

COMMONWEALTH OF PENNSYLVANIA

Department of Environmental Protection

October 11, 2012

814/332-6940

Fax: 814/332-6117

SUBJECT: Review of Application for TV Operating Permit Renewal
AUTH ID# 905658; PF ID# 252268; APS ID# 345845
Ellwood Quality Steels (EQS)
New Castle City, Lawrence County

TO: AQ/Facilities/FACOP/ TV-37-00264

FROM: Matthew Williams *MW*
Facilities Permitting Chief
Air Quality Program - Northwest Region

THROUGH: John F. Guth *JFG*
Air Quality Program Manager
Northwest Region

Introduction:

This renewal application is for EQS, which is a small specialty steel mill. The Department received the subject application for renewal of the TV Operating Permit for EQS on December 1, 2011. The Permit was previously renewed on September 4, 2007. The Permit was modified on November 4, 2008 to incorporate the plan approval requirements of 37-264G. This review memo covers the changes made to the permit during the renewal process. Ellwood Quality Steels Company (EQS) operates a steel ingot manufacturing facility. The operation consists of an electric arc furnace (EAF), two ladle refining furnaces, a vacuum degasser, two ingot teeming aisles, an internal scrap yard, six natural gas fired annealing furnaces, miscellaneous steel cutting / grinding, four process steam boilers and vehicle travel.

Site Level Requirements:

The facility Standard Industrial Classification (SIC) code is 3312 – Manufacturing Blast Furnaces An Steel Mills. The facility is required to comply with fugitive, fugitive particulate, malodor, visible emission and open burning requirements found in 25 Pa. Code Sections 123.1, 123.2, 123.31, 123.41, 123.42, 123.43, and 129.14 respectively. The facility was limited to 8760 hours of operation and 450,000 tons of steel ingots per year based on a 12-month rolling total. These two restrictions evolved from plan approval 37-264E and 37-264G. As part of the renewal application process, the facility requested removal of the 8,760 hours of operation restriction. This condition was included in the permit to replace a previous restriction of 8,160 hours of operation from plan approval 37-264C. Since the long term emission restriction for the Electric Arc Furnace (EAF) Source 101 (1,035 tons per year) relies on the short term emission factor (i.e. 4.6 lb CO/ton of steel) multiplied by the restriction on production

(450,000 tons of steel), the Department agrees that the hours restriction is not necessary for compliance demonstration and has removed the hours restriction (8,760 hours) from the site level of the permit. The Department reserves the right to require exhaust stack testing of any source(s) as necessary to verify emissions for purposes including determining the correct emission fees, malfunctions, or determining compliance with any applicable requirement (§127.441).

The facility is required to submit annual emission statements because the facility has actual VOC emissions greater than 10 TPY and is subject to 25 Pa. Code Sections 135.3, 135.4, 135.5, and 135.21. The facility must submit the emission inventory each year by March 1.

The facility is also required to conduct daily monitoring of the facility property while the sources are in operation to observe for the presence of fugitive emissions and visible emissions emitted into the outdoor atmosphere as well as malodors. The facility must keep records of the monitoring along with any deviations and the corrective actions taken. The facility must also keep records of the amount of fuel used by each combustion source and the hours of operation and must report malfunctions of the source or associated air cleaning device within 1 hour of occurrence if it may result in emissions of air contamination in excess of limits specified in this permit. These requirements were developed as part of the previous RACT permit to demonstrate compliance with the NO_x and VOC RACT requirements of §§129.91-129.95 that were incorporated into the State Implementation Plan (SIP). In plan approval 37-246E, the facility was required to maintain a rolling total of the natural gas consumption and the facility production. This requirement was previously amended into the permit and will remain in effect. The facility must submit a six month deviation report within 30 days of July 31 and within 30 days of January 31 of each year. The reports cover February 1 – July 31, and August 1 – January 31. The annual compliance certification must be submitted within 30 days of July 31 of each year.

Source Level

Source 033 (4) Boilers: The boilers are each rated at 10.5 mmbtu/hr, are natural gas fired, manufactured by Clayton Industries (model E-254). The boilers are equipped with Low NO_x Burners (LNB). The boilers have restriction for particulate matter and sulfur dioxide in accordance with §123.11 and §123.22, respectively. The boilers were authorized by GP-37-264. The GP restricts the NO_x and CO to 30 ppm_{dv} at 3% O₂ and 400 ppm_{dv} at 3% O₂. The units are restricted to using only natural gas fuel and shall not exceed 221,808 mcf of natural gas per year. Natural gas usage is verified by fuel meter. The units are subject to 40 CFR 60 Subpart Dc and must maintain fuel records in accordance with §60.48c(g). The facility must log all inspections or maintenance performed on the boilers. The facility must maintain and operate the boilers in accordance with the manufacture's specifications and in accordance with good air pollution control practices.

