COMMONWEALTH OF PENNSYLVANIA **MEMO**
Department of Environmental Protection
Northwest Regional Office

TO Air Quality Permit File TV-32-00055

FROM Sheri L. Guerrieri, P.E. ***slg 10/14/21***
Environmental Engineer Manager
Air Quality Program

THROUGH David G. Balog, P.E. ***dgb 10/14/21***
Environmental Engineer Manager
Air Quality Program
And
Eric A. Gustafson EAG 10/14/2021
Regional Manager
Air Quality Program

DATE October 14, 2021

RE Title V Operating Permit Modification Application
Homer City Generation, L.P.(HCG)
Homer City Generating Station (HGS)
Units 1, 2, & 3 RACT II Compliance
Black Lick and Center Townships, Indiana County
APS # 941736, Auth #1350294, PF # 262713

BACKGROUND

Homer City Generation, L.P. (HCG) submitted a Title V Operating Permit Modification application that was received by the Department of Environmental Protection (Department) on April 21, 2021, to comply with additional Reasonably Achievable Control Technology (RACT II) requirements for NO_x emissions for Units 1, 2 & 3 (Boiler No. 1, 2, & 3) and identified as Source IDs 031, 032, and 033, respectively, at the Homer City Generating Station (HGS) located in Center Township, Indiana County. As noted by the Department in the November 17, 2020 letter to HCG regarding RACT II regulation implementation, the fee for this application is waived. The application was deemed administratively complete on April 23, 2021.

RACT PERMIT HISTORY

RACT II final rulemaking was published in the *Pa. Bulletin* on April 23, 2016. In accordance with 25 Pa. Code 129.96(a), RACT II is applicable to the owner and operator of a major NO_x and/or VOC emitting facility that were in existence on or before July 20, 2012.

HCG is a major stationary source of NO_x & VOCs and was in existence before July 20, 2012. As such, in accordance with 25 Pa. Code §129.96, this facility is subject to the Department's RACT II requirements under §§129.97-129.100.

On October 24, 2016, HCG submitted both a timely and complete petition for an alternative compliance schedule for HGS, and minor operating permit modification application to incorporate interim NO_x emission limitation for Units 1 & 2, presumptive RACT NO_x emission limitations for Unit 3, and presumptive RACT VOC requirements. The petition was submitted in accordance with the requirements of 25 Pa. Code §129.97(k).

On December 30, 2016, the Department approved HCG's petition (including updated interim emission limits) in writing, and also entered into a Consent Order and Agreement (COA) with HCG. Both the petition response letter and COA contain interim NO_x emission limits for Units 1 & 2 and a deadline (February 28, 2017) for submitting this plan approval application. The COA also contains the presumptive RACT NO_x emission limitations for Unit 3.

On September 15, 2017, Plan Approval 32-00055 was issued and authorized the installation and/or upgrade of Units 1 & 2 low-NO_x burners (LNB) with overfire air (OFA) and/or selective catalytic reduction (SCR) systems to comply with NO_x presumptive RACT limitations for Units 1 & 2; incorporate Homer City Generation L.P.'s (HCG's) approved petition, including interim NO_x emission limits and alternative compliance schedule, for Units 1 & 2; and incorporate the applicable NO_x presumptive RACT limitation for Unit 3 at the Homer City Generating Station. The presumptive limitations for all three (3) units were:

> *"… (a) NO_x emissions may not exceed 0.12 lb/MMBtu heat input, based on a 30-day rolling average, when the SCR reactor inlet temperature is at or above 600 °F.*
>
> *(b) NO_x emission may not exceed 0.40 lb/MMBtu heat input, based on a 30-day rolling average, when the SCR reactor inlet temperature is less than 600 °F."*

On November 17, 2020, the Department provided a notification letter to HCG regarding a recent decision vacating the EPA's approval of the RACT II Rule presumptive NOx limits for existing coal-fired combustion units equipped with SCR that affected their facility, as noted below:

> "*On August 27, 2020, the U.S. Third Circuit Court of Appeals issued an opinion in Sierra Club v. EPA, 3d. Cir. No. 19-2562 ("Sierra Club") vacating and remanding three aspects of the U.S. Environmental Protection Agency's (EPA) May 19, 2019 approval of DEP's 2016 reasonably available control technology (RACT II) Rule to reduce ozone pollution from coal-fired power plants (84 FR 20274. Sierra Club challenged EPA's approval of the RACT II Rule's oxides of nitrogen emission limit for coal-fired power plants with selective catalytic reduction (SCR) pollution controls; the inlet operating temperature threshold for power plants to operate SCR pollution controls; and operating temperature data recordkeeping and reporting requirements.…"*

The Court found EPA's approval of these three provisions of the RACT II Rule were not supported by the administrative record. As a result, the Court vacated EPA's approval of these three provisions and remanded them back to the agency for further action. The vacated portion of the RACT II Rule affects HGC facility. As a result of the Court's decision in Sierra Club, DEP is required to address RACT II requirements for existing coal-fired combustion units with SCR systems. DEP determined that the best method to do this is through requiring the owner or

operator of each unit affected by the Court's decision to case-by-case RACT determinations in accordance with the procedures in §129.92(a)(1)-(5) and (b), which includes a top-down analysis.

