idle in May, 2009, and has not produced any coke since then.

SOURCES AND CONTROL DEVICES

Monessen Coke Plant is of a by-product recovery design. Facility includes two coke batteries: Battery 1B has 37 coke ovens and Battery 2 has 19 coke ovens. Additional sources include two (2) boilers rated at 19.5 mmbtu/hr. each, two (2) coke oven gas/natural gas fired boilers rated at 143.3 mmbtu/hr each, coal handling and charging equipment, coke pushing, quenching and handling equipment, coke battery underfire burners, and a byproduct recovery facility equipped with a flare.

RACT OPERATING PERMIT 1998

The RACT program was established as a result of the Clean Air Act Amendments of 1990. RACT required existing facilities that had the potential to emit major amounts of volatile organic compounds (VOCs - more than 50 tons per year) or nitrogen oxides (NOx - more than 100 tons per year) to do an evaluation of the technically and economically feasibility of any available control measures for reducing these pollutants.

On July 18, 1994, Monessen, Inc. submitted to the Department a RACT proposal developed in accordance with PA Code Title 25 § 129.91-95. RACT Operating Permit (OP-65-000-853) was issued to KII on March 20, 1998. It was determined by the Department that no additional NOx or VOC controls were technically or economically feasible for the sources at this location. RACT for the facility was determined to be operation and maintenance in accordance with good air pollution control practices and manufacturer's specifications, guidelines and procedures. VOC and NOx emission limitations were established using the results of a stack test conducted in April, 1997. A requirement to undertake annual testing of the Battery 1B and Battery 2 Underfire exhausts and coke pushing baghouse exhaust were established.

RACT DETERMINATIONS FOR NO_x SOURCES 1998

Two of the four utility boilers, Nos. 3 and 4, qualified for presumptive RACT under PA Code Title 25 §129.93(c)(1) since their rated heat inputs (19.5 mmbtu/hr) are below the 20 mmbtu/hr threshold. Monessen provided a case-by-case evaluation for Boilers No.5 and No. 6 since their rated heat inputs were 153.5 mmbtu/hr (each). Boilers No.5 and No.6 were removed in 1995, and two (2) new Tampella Boilers (rated at 143 mmbtu/hr each) were installed under Plan Approval PA-65-302-071. The new boilers are able to combust natural gas and coke oven gas (COG). Best available technology (BAT) for these boilers was determined in accordance with PA Code Title 25 § 127.12(a)(5) to be flue gas recirculation (FGR) with low NO_x burners (LNB).

The Coke Oven Battery Combustion Stacks were the next NO_x sources evaluated in the 1994 RACT Proposal. Both batteries, A and B operate on natural draft, therefore, low excess air and staged combustion were determined to be technically infeasible. LNB cannot be used since the fuel gas and combustion air are routed through separate intakes. FGR is not technically feasible because of the physical configuration of the off gas collection system. Both selective catalytic reduction (SCR) and selective non-catalytic reduction (SNCR) have similar requirements as FGR and cannot be implemented for the same reasons.

The 1994 RACT Proposal stated that no combustion controls can be applied to a flare. Additionally, based on the design, purpose, and physical configuration, none of the NO_x control strategies identified were considered to be technically feasible for the flare.

The remaining point sources: coal charging, coke pushing, coke quenching and leaks constitute the last logical grouping identified in the 1994 RACT Proposal. These emissions are fugitive in nature and do not occur at a single point. They are process emissions opposed to combustion emissions making any type of control difficult. There are no technologies available or identified for these emissions.

RACT DETERMINATIONS VOC SOURCES 1998

In the 1994 RACT Proposal, six process sources were evaluated for applicable VOC control options. These sources include: coal charging, door leaks, coke pushing, coke quenching, tar operations and light oil operations. An array of options was presented for traditional VOC control. These include biofiltration, carbon adsorption, condensation, scrubbing, oxidation and material substitution. However, due to physical limitations and practicality of controlling these emissions, they have been ruled out on the basis of technical infeasibility. In the 1994 RACT Proposal, Monessen, Inc. propose to operate the affected sources in accordance with the manufacturer's guidelines and procedures. Additionally, they believe that the coke oven NESHAP and benzene NESHAP for coke ovens byproduct operations is more restrictive than any VOC RACT requirements. Therefore that compliance with the NESHAPs was determined to be VOC RACT for these sources.