Source 034 Miscellaneous Combustion Units less than 2.5 mmbtu/hr: The miscellaneous heater units consist of hot water heaters and building heaters that do not consume major quantities of natural gas fuel. The actual emissions from this source have been less than 5 TPY of NO_x. This source, along with the scrap torch (103) and gas cutter (104), have a combined gas throughput limit of 241,092 mcf of natural gas per year. The natural gas consumed is determined by mass balance by subtracting the metered sources from the total gas flow to the plant. The source has a sulfur oxide emission restriction based on §123.22. The source is restricted to natural gas. The facility must keep records of monthly gas

consumption of this source. The facility must maintain and operate the boilers in accordance with the manufacture's specifications and in accordance with good air pollution control practices.

Source 101 EAF: The EAF is rated at 53 tons. Steel is produced in batches. The batch consists of three phases – charging, melting, and tapping. Each heat occurs over approximately 60 minutes. After tapping, the molten steel is transferred to the Ladle refining furnace No. 1 to fine-tune the steel chemistry. The EAF generates PM, CO, NO_x, VOC, and SO₂. The melting phase accounts for the majority of the PM and CO emissions. Thermal NO_x is generated in the EAF and associated ductwork at temperatures above 2000°F. VOC and SO₂ emissions result during the charging and melt phase from the combustion and/or volatilization of impurities and contaminants present in the scrap, carbon, flux and electrodes charged to the furnace during a heat.

The EAF uses direct evacuation control (DEC) system to capture melting emissions and a three-section overhead canopy hood system to capture charging, tapping and fugitive emissions. The two systems discharge to a fabric filter baghouse. The baghouse has a rated capacity of 350,000 acfm. Particulate and gaseous emissions generated during the melting phase are evacuated from the "fourth hole" of the EAF roof through a water-cooled elbow and into a water-cooled duct. Small air gaps are present at the water-cooled elbow inlet and water-cooled duct inlet to cool the gas stream and provide oxygen to the system to promote VOC and CO combustion. Additional dilution air is added to the pollution control system at the exit of the water-cooled duct to reduce the gas-stream temperature below 250°F prior to entering the baghouse. NO_x emissions are controlled at the EAF by limiting the amount of nitrogen present to react with oxygen in the furnace and in the water-cooled ducts. EQS uses supplied oxygen for the EAF preheater burners and for oxygen lancing instead of ambient air which limits the amount of nitrogen available at the water-cooled elbow and duct air gaps, where the system temperatures range from 2,200°F to 5,000°F. The dilution air applied at the exit end of the water-cooled duct has an insignificant impact on NO_x generation due to the fact that the average system temperature at this point is 800°F, which is well below a temperature, which promotes significant NO_x formation (> 2,000°F). SO₂ emissions are controlled by limiting sulfur in the materials fed to the furnace.

The permit contains CO, NO_x, SO_x, VOC, and PM₁₀ emission restrictions (short term lb/ton) and long term (TPY) developed under plan approval 37-264G. The opacity is restricted to 3 percent based on then NSPS for EAFs (§60.272a). Plan approval 37-264G restricted the gas consumption for the EAF burners to 116,603 mcf based on a 12-month rolling total. The capture efficiency for the DEC must be at least 90%. To ensure compliance with the emission limits and control efficiency, the facility is required to test the EAF exhaust duct prior to the baghouse for CO and NO_x. The testing is required annually. The testing must be conducted in the range of a minimum of 54.8 TPH and a maximum of 76 TPH. The facility must also test the exhaust of the positive pressure baghouse once every five years for SO_x, VOC, PM and PM-10 emissions. The testing is required 6-12 months prior to the permit expiration. The test methods for the NSPS requirements are included in the permit (§60.275a).

The changes to the permit from the previous amendment include the change in the CAM monitoring for the fan amperage range. The CAM requirements were previously developed under the operating permit renewal issued in August 2002. The facility installed a more energy efficient fan wheel in 2011 and as a result need to modify the fan amperage range for EAF Fan #2 from 80-100 amp range to 70-100 amp range. This change was reflected for Source 101 Work Practice Requirements under §127.441 condition #020. The other CAM parameters include baghouse differential pressure, inspection and maintenance,

and visual emission checks. The pressure drop is recorded every 15 minutes and averaged over a 3-hour period. The pressure drop range must be between 3 and 11 inches. The fan amperage is recorded with the same frequency. Visible emissions readings in accordance with Method 9 are required at least once per day. Visible emissions must not be greater than 3 percent. The monitoring requirements of the NSPS are included in the permit (§60.273a and §60.274a).

