

COMMONWEALTH OF PENNSYLVANIA

Department of Environmental Protection

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SUBJECT: Review of Application for TV Operating Permit Renewal
AUTH ID# 1156269; 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*
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THROUGH: Eric A. Gustafson *EAG 10/13/17*
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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 October 21, 2016. The Permit was previously renewed on October 11, 2012. The Permit was amended on July 22, 2014 to incorporate the change in responsible official. 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. The renewal permit also makes minor changes to the Compliance Assurance Monitoring (CAM) plan, adds two emergency diesel generators (Sources 138 and 139), and addresses the Reasonably Available Control Technology (RACT) requirements identified in §§129.96-129.100.

Site Level Requirements:

The facility Standard Industrial Classification (SIC) code is 3312 – Manufacturing Blast Furnaces and 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 450,000 tons of steel ingots per year based on a 12-month rolling total in plan approval 37-264G. 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 (§127.511 monitoring requirement). The facility must keep records of the monitoring along with any deviations and the corrective actions taken (§127.511 recordkeeping requirement). The facility must also keep records of the amount of fuel used by each combustion source (§127.12b) and the hours of operation (§127.441) 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 (§127.441). 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 (§127.441 Additional Requirements).

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 ppmdv at 3% O₂ and 400 ppmdv 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 do 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 13 inches. The previous renewal required the range between 3 and 11 inches. The applicant proposed the slight increase as part of the renewal application to address the higher end of the operating range due to newer bags. In 2010 and 2011 EQS installed new fan wheels in Fans #1 and #2. The new wheels were more efficient but also increased the air volume which resulted in higher baghouse inlet pressures. The increase to 13 inches is warranted based on the 2016 testing and adding a safety factor of 25% ($10.46 \times 1.25 = 13.0$ inches). The fan amperage is recorded with the same frequency (every 3 hours). The facility proposed to increase the number of allowed excursions (presently at 6 for each parameter) to 219 exceedances. The facility arrived at this number by applying three parameters which are recorded every 3 hours. Over a 6-month period, there would be 1,460 readings (8 per day times 365 days / 2). Since there are 3 parameters, the facility combined the number all together (1460 times 3 = 4380 readings) and applied an allowable deviation of 5% of all the readings over the 6-month time frame (4380 times 0.05 = 219). The Department reviewed the number of exceedances at 13 inches and found far fewer than at the previous range of 11 inches. The Department believes that 6 exceedances of any parameter should still trigger the Quality Improvement Plan (QIP) and therefore did not change the number of exceedances in the permit, but instead clarified that 6 exceedances for each parameter is the measured value for the implementation of a QIP. 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 for each parameter, over a six-month period would require development and submittal of a 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 NOx 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 NOx emission restriction of 4.6 TPY established by plan approval 37-264F. All of the furnaces are subject to the SOx 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 Subpart ZZZZ requirements were updated January 30, 2013. The permit was updated to reflect the minor revisions in wording. The requirements did not change substantially from the last permit renewal. 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.

138 Backup Emergency Diesel Generator – 55 HP: The facility uses a backup emergency diesel generator rated at 55 HP. The facility submitted an ERFD (#3963) for this source and the Department determined that the construction of this particular source meets the requirement of §127.14(a)(8)#4 – Internal combustion engines rated at less than 100 bhp and does not require a plan approval. The engine was installed in 1998 and had run time of 24.9 hours at the time of the ERFD approval. The engine for the generator is a Yanmar 4TNE84T-SA. Emissions of each of the criteria pollutants is less than 1 TPY for this source. Based on installation prior to July 11, 2005, the engine is not subject to 40 CFR 60 Subpart IIII pertaining to the Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. The source is subject to 40 CFR 63 Subpart ZZZZ and has the same requirements as source 137.

139 Backup Emergency Diesel Generator – 70 KW: The facility uses a 70 kW Cummins backup emergency diesel generator. The facility submitted an ERFD (#3985) for this source and the Department determined that the construction of a 70-kW natural gas-fired emergency generator meets the requirements in 25 PA Code 127.14(a)(8) [#6 Internal combustion engines regardless of size, with combined NOx emissions less than 100 #/hr, 1000 #/day, 2.75 tons per ozone season, and 6.6 tpy on a

12-month rolling basis for all exempt engines at the site] and therefore does not require a plan approval. This emergency generator replaced an emergency generator in eRFD 3588 approved on May 2, 2013, and is a Cummins model WSG-1068, 4 cycle, spark-ignited engine rated at 112.2 bhp with a manufacture date of 2013. The facility provided an Exhaust Emission Data Sheet that states emissions of 1.2 g/hp-hr for HC, 6.2 g/hp-hr for NO_x, and 46.4 g/hp-hr for CO. From 40 CFR 63.6585, the engine is subject to 40 CFR 63 Subpart ZZZZ because it is a stationary RICE at a major or area source of HAP emissions. From 40 CFR 63.6590(c)(1), an affected source that meets any of the criteria of this section (new or reconstructed stationary RICE located at an area source) must meet the requirements of this part by meeting the requirements of 40 CFR 60 Subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part. The NO_x emissions were estimated to be 1.54 #/hr and 0.077 tpy based on 100 hours per year and 1,000 btu/cf of natural gas. The following requirements were added to the source:

§ 60.4230(a)(4)(iv) – Applicability of Subpart JJJJ. The SI ICE was constructed after June 12, 2006, is an emergency generator greater than 25 HP (19 KW), and was manufactured after January 1, 2009.