The exhaust of the combustion sources contributes a small amount of VOCs to the facility total. As with all other sources of combustion, the unreacted VOCs are directly related to combustion practices. We have not required additional control analysis of these emissions.

The remaining VOC sources include miscellaneous sumps and basins. These sources are fugitive. As a practical matter, no cost effective analysis was performed on the basis of technical infeasibility.

REQUESTED RACT REVISIONS

A draft of the proposed 1998 RACT Operating Permit was available sometime on or after October 17, 1997. A hearing was conducted on November 13, 1997 to accept testimony on the proposed RACT Operating Permit. On December 1, 1997, KII provided comments on the Proposed RACT OP, and requested that the NO_x and VOC limits be increased from what was submitted in the earlier Monessen, Inc. RACT proposal. KII also requested that limits be raised to include a 25% margin to allow for "operational flexibility, changes in emission factors, and variability in stack testing." The RACT OP was issued on March 20, 1998; the 25% margin was not included in the emission rates established therein. EPA published their approval of this RACT determination in the Federal Register on October 16, 2001 (66 FR 52511) and it became part of Pennsylvania's State Implementation Plan (SIP).

KII and ArcelorMittal have revisited the request to increase the emission rates with some regularity over the last 14 years. The issue was discussed in a meeting with the Department on June 2, 1998. On November 3, 1998, KII submitted a report where results from stack tests conducted in 1996, 1997 and 1998 were statistically analyzed and compared to available emission factors and stack test results from other coke plants. The issue was discussed in a meeting conducted March 30, 1999. An updated analysis was submitted by KII in June 2002, for all testing conducted between 1996 and 2001. On February 3, 2003, KII submitted an application to incorporate the higher limits in a renewal of RACT OP 65-000-853, using test data from 1998 through 2002. The RACT revision request was repeated on October 22, 2009, November 18, 2010, and July 27, 2011. Throughout this extensive timeline, the Department felt that the requested revised RACT emission limits proposed by KII and ArcelorMittal were overblown and unrealistic. On February 10, 2012, Arcelor agreed to the Department's proposal that the highest valid test run be used to establish the revised RACT VOC and NO_x limits for the Battery 1B and 2 Combustion Stacks.

ArcelorMittal has provided an updated review of the available add-on controls for reduction of NO_x and VOC emissions from the facility. They found no control options that were technically feasible; and propose that RACT for NO_x and VOCs for this facility continue to be the operation and maintenance of all sources in accordance with good air pollution control practices and in accordance with the manufacturer's specifications, guidelines and procedures.

DEP conducted their own search of the RACT/BACT/LAER Clearinghouse and other available publications, and did not find that any NO_x or VOC add-on control devices have been installed on the Combustion Stacks at any byproduct recovery coke plants. A document prepared for the Michigan Department of Environmental Quality in support of their PM_{2.5} SIP Revision, "Evaluation of PM_{2.5} Emissions and Controls at Two Michigan Steel Mills and a Coke Oven Battery, Final Report" dated February 7, 2006, also reached the conclusion that add-on devices for control Battery Combustion Stacks have not been installed. EPA concluded that that the limits, enhanced monitoring and improved work practice standards of 40 CFR 63, Subpart CCCCC—National Emission Standards for Hazardous Air Pollutants for Coke Ovens: Pushing, Quenching, and Battery Stacks constitute Maximum Achievable Control Technology for these sources. MACT for the VOC-HAP emissions from these sources is by definition more stringent than RACT.

The proposed revision to the RACT OP-65-000-853 should not cause or contribute to a violation of the NAAQS for ozone. The proposed revised emission limitations are representative of the actual emissions from the facility for the entire period from 1998 to present. Monitored ozone concentrations will not change as a result of these revisions. Additionally, the upcoming shutdown of at least three of the units at the Elrama Station will have a

positive impact on the air quality in the Monongahela Valley air basin. Using the average of emission inventory information from 2007 and 2008, the shutdown of Units 031, 032 and 033 at Elrama will result in a decrease of 2,710 tons of NOx per year.