The facility must keep records of the hours of operation and rolling totals of the emissions mentioned above. Records of the gas consumption for the EAF burners must be kept. Records of the pressure drop, fan amperage, and VE readings must be kept for the facility along with records of downtime incidents of the recording devices. Inspections of the source and repairs made must be kept. Excursions of the CAM parameters must be reported to the Department with the corrective actions taken. The Reporting requirements of the NSPS are included in the permit (§60.276a). The EAF burners must be inspected and tuned on an annual basis. Six excursions over a six-month period would require development and submittal of a Quality Improvement Plan (QIP) by the facility to the Department. The standard CAM requirement language is included in this source. The facility is required to follow a scrap management plan that was submitted to the Department on June 3, 2008. The plan includes the instructions for scrap purchasing and inspection. It excludes chlorinated plastics, lead, and free organic liquids. The facility only purchases motor vehicle scrap from scrap providers who participate in a program for removal of mercury switches.

The requirements of 40 CFR 63 Subpart YYYYY – NESHAPs for Area Sources: Electric Arc Furnace Steelmaking Facilities were finalized on December 28, 2007. The renewal permit incorporates the requirements for the scrap handling and references the streamlined requirements for the EAF in favor of the more stringent plan approval requirements as follows:

- §63.10685 –The applicable portions were included under Source 110 (Scrap Handling). The facility will meet the chlorinated plastics, lead and free organic liquids requirement in paragraph a by complying with the first option (a)(1) pertaining to the pollution prevention plan submitted by EQS on June 3, 2008 and approved by the Department. For the mercury requirements, the facility will use the second option (b)(2) that allows the facility to purchase motor vehicle scrap only from scrap providers that participate in a program for removal of mercury switches that has been approved by the Administrator. The facility keeps records of the scrap providers in accordance with paragraph c.
- §63.10686(a) – The facility has a capture system that meets this requirement that was installed under plan approval. The DEC is required to meet 90% control efficiency (Source 101 Condition #005). Compliance with paragraph (a) is met by complying with the plan approval requirement and a note was added to streamline paragraph a from the permit.
- §63.10686(b)(1) – This requirement (0.0052 gr/dscf pm emission restriction) was streamlined in favor of the more stringent plan approval limit of 0.0041gr/dscf for Source 101 Condition #001(b).
- §63.10686(b)(2) – This requirement pertaining to a 6 percent opacity limit from the melt shop was streamlined in favor of the more stringent plan approval requirement for Source 101 Condition #020.

- §63.10686(c) – This requirement pertains to facilities with capacities of less than 150,000 TPY and does not apply to EQS since their capacity is greater than 150,000 TPY.
- §63.10686(d) – The testing requirements for pm to verify compliance with the referenced pm emission limit are streamlined in favor of the more stringent plan approval testing requirements (testing of pm every five years) for Source 101 Condition #007.
- §63.10686(e) – This requirement was listed in the original Federal Register publication on page 74188 published on December 28, 2007, but was inadvertently omitted from the CFR. The requirement established the fact that “*The exemption in 40 CFR 64.2(b)(1)(i) for emissions limitations or standards proposed after November 15, 1990 under section 111 or 112 of the CAA does not apply.*” The previous permit developed CAM parameters and included standard CAM language so paragraph (e) was streamlined from the monitoring, recordkeeping, and reporting requirements for Source 101 Conditions #009, 014, and 016, respectively.
- §63.10690(a), (b)(1), and (b)(3) – These requirements pertain to the compliance certification for the scrap management requirements mentioned above. The requirements were added to Source 110 as Condition #001.
- §63.10690(b)(5-6) – These requirements pertain to the compliance certification for the performance test required for demonstration of pm emissions. This requirement was added to Source 101 under Reporting Requirements (Condition #019).

Source 102 (6) Annealing Furnaces: The six furnaces used for heat treating are numbered 15-20. The furnaces are not used on a continuous basis. The NO_x emissions are restricted to 65 lbs/mmcf for furnaces 15-19. Furnace 15-20 each are equipped with LNB that must be operated in accordance with the manufacturer’s specifications. Each of the furnaces is required to burn only natural gas. These furnaces are restricted to a combined gas usage of 1,014,504 mcf per year. The number 20 furnace is limited to 54,744 mcf per year. The number 17 furnace has a NO_x emission restriction of 4.6 TPY established by plan approval 37-264F. All of the furnaces are subject to the SO_x emission restriction of §123.21. The facility must keep records of the gas usage based on a fuel meters. Each of the furnaces is rated less than 20 mmbtu/hr except for furnace 19 which is rated at 21.1 mmbtu/hr. For RACT, furnace 19 must be inspected and tuned each year. The remaining furnaces must be operated in accordance with the manufacturer’s specifications and in accordance with good air pollution control practices.

Source 103 Scrap Torching: The facility uses oxy-gas for cutting scrap to size on occasion. The NO_x emissions from cutting are less than 1 TPY. This source, Source 034 and Source 104 have a combined natural gas consumption limit of 241,092 mcf of natural gas per year. The natural gas consumed is determined by mass balance by subtracting the metered sources from the total gas flow to the plant. The source has a sulfur oxide emission restriction based on §123.22. The source is restricted to natural gas. The facility must keep records of monthly gas consumption of this source. The facility must maintain and operate the boilers in accordance with the manufacture’s specifications and in accordance with good air pollution control practices.