§ 60.4233(e) and Table 1 - The stationary SI ICE with a maximum engine power greater than or equal to 75kW (100 hp) must comply with the emission standards in Table 1 for Emergency Engines rated greater than 25 HP and less than 130 HP with a manufacture date of 1/1/2009[NO_x of 10 g/hp-hr and CO of 387 g/hp-hr].

§ 60.4234 - Owners and operators of stationary SI ICE must operate and maintain stationary SI ICE that achieve the emission standards as required in §60.4233 over the entire life of the engine.

§ 60.4243(b)(1) – The owner or operator must demonstrate compliance with the emission standards in §60.4233(e) by purchasing a certified engine, demonstrating compliance with paragraph (a) of this section, keeping a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions.

§ 60.4243(d) - Emergency stationary ICE may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. There is no time limit on the use of emergency stationary ICE in emergency situations. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year. Emergency stationary ICE may operate up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. For owners and operators of emergency engines, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as permitted in this section, is prohibited.

§ 60.4243(e) - Owners and operators of stationary SI natural gas fired engines may operate their engines using propane for a maximum of 100 hours per year as an alternative fuel solely during emergency operations, but must keep records of such use. If propane is used for more than 100 hours per year in an engine that is not certified to the emission standards when using propane, the owners and operators are required to conduct a performance test to demonstrate compliance with the emission standards of §60.4233.

§ 60.4243(f) - If you are an owner or operator of a stationary SI internal combustion engine that is less than or equal to 500 HP and you purchase a non-certified engine or you do not operate and maintain your certified stationary SI internal combustion engine and control device according to the manufacturer's written emission-related instructions, you are required to perform initial performance testing as indicated in this section, but you are not required to conduct subsequent performance testing unless the stationary engine is rebuilt or undergoes major repair or maintenance. A rebuilt stationary SI ICE means an engine that has been rebuilt as that term is defined in 40 CFR 94.11(a).

§ 60.4245 – Recordkeeping requirements including: Records of all notifications; Maintenance of the engine; Documentation from the manufacturer that the engine is a certified engine as required in 40 CFR parts 90, 1048, 1054, and 1060, as applicable;

§ 60.4246 - Table 3 to this subpart shows which parts of the General Provisions in §§ 60.1 through 60.19 apply to you.

140 Gasoline Storage Tank – 500 Gallons

Although this tank was previously included in the miscellaneous section of the permit, it was added to the site level to include applicable Federal Requirements of 40 CFR 63 Subpart CCCCCC pertaining to NESHAPs for Source Category: Gasoline Dispensing Facilities (GDF). The affected source to which this subpart applies is each GDF that is located at an area source. The affected source includes each gasoline cargo tank during the delivery of product to a GDF and also includes each storage tank. The definition of GDF is very broad and includes dispensing gasoline into the fuel tank of a motor vehicle, motor vehicle engine, nonroad vehicle, or nonroad engine, including a nonroad vehicle or nonroad engine used solely for competition. These facilities include, but are not limited to, facilities that dispense gasoline into on- and off-road, street, or highway motor vehicles, lawn equipment, boats, test engines, landscaping equipment, generators, pumps, and other gasoline-fueled engines and equipment. The only requirements applicable to this source are the work practice requirements of §63.11116 pertaining to facilities with monthly throughput of less than 10,000 gallons of gasoline. They include minimizing gasoline spills, clean up spills as expeditiously as practicable, cover all open containers and fill pipes, and minimize gasoline sent to open waste collection systems. The facility is not required to submit notifications or reports but must have records of throughput available within 24 hours of request.

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 diesel storage tank
2. 500-gallon kerosene storage tank
3. 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.
- On December 7, 2012, the Department approved an ERFD (#3350) for The installation of the refurbished 70 kW Cummins Model GGHF (60 Hz) that would meet the requirements of 25 Pa Code 127.14(a)(8) [#6 - ICE regardless of size with combined NO_x emissions less than 100 lb/hr, 1,000 lb/day, 2.75 tons per ozone season, and 6.6 ton/12CMP for all exempt engines] and therefore did not require a plan approval.
- On May 2, 2013, the Department approved an ERFD (#3588) for the installation of a refurbished 70 kW Cummins Model GGHF (60 Hz) meets the requirements of 25 PaCode 127.14(a)(8) [#6 - ICE regardless of size with combined NO_x emissions less than 100 lb/hr, 1,000 lb/day, 2.75 tons per ozone season, and 6.6 ton/12CMP for all exempt engines] and therefore does not require a plan approval. This RFD was for the same generator as ERFD (#3350), but was inadvertently submitted again by the company. The generator was damaged during shipment, never installed, and had to be replaced by the vendor. The replaced engine was covered by ERFD (#3985) mentioned below.
- On September 16, 2013, the Department approved an ERFD (#3963) for the existing Ladle Furnace #2 Water System Generator rated at 55 HP. The engine is source 138 as described earlier in this memo.
- On October 29, 2013, the Department approved an ERFD (#3985) for a 70 KW natural gas-fired Cummins emergency generator. The engine is listed as Source 139 as described earlier in this memo.