CONCLUSIONS AND RECOMMENDATIONS

ArcelorMittal has provided sufficient documentation to justify their request to revise the allowable RACT NOx and VOC emission limits for Coke Batteries 1B and 2 Combustion Stacks at the Monessen Coke Plant facility. The attached, revised RACT Operating Permit OP-65-000-853 is proposed. In accordance with SIP revision regulations, we will arrange for a public hearing and for notices to be published in the PA Bulletin and a local newspaper at least 30 days in advance of the hearing. A 30-day comment period after the hearing shall exist. Once the local administrative requirements are completed, the documentation will be forwarded to DEP's Central Office Air Quality Program in Harrisburg, where a SIP Revision package will be put together and submitted to EPA Region III.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHWEST REGION - FIELD OPERATIONS
AIR QUALITY
400 WATERFRONT DRIVE
PITTSBURGH, PENNSYLVANIA 15222-4745

REASONABLY AVAILABLE CONTROL TECHNOLOGY OPERATING PERMIT

In accordance with provisions of the Air Pollution Control Act, the Act of January 8, 1960, P.L. 2119, as amended, and after due consideration of an application received under Chapter 127 of the Rules and Regulations of the Department of Environmental Protection, the Department hereby approves the use of this permit for the operation of the air contamination sources(s) described below.

| | | | |
|----------------|--|-------------------------------|-------------------------------|
| Authorization: | 65-000-853 | Source(s): | Byproduct Recovery Coke Plant |
| Owner: | ArcelorMittal Monessen LLC Monessen Coke Plant | Air: Cleaning: Devices: | |
| Address: | 345 Donner Avenue Monessen, PA 15062 | Location: | Monessen |
| | | County: | Westmoreland |
| Attention: | Gregory Shamitko Director of Environmental Affairs | | |

This permit is subject to the following conditions:

1. That the source and any associated air cleaning devices are to be:
 - a. Operated in such a manner as not to cause air pollution, as defined in 25 Pa Code § 121.1
 - b. In compliance with the specifications and conditions of the Operating Permit issued under the same number;
 - c. Operated and maintained in a manner consistent with good operating and management practices
2. This permit is valid only for the specific equipment, location and owner named above.
3. This permit revises the VOC and NO_x RACT limits established in Operating Permit No. 65-000-853, previously issued to Koppers for the Monessen Coke Plant on March 20, 1998.
4. See attached.

Failure to comply with the conditions placed on this authorization is a violation of Section 127.444. Violation of this or any other provision of Article III of the Rules and Regulations of the Department of Environmental Protection will result in suspension or revocation of this permit and/or prosecution under Section 9 of the Air Pollution Control Act.

Authorized:

Mark A. Wayner, P.E.
Regional Program Manager
Air Quality

AUTHORIZATION TERM:

Special Conditions

4. This operating permit is for the NOx and VOC sources at the Monessen Coke Plant and imposes the following conditions to meet the RACT provisions of 25 Pa. Code Chapter 129.
5. In accordance with 25 Pa. Code 127.444 all sources and air cleaning devices shall be operated and maintained in accordance with good air pollution control practices.
6. Pursuant to 25 Pa. Code 127.441 all sources and air cleaning devices shall be operated and maintained in accordance with the manufacturer's specifications, guidelines and procedures.
7. Pursuant to 25 Pa. Code 127.441, the NOx potential to emit for each of the listed sources in any 12 consecutive month period is established as follows:

| Source | Tons Per Year |
|--------------------------------|---------------|
| Coke Battery Combustion Stacks | |
| Battery 1 B | 357.0 |
| Battery 2 | 260.2 |
| Flare | 31.7 |
| Coke Pushing | 4.8 |
| Coke Quenching Coal | 0.0 |
| Charging Boilers | 0.7 |
| | 112.1 |

8. Pursuant to 25 Pa. Code 127.441, the VOC potential to emit for each of the listed sources in any 12 consecutive month period is established as follows:

| Source | TPY |
|--------------------------------|------|
| Coke Battery Combustion Stacks | |
| Battery 1 B | 21.9 |
| Battery 2 | 28.9 |
| Flare | 27.6 |
| Boilers | 2.7 |
| Coal Charging | 36.2 |
| Coke Pushing | 0.6 |
| Coke Quenching Miscellaneous | 5.4 |
| Sources | 0.5 |
| Fugitives | 8.14 |
| Coke By-Products Plant | 35.2 |

9. Pursuant to 25 Pa. Code 127.441, the short-term allowable NOx emission limit for each of the listed sources is established as follows:

| Source | Pounds Per Hour |
|--------------------------------|-----------------|
| Coke Battery Combustion Stacks | |
| Battery 1 B | 81.5 |
| Battery 2 | 59.4 |