Source 104 Gas Cutter: The facility also infrequently uses the gas cutter. The requirements for this source are the same as those of Source 103.

Source 105 Teeming: Teeming is the pouring and casting area of the melt shop. Steel from the ladle refining furnace (Source 109) is poured into ingots and molds in this area of the facility. The only emissions from the source are fugitive that remain inside of the building.

Source 108 Ingot Grinding: The facility will grind the ingots to the client's specifications. The particulate emissions from grinding are controlled by a baghouse (C03). The particulate emissions are restricted by §123.13. To demonstrate compliance with the particulate emission limit, the facility is required to maintain a pressure drop gauge across the baghouse and maintain a sufficient supply of spare bags for replacement as necessary. The control device must be maintained and operated in accordance with the manufacturer's specifications and good air pollution control practices. The facility must conduct monthly preventative maintenance inspections of the control device, make repairs as necessary and document the inspections and repairs. The source is not allowed to operate without the control device in operation. Particulate emissions from this source are less than 1 TPY.

Source 109 A & B Electric Ladle Furnaces: The two ladle furnaces are controlled by a common dust collector (C109). Each of the furnaces is restricted to 0.02 lbs PM-10/ton of steel and 4.5 TPY. The facility must keep records of production for the source, records of equipment inspections and repairs and records of the pressure drop across the collector. Weekly preventative maintenance inspection records are required for the source. The sources and control device must be maintained and operated in accordance with the manufacturer's specifications and good air pollution control practices. The source may not operate without the control device in operation. The facility must maintain a sufficient supply of spare bags for replacement as necessary (270 bags).

Source 110 Scrap Handling: The scrap handling involves moving the scrap from the drop area to the EAF. The only emissions from the source are fugitive emissions within the building.

Source 111 Vacuum Degasser: This source is used to reduce the carbon content of processed steel. The vacuum on the ladle is created by the rapid condensation of superheated steam in an ejector tower. The tower uses 7 steam ejectors and 4 condensers. Argon is bubbled through the steel and stirring is induced by an electrical field to aid in the removal of hydrogen and oxygen from the steel. The average degasser cycle is 30 minutes. Only a small amount of particulate matter is emitted from the water bath as fugitive emissions. There are no requirements for this source other than those in the site level.

Source 112 Mold Grinding: The grinding operation involves milling molds following repairs to maintain specifications. The requirements for Source 112 are the same as Source 108 above.

Source 113 Vehicle Travel: The source consists of vehicle travel throughout the facility. The requirements for this source are the same as the site level pertaining to fugitive emissions (§123.1 and §123.2).

Source 132 Ladle preheaters (2): This source is used to pre-heat the ladles (Source 109A and 109B). The burners are each rated at 5.8 mmbtu/hr. The source is subject to the SO_x emission restriction of §123.21. The source only burns natural gas. The facility must keep monthly records of the gas usage

based on a fuel meters and restrict the gas usage to not exceed 130,355 mcf of natural gas per year based on a 12-month rolling total. For RACT, the source must be operated in accordance with the manufacturer's specifications and in accordance with good air pollution control practices.

Source 135 EAF preheater: This source is used to pre-heat the EAF. The burner is rated at 6.21 mmbtu/hr. The requirements for this source are the same as those of Source 132 except the gas usage is restricted to 41,895 mcf of natural gas per year based on a 12-month rolling total.

Source 136 Lime Silo: This source was previously controlled by a bin vent collector that was replaced under an RFD approved in December 2008. The bin vent filter has an exhaust flow of less than 5,000 acfm. The filter uses 25 bags and has a total surface filter area of 236 ft². The exhaust from the bin vent collector is subject to the particulate emission restriction of 0.04 gr/dscf according to §123.13. The facility is required to perform monthly preventative maintenance on the control device on a monthly basis and shall not operate the source without the control device. The facility must keep records of the inspections of the control device, problems that occur, and corrective actions taken. The inspections and maintenance of the control device will provide adequate assurance of compliance with the particulate emission limit. The requirements were included in the permit renewal for this source.

Source 137 Backup Emergency Diesel Pump: The facility uses a backup emergency diesel pump to provide cooling water to various equipment in the plant in the event of a failure of the cooling towers. The diesel engine is connected to the water pump and will activate in the event of a power failure. The emergency diesel engine is Subject to 40 CFR 63, Subpart ZZZZ. The engine is rated at 230 BHP and was installed in 1987. The facility is an area source for HAPs. The applicable requirements for an existing emergency engine (Combustion Ignition (CI)) at an area source were included in the permit as identified as follows:

- §63.6595 – The compliance date for this engine is May 3, 2013.
- §63.6603 – The engine is subject to Table 2d of the Subpart which includes: a. Change oil and filter every 500 hours of operation or annually, whichever comes first; b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.
- §63.6605 - Operate and maintain the affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.
- §63.6625 - Operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop your own maintenance plan. Minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes. The option of utilizing an oil analysis program in order to extend the specified oil change requirement by comparison of the Total BaseNumber, viscosity, and percent water content with established parameters.
- §63.6640 - Comply with the work or management practices by: i. Operating and maintaining the stationary RICE according to the manufacturer's emission-related operation and maintenance instructions; or ii. Develop and follow your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. Operation of the engine for

maintenance testing or non-emergency use is limited to 50 hours, the total time of maintenance and testing cannot exceed 100 hours.