Facility Actual Emissions

The following table provides the emission inventory for this facility during the term of this permit including calendar years 2007 – 2016.

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
2012	532.81	0.129	28.03	18.75	18.00	21.24	46.11
2013	522.48	0.100	27.39	18.99	18.20	21.58	46.78
2014	448.35	0.09	37.5	19.71	18.89	22.40	48.47
2015	324.81	0.065	27.61	14.28	13.69	16.16	35.09
2016	253.83	0.070	26.94	16.19	15.54	14.31	29.33

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
9/21/2012	2.73	0.03	65.9
9/17/2013	2.07	0.096	71.1
9/23/2014	2.2	0.079	70.7
9/18/2015	1.73	0.079	64.3
10/19/2016	1.32	0.075	62.6

The 2016 emission test also included SO₂, VOC, particulate matter, and PM₁₀ testing which was required to be conducted at least 6-12 months prior to the permit expiration. The averages for the three runs were 0.064 lb/ton, 0.082 lb/ton, 0.0016 gr/dscf, and 0.105 lb/ton, respectively.

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.

RACT 2

On October 20, 2016, EQS submitted the alternate RACT proposal as an addendum to the Title V Renewal application. Additional details on the case-by-case review for the EAF (Source 101) can be found in the Review of Application for RACT II memo prepared by Tom Flaherty on April 28, 2017. In addition to the case-by-case RACT II, the facility is also subject to the presumptive RACT II requirements of 25 Pa. Code §129.97 for the sources listed in the following table:

Source Name	Source ID	Rated Capacity (mmbtu/hr)	Presumptive RACT
Clayton Boilers (4)	033	10.5 each	129.97(c)
Miscellaneous Heaters	034	Less than 2.5 each	129.97(c)
Annealing Furnace 15	102	17.3	129.97(c)
Annealing Furnace 16	102	17.3	129.97(c)
Annealing Furnace 17	102	17.3	129.97(c)
Annealing Furnace 18	102	17.3	129.97(c)
Annealing Furnace 19	102	21.1	129.97(b) [Tune-up]
Annealing Furnace 20	102	8.0	129.97(c)
Scrap Torch	103	1.0	129.97(c)
Gas Cutter	104	1.0	129.97(c)
Ladle Preheaters (2)	132	5.6 each	129.97(c)
EAF Preheater	135	6.0	129.97(c)
230 HP Emergency Pump	137	0.59	129.97(c)
55 HP Emergency Generator	138	0.15	129.97(c)
70 KW Emergency Generator	139	0.24	129.97(c)

The requirement of 129.97(c) is installation, maintenance, and operation of the source in accordance with the manufacturer’s specifications and with good operating practices. This applies to NOx sources less than 5 TPY, VOC sources less than 2.7 TPY, boilers or combustion sources rated less than 20 mmbtu/hr, combustion engines rated less than 500 HP. The sources in the above table all meet this requirement except for the Annealing Furnace 20 which must instead meet 129.97(b) performance of a biennial tune-up. The applicable requirements of 129.97 and 129.100 were added to the permit in Group 8. The applicable requirements for the case-by-case review for the EAF (Source 101) are covered in the Source Level of the permit.

Compliance

The facility had Full Compliance Evaluation (FCE) Inspections conducted on August 9, 2013, June 19, 2014, July 10, 2015, and November 2, 2016 by the Air Quality Inspectors and those inspections indicated no violations.

Recommendation

The draft Operating Permit was submitted to the company on August 8, 2017. The Notice of Intent to Issue the Operating Permit was published in the Pa. Bulletin on August 26, 2017. The Notice indicated there was a 30-day comment period. There were no comments on the draft permit. 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 22, 23, and 24, 2017. The draft of the renewal was submitted to the USEPA (Himanshu Vyas) on August 15, 2017. The EPA comment period expired September 29, 2017. The permit was also sent to the EPA Planning Group for review of the RACT Case-By-Case Determination at the same time the application was sent

to Mr. Vyas. Mary Cate Opila of the EPA Office of Permits and State Programs responded to the writer on September 20, 2017 stating EPA did not have any comments on this permit. A RACT Hearing was scheduled for October 11, 2017. The Notice indicated that if the Department did not receive any pre-registered speakers by October 4, 2017, the hearing would be cancelled. No one scheduled to testify and hearing was cancelled as noted on the Departments Web Site.

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

cc: Dianne Maskrey – AQ West District Supervisor (New Castle Office)