10. Pursuant to 25 Pa. Code 127.441, the short-term allowable VOC emission limit for each of the listed sources is established as follows:

| Source | Pounds Per Hour |
|--------------------------------|-----------------|
| Coke Battery Combustion Stacks | |
| Battery 1 B | 5.0 |
| Battery 2 | 6.6 |

11. The owner/operator of this source shall verify compliance with the short-term VOC and NOx emission limits in Condition Nos. 10 and 11 for the coke battery combustion stacks by stack testing at the intervals established in the Title V Operating Permit issued for this site. Testing shall be conducted in accordance with 25 Pa. Code Chapter 139 and the Department's Source Testing Manual. Testing shall be conducted while sources are operating at routine operating conditions.

- a. Pursuant to 25 Pa. Code § 139.3, at least 45 calendar days prior to commencing an emissions testing program, a test protocol shall be submitted to the Department for review and approval. The test protocol shall meet all applicable requirements specified in the most current version of the Department's Source Testing Manual.
- b. Pursuant to 25 Pa. Code § 139.3, at least 15 calendar days prior to commencing an emission testing program, notification as to the date and time of testing shall be given to the appropriate Regional Office. Notification shall also be sent to the Division of Source Testing and Monitoring. Notification shall not be made without prior receipt of a protocol acceptance letter from the Department.
- c. Pursuant to 25 Pa. Code Section 139.53(a)(3), within 15 calendar days after completion of the on-site testing portion of an emission test program, if a complete test report has not yet been submitted, an electronic mail notification shall be sent to the Department's Division of Source Testing and Monitoring indicating the completion date of the on-site testing.
- d. Complete test report shall be submitted to the Department no later than 60 calendar days after completion of the on-site testing portion of an emission test program.
- e. Pursuant to 25 Pa. Code Section 139.53(b), a complete test report shall include a summary of the emission results on the first page of the report indicating whether each pollutant measured is within permitted limits and a statement of compliance or non-compliance with all applicable permit conditions. The summary results will include, at a minimum, the following information:
 - i. A statement that the owner or operator has reviewed the report from the emissions testing body and agrees with the findings.

- ii. Permit number(s) and condition(s) which are the basis for the evaluation.
 - iii. Summary of results with respect to each applicable permit condition.
 - iv. Statement of compliance or non-compliance with each applicable permit condition.
- f. Pursuant to 25 Pa. Code § 139.3, all submittals shall meet all applicable requirements specified in the most current version of the Department's Source Testing Manual.
- g. All testing shall be performed in accordance with the provisions of Chapter 139 of the Rules and Regulations of the Department of Environmental Protection.
- h. Pursuant to 25 Pa. Code Section 139.53(a)(1) and 139.53(a)(3), all submittals, besides notifications, shall be accomplished through PSIMS*Online available through <https://www.depgreenport.state.pa.us/ecomm/Login.jsp> when it becomes available. If internet submittal cannot be accomplished, three copies of the submittal shall be sent to the Pennsylvania Department of Environmental Protection, Bureau of Air Quality, Division of Source Testing and Monitoring, 400 Market Street, 12th Floor Rachael Carson State Office Building, Harrisburg, PA 17105-8468 with deadlines verified through document postmarks.
12. Emission reductions of the targeted contaminants below the level specified in this approval which are achieved by optimizing the effectiveness of equipment are not surplus emission reductions, and shall not be used to generate emission reduction credits. In order for the emission reductions to be creditable, the emission reductions must satisfy the requirements of 25 Pa. Code Chapter 127, Subchapter E.
13. In accordance with 25 Pa. Code 129.95, the owner and operator of this facility shall keep records to demonstrate compliance with the limits specified in this permit. The records shall provide sufficient data and calculations to clearly demonstrate compliance with the requirements of this RACT approval. Data and information required to determine compliance shall be recorded and maintained in a time frame consistent with averaging periods to verify compliance. These records shall be retained for at least two years and made available to the Department upon request.
14. The expiration date shown on the Operating Permit is for state purposes. For federal enforcement purposes, the RACT provisions of this operating permit shall remain in effect as part of the State Implementation Plan (SIP), until replaced pursuant to 40 CFR 51, and approved by the U.S. Environmental Protection Agency (EPA).