- §63.6655 - Keep records of each occurrence and duration of each malfunction. Keep records of the maintenance conducted on the stationary RICE in order to demonstrate that you operated and maintained the stationary RICE and after-treatment control device (if any) according to your own maintenance plan. Keep records of actions taken during malfunctions. Keep records of hours of operation through the non-resettable meter. Document the time operated classified as emergency, non-emergency, and demand response (if applicable).
- §63.6660 – Format and duration of the records that need to be kept.
- §63.6665 - Table 8 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply.
- §63.6675 - Refer to 40 CFR 63.6675 for the definitions that applies to this subpart.

Miscellaneous Section of the Permit

The facility also has the following sources that are considered insignificant sources in the permit and not subject to any additional requirements:

1. 500 gallon gasoline storage tank
2. 500 gallon diesel storage tank
3. 500 gallon kerosene storage tank
4. 250 gallon emergency diesel tank

RFDs

- On December 17, 2008, the Department approved an electronic ERFD (#656) for the replacement of the bin vent filter (C02) on the Lime Silo with an equivalent new bin vent filter. The bin vent filter has an exhaust flow of less than 5,000 acfm. The filter uses 25 bags and has a total surface filter area of 236 ft². The lime silo was added to the permit through this renewal along with standard requirements for the control device.
- On September 8, 2010, the Department approved an ERFD (#1302) for the replacement of the existing mold grinder baghouse at the facility. Emissions did not increase as a result of the in-kind replacement of the baghouse. The unit is a cartridge filter collector with 18 elements totaling 846 ft² and an air flow of 8,000 acfm. The previous control device was installed in 1994.

Facility Actual Emissions

The following table provides the emission inventory for this facility during the term of this permit including calendar years 2007 – 2011.

Emissions in TPY

| Year | CO | Lead | NOx | PM-10 | PM 2.5 | SOx | VOC |
|------|--------|-------|-------|-------|--------|------|-------|
| 2007 | 417.41 | 0.329 | 46.40 | 35.85 | 34.98 | 3.18 | 24.76 |

| | | | | | | | |
|------|--------|-------|-------|-------|-------|------|-------|
| 2008 | 670.37 | 0.309 | 40.22 | 33.19 | 32.31 | 3.22 | 24.99 |
| 2009 | 504.52 | 0.157 | 26.48 | 15.83 | 15.19 | 2.40 | 18.68 |
| 2010 | 615.24 | 0.153 | 28.63 | 20.15 | 19.32 | 3.03 | 23.51 |
| 2011 | 572.65 | 0.146 | 30.08 | 21.09 | 20.22 | 8.35 | 31.42 |

Performance Testing

The facility conducted performance stack testing of the EAF during the term of the permit as indicated in the following table.

Averages from 3 runs each test

| Test date | CO (lb/ton) | NOx (lb/ton) | Throughput (ton steel/hr) |
|------------|----------------|-------------------|---------------------------|
| 09/16/2008 | 3.0 | | 66.34 |
| 10/09/2009 | 3.05 | 0.06 | 73.2 |
| 10/5/2010 | 2.55 | 0.05 | 68.83 |
| 9/28/2011 | 2.63 | 0.06 | 61.2 |
| 9/21/2011 | Pending review | by Central Office | as of 10/11/2012 |

The 2011 emission test also included SO₂, THC, FPM/PM₁₀, and opacity testing which was required to be conducted at least 6-12 months prior to the permit expiration. The averages for the three runs were 0.11 lb/ton, 0.23 lb/ton, 0.15 lb/ton, and zero percent opacity, respectively. The testing for the gaseous pollutants was conducted in the duct prior to the baghouse. The FPM/PM₁₀ and opacity testing was conducted at the exhaust of the positive pressure baghouse.

The above tests have demonstrated compliance with the short term emission limits for the EAF and combined with the actual production; demonstrate compliance with the TPY emission limits for the EAF.

Compliance

The facility had a Full Compliance Evaluation (FCE) Inspection conducted on August 23, 2007 and September 17, 2008. No violations were noted from these two inspections. Based on the FCE conducted on January 21, 2009, the facility was issued an NOV. The Department and the facility entered into Consent Assessment of Civil Penalty (CACP) agreements on April 3, 2009 for violations noted during the January 21, 2009 FCE. These violations included failure to maintain monthly maintenance records for the EAF baghouse, the mold grinder baghouse, the ingot grinder baghouse, and the ladle furnace baghouse for October 2008 through December 2008. During this time, the facility also failed to conduct the appropriate number of visible emission observations. The violations were corrected and the CACP closed the case. The FCE conducted on January 13, 2010 did not reveal any violations. The Department and the facility entered into a CACP on June 9, 2010 for violations of fugitive emissions observed crossing off the property line on April 28, 2010, the violation was corrected and the CACP closed the case. The Department and the facility entered into a CACP on June 30, 2010 for visible emissions leaving the EAF baghouse south compartment on June 9, 2010. The violation was

corrected and the CACP closed the case. The FCE conducted on August 16, 2011 did not reveal any violations.

Renewal OP Application Changes

The application made clarifications to the throughput rate for a number of operations at the facility including the EAF, ladle furnace, vacuum degasser, gas cutter, and ingot grinding. The following table indicates the previous SCC, the revised SCC, and the justification for changing the SCC.

| Source number | Source ID | Previous SCC throughput | Revised SCC throughput | Justification |
|---------------|---------------------------|-------------------------|------------------------|--|
| 101 | EAF | 54.8 TPH | 76.0 TPH | Short term ranges from 60-68 TPH, instantaneous max is 76 TPH; average annual rate of 55 TPH |
| 102 | (6) Annealing Furnaces | 54.8 TPH | 65 TPH | Short term is 65 TPY; average annual rate is 55 TPH |
| 103 | Scrap Torching | 47.0 TPH | 60 TPH | Short term is 60 TPY; average annual rate is 50 TPH |
| 104 | Gas Cutter | 47.0 TPH | 60 TPH | Short term is 60 TPY; average annual rate is 50 TPH |
| 105 | Teeming | 54.8 TPH | 76 TPH | Short term ranges from 60-68 TPH, instantaneous max is 76 TPH; average annual rate of 55 TPH |
| 108 | Ingot Grinding | 54.8 TPH | 65 TPH | Short term is 65 TPY; average annual rate is 55 TPH |
| 109A | Electric Ladle Furnace | 54.8 TPH | 76 TPH | Short term ranges from 60-68 TPH, instantaneous max is 76 TPH; average annual rate of 55 TPH |
| 109B | Electric Ladle Furnace #2 | 54.8 TPH | 76 TPH | Short term ranges from 60-68 TPH, instantaneous max is 76 TPH; average annual rate of 55 TPH |
| 110 | Scrap Handling | 54.8 TPH | 76 TPH | Short term ranges from 60-68 TPH, instantaneous max is 76 TPH; average annual rate of 55 TPH |
| 111 | Vaccum Degasser | 54.8 TPH | 76 TPH | Short term ranges from 60-68 TPH, instantaneous max is 76 TPH; average annual rate of 55 TPH |
| 112 | Mold Grinding | 54.8 TPH | 76 TPH | Mold grinding is variable, short term operation is 24 hr/day max |

| | | | | |
|--|--|--|--|--------------------------------|
| | | | | annual operation of 8,400 hrs. |
|--|--|--|--|--------------------------------|

The site level restriction on the hours of operation of 8,760 hours per year was removed as indicated previously in this memo. The number of stacks for Stack ID S03 for Source 034 (natural gas fired boilers) was changed from 3 to four (one per boiler).

The CAM requirements for source 101 pertaining to the fan amperage have been modified as reflected previously in this memo.

The lime silo was added to the permit (Source 136) with the appropriate requirements for the bin vent filter as identified above.

The emergency diesel pump was removed as an insignificant source in the miscellaneous section of the permit and included as Source 137 with the conditions mentioned above to reflect the revision to 40 CFR 63 Subpart ZZZZ

The miscellaneous section of the permit identified the specific units included under Source 102 – Anneal Furnaces. The identification of furnace 20 was updated to include the installation of Low NOx burners.

Recommendation

The draft Operating Permit was submitted to the company on August 22, 2012. The Notice of Intent to Issue the Operating Permit was published in the Pa. Bulletin on September 8, 2012. The Notice indicated there was a 30-day comment period. There were no comments from the public received during the comment period. The newspaper notice was sent to the facility for publication. The newspaper notice of Intent to Issue was published in the New Castle News, a newspaper of general circulation in Lawrence County on August 24, 25, and 27, 2012. The draft of the renewal was submitted to the USEPA (Himanshu Vyas) on August 22, 2012. The EPA comment period expired October 5, 2010. There were no comments received for this renewal application.

On October 9, 2012, the writer conducted an inspection for purpose of the issuance of the renewal of the operating permit along with Scott Dyll and noted the facility was in compliance with all the applicable requirements.

Issuance of the Renewal Operating Permit is recommended with the appropriate conditions in the permit.

cc: Larry Vogel – New Castle District Supervisor

COMMONWEALTH OF PENNSYLVANIA

Department of Environmental Protection

June 26, 2013

814/332-6940

Fax: 814/332-6117

SUBJECT: Review of Application for Operating Permit Modification
AUTH ID # 971705; APS ID # 345079; PF ID # 3700
NRG Power Midwest LP / New Castle Power Plant
Taylor Township, Lawrence County

TO: AQ/Facilities/FACOP/ TV 37-00023

FROM: Matthew Williams *MW*
Facilities Permitting Chief
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THROUGH: John F. Guth *JFG*
Air Quality Program Manager
Northwest Region

Introduction

The subject application is for an operating permit modification to incorporate the requirements of 40 CFR 63 Subpart DDDDD (Boiler MACT). These requirements became effective April 1, 2013. The Department is required to revise the permit because the expiration date of the current permit is more than 3 years from the effective date of Subpart DDDDD. The modification is pursuant to 25 Pa. Code §127.463 (Operating permit revisions to incorporate applicable standards). The permit expires April 30, 2017. Minor changes were also made to the permit to reflect the amended language of 40 CFR 63 Subpart ZZZZ. The facility also changed the name of the owner to NRG Power Midwest LP. The application for this change was received on June 17, 2013 and combined with this authorization. The Tax ID, Responsible Official and Permit Contact did not change as a result of the name change.

Operating Permit Modification Changes

The facility has an auxiliary boiler used for building heat and freeze protection listed as a combustion source in the permit. Source 030 is a Clayton Industries boiler (model EO-204-1) rated at 8.2 mmBtu/hr. The boiler is fueled with #2 oil at a maximum rate of 59.6 gallons per hour. The unit was installed in 2009. The facility has three coal / oil fired boilers (Sources 033, 034, and 035) that are not subject to the requirements of DDDDD based on the fact that they are used as electric generating units (§63.7491(a)). Source 030 is subject to the following requirements which have been added to the permit:

- §63.7495(b & d) – The boiler was installed before June 4, 2010 and is therefore an existing source (see classification of the affected source in §63.7490(d)) the compliance date for this boiler is January 31, 2016. The notifications must be submitted in accordance with §63.7545.

- §63.7500(a) (1) and (3) – The facility must meet the work practice standards in Table 3 for this unit by conducting a tune-up on a biennial basis and conducting a one-time energy assessment on the boiler. The source must be operated and maintained in a manner consistent with safety and good air pollution control practices for minimizing emissions. Paragraph (f) indicates that these standards apply at all times the affected unit is operating, except during periods of startup and shutdown during which time they must comply with Table 3.
- §63.7505(a) – The facility must be in compliance with the work practice standards.
- §63.7510(e & j) – The initial biennial tune-up must be completed no later than the compliance date. Paragraph (j) addresses sources which have not operated between the effective date and the compliance date and requires a tune-up 30 days after the re-start.
- §63.7515(d & g) – The facility must conduct biennial performance tune-ups. Each of the subsequent tune-ups must be conducted no later than 25 months from the previous tune-up. If the unit is not operating at the time of the scheduled tune-up, the tune-up must be conducted within 30 days of startup.
- §63.7530(d-e) – The facility must submit a notification of compliance status after the tune-up and energy assessment is completed.
- §63.7540(a)(10, 11, and 13) – The facility must conduct a biennial tune-up. If the unit is not operating on the required date of the tune-up, it must be conducted within 30 calendar days of startup. The requirements for the tune-up address the flame pattern, the air to fuel ratio control, optimizing the CO concentration, measuring the CO concentration in ppm and oxygen in volume percent, and maintaining the information of the tune-up in a report.
- §63.7545(a) & (b) – The facility must submit the initial notification and compliance notification addressed in §63.9 (b) and (h). The initial notification was received by the Department on October 25, 2012. According to Jim Eddinger of the USEPA facilities that have submitted initial notifications as required by the March 2011 Boiler MACT rule, do not have to resubmit initial notifications because the January 31, 2013 publication of the Boiler MACT was an amendment to the March 2011 rule.
- §63.7545(e) – The compliance status notification must include a signed statement by the responsible official that indicates the initial tune-up and energy assessment have been completed. If there are deviations from the tune-up or energy assessment, they must be reported in the compliance status notification.
- §63.7550(a-c) – The facility must submit a biennial compliance report that provides the company name and address, process unit information, date of the report, beginning and end time of the reporting period, operating time during the period, date of the most recent tune-up, and the date of the most recent burner inspection. The first compliance report covers a two year period beginning with the compliance date and ending two years after the compliance date. The report must be postmarked or submitted by January 31. Each report thereafter covers a two year period and must be postmarked or submitted no later than January 31. Paragraph (h) indicates the reports must be submitted electronically through the CEDRI system if it is available. However, according to the Small Entity Compliance Guide for Major Source Boilers and Process Heaters (<http://www.epa.gov/ttn/atw/boiler/boilerpg.html>) Section 3.7.4, the facility does not need to submit the results of the energy assessment or tune-up. These items will be kept as records and only submitted if requested by the delegated authority.
- §63.7555(a) (i) and (j) – The facility must keep records of each notification submitted to the administrator and the documentation supporting the notification. The facility must keep records

of the calendar date, time, occurrence, and duration of each startup and shutdown including the types and amounts of fuels for each startup and shutdown.

- §63.7560 – The form and length of recordkeeping is identified. The records must be onsite or accessible from the site for at least 2 years and may be kept offsite for the remaining 3 years (kept for at least 5 years total).
- §63.7565 – The facility must comply with the general provisions of Table 10 that are applicable.
- §63.7575 – The terms used in this subpart are defined in the Clean Air Act, in § 63.2 (the General Provisions), and in this section and can be found in 40 CFR §63.7575.

The facility also has one limited use compressor engine (Source 036- Electromotive Diesel A) and two emergency diesel generators (Source 106 in Group 5) at the facility. The current permit indicates that the limited use stationary RICE engine is not subject to 40 CFR 63 Subpart ZZZZ pertaining to the Reciprocating Internal Combustion Engine (RICE) Maximum Achievable Control Technology (MACT). This is because the existing limited use stationary RICE has a site rating of more than 500 brake HP and is located at a major source of HAP (See 40 CFR §63.6590(b)(3)). Source 106 has the requirements listed for the emergency generators which are each rated less than 100 brake HP. The following changes were made to the permit reflecting the changes to ZZZZ:

Source 036 Revisions (Group 4):

- §63.6590 was revised for Source 036 (found in Group 4 of Section E of the permit) to remove the introductory text to paragraph (b)(1) since both (b)(1)(i) and (ii) are not applicable.

Source 106 Revisions (Group 5):

- §63.6595(a)(1) has references to many different RICE. The non-applicable text was removed and now it reads, “If you have [non-applicable text omitted] an existing stationary CI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions [non-applicable text omitted] you must comply with the applicable emission limitations and operating limitations no later than May 3, 2013. [Non-applicable text omitted]”
- §63.6602 had a reference to compliance with the numerical emission limitations which is not applicable to the emergency RICE and it was therefore removed. The wording of the regulation was amended to reflect the addition of “and other requirements”. The condition now reads, “If you own or operate an existing stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations and other requirements in Table 2c to this subpart which apply to you. [Non-applicable text omitted].” The excerpt from Table 2c was also added to clarify what the work management practices are (oil change, air filter, hoses, and belts). The condition was moved from the emission restriction section to the work practice standard section of Group 5.
- §63.6625(i) provides for the option of utilizing an oil analysis program. The amendment clarified that the oil change must be conducted within 2 business days so the word “business” was added to this condition.
- §63.6640(a) was changed to reflect the amendment with the addition of the words “and other requirements” this pertained to the demonstration of compliance and previously only mentioned compliance with emission limitations and operating limitations.
- §63.6640(b) The last sentence referred to a catalyst change and reestablishing operating parameters. This is not applicable to this emergency engine so it was removed and replaced with the notation of “non-applicable text omitted”.

- §63.6640(e) This condition provides exceptions to complying with Table 8, however, none of the exceptions are applicable. Therefore, only the first sentence was kept and a notation of “non-applicable text omitted” was added to the requirement.
- §63.6640(f) This paragraph was originally in the permit to specify what the facility needs to do to continue to classify as an emergency RICE. The paragraph was amended on January 30, 2013 and therefore, the requirement was updated in the permit to reflect the amended language. The amendment provides for limited emergency demand response, use of the engine for periods of deviation in the voltage or frequency, and for non-emergency situations.
- §63.6655(f) was modified by the amendment to indicate (f)(1) through (f)(2) rather than “or”. The language in the third sentence of the paragraph was also amended and now reads, “If the engine is used for the purposes specified in §63.6640(f)(2)(ii) or (iii) or §63.6640(f)(4)(ii), the owner or operator must keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes.
- §63.6665 This condition was revised to only keep the first sentence which states “Table 8 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you”. The rest of the non-applicable text was denoted as non-applicable text omitted.
- §63.6675 The non-applicable terms were removed from this requirement and the definition for emergency stationary RICE was revised to reflect the amendment. The condition was moved from the Work Practice section of Group 6 to the Additional Requirements section of Group 5.

Recommendation

A draft of the Modification was emailed to Luke Beachler on April 18, 2013. Mr. Beachler replied on May 1, 2013 with the facilities comments. The draft TV permit modification was submitted to the Himanshu Vyas of the USEPA on May 2, 2013. The EPA comment period expired on June 17, 2013. The Notice of Intent to Issue was published in the Pa Bulletin on May 18 2013 and also in the New Castle News, a newspaper of general circulation in Lawrence County on May 14, 15, and 16, 2013. The newspaper notice indicated there was a 30-day comment period. The comment period expired on June 17, 2013.

Issuance of the Operating Permit Modification is recommended with the respective changes as mentioned above.

cc: Larry Vogel –New Castle District Supervisor