The November 20, 2020, DEP letter also advised HCG to submit case-by-case RACT II determinations on the source affected by this vacated rule that satisfy 25 Pa. Code § 129.99 (relating to alternative RACT proposal and petition for alternative compliance schedule) requirements by April 1, 2021.

On December 15, 2020, the Department renewed the Title V Operating Permit and included special condition C.IX.022 that specified on or before April 1, 2021, HCG shall submit Case-by-Case (Alternative) RACT proposal for the three existing SCR-equipped coal-fired combustion units, Units 1, 2, & 3 (Boiler No. 1, 2, & 3), to satisfy 25 Pa. Code § 129.99 (relating to alternative RACT proposal and petition for alternative compliance schedule) which must be developed in accordance with the procedures in 25 Pa. Code §129.92(a)(1)-(5) and (b), which includes a top-down analysis.

Condition C.IX.023 provided language regarding the extension of the compliance schedule in the event the proposal is accepted or denied.

> *"Each of the affected boilers (Sources 031, 032, and 033) shall not exceed the following NOx emission limits (30-day rolling average that include emissions from startups, shutdown and malfunctions).*
>
> *a) 0.12 lb/MMBtu heat input, when the selective catalytic reduction system (SCR) reactor inlet temperature is at or above 600°F.*
>
> *(b) 0.40 lb/MMBtu heat input, when the selective catalytic reduction system (SCR) reactor inlet temperature is less than 600°F.*
>
> *[Paragraphs (a) & (b) of this conditions are § 129.97(g)(1)(viii) & (g)(1)(vi)(C), respectively. These RACT II presumptive limits replace & streamline out PA 32-000-055 (RACT I)'s 0.5 lb/MMBtu NOx limit and corresponding TPY limits (i.e., 13,076, 12,825, & 13,753 TPY for Sources 031, 032, & 033, respectively). Compliance with this condition assures compliance with PA 32-00055J, Section E, Source Group UNITS 1-3 RACT II's Condition #001, #002, & #004.]"*

The technical review memo for Plan Approval PA-32-00055J describes the 2016 actual facility-wide NOx emissions as 11,291.55 tpy and the Projected Actual Emissions (PAE) proposed for Units 1 & 2 after the plan approval modification was 2,320 tpy NOx, each. Unit 3 NOx PAE was not quantified in the Plan approval review memo because there were no proposed changes to Unit 3 in the plan approval just an incorporation of applicable presumptive RACT II conditions.

Other RACT II affected sources with 25 Pa. Code §129.97 limits:

RACT II presumptive limitations are already included in the Title V permit and remain unchanged at HGS and include:

- Source ID 101: Oil Fired Space Heaters,
- Source ID 037: B & W Auxiliary Boiler,
- Source ID 111: Emergency Diesel Generator (855 bhp),
- Source ID 112: Diesel Fire Pump (330 bhp), and
- Source ID 113: Emergency Diesel Generator (800 bhp).

REGULATORY ANALYSIS

This application is not subject to NSPS, NESHAP, NSR, or PSD permitting requirements.

25 Pa. Code § 129.92 RACT proposal requirements- HCG submitted a new proposal and case-by-case RACT analysis for the three combustion units, Units 1, 2 & 3. The tabulated summary of the five (5)-step top down RACT analysis for each unit is in TABLE 2. RACT II DETERMINATION FOR UNITS 1 & 2 and TABLE 3. RACT II DETERMINATION FOR UNIT 3, as applicable, below. All other previous RACT II determinations remain unchanged.

Additional Reasonably Available Control Technology ("RACT II") Requirements for Major Sources of NO_x and VOC from 25 Pa. Code §§129.96 – 129.100 apply to HGS. These requirements were promulgated on April 23, 2016, and apply to major NO_x or VOC emitting facilities that were in existence on or before July 20, 2012, for which a requirement or emission limitation, or both, has not been established in the applicable sections of 25 Pa. Code Chapter §129. HGS is a major NO_x and VOC emitting facility in existence before July 20, 2012.

25 Pa. Code §129.97 -Presumptive RACT requirements, RACT emission limitations and petition for alternative for alternative compliance schedule. As a result of the *U.S. Third Circuit Court of Appeals* opinion, the 25 Pa. Code §129.97 (g)(vi) and (viii) presumptive RACT II emission limitation is no longer applicable to coal fired combustion units and those with SCR operating at above 600°F.

25 Pa. Code §129.98 Facility-wide or system-wide NOx emissions averaging plan general requirements. HCG did not propose a facility-wide or system-wide NOx emission averaging plan.

25 Pa. Code §129.99 Alternative RACT proposal and petition for alternative compliance schedule. HCG submitted an alternative RACT II proposal and proposed new case-by-case NOx emission limits for Source ID 031 (Unit 1), Source ID 032 (Unit 2), and Source ID 033 (Unit 3) in accordance with this subsection.

25 Pa. Code §129.100 Compliance demonstration and recordkeeping requirements. Accordance with 129.100(d), the owner and operator of an air contamination source subject to this section and § § 129.96—129.99 shall keep records to demonstrate compliance with § § 129.96—129.99 in the following manner:

> (1) The records must include sufficient data and calculations to demonstrate that the requirements of § § 129.96—129.99 are met.
> (2) Data or information required to determine compliance shall be recorded and maintained in a time frame consistent with the averaging period of the requirement.

The majority of necessary records to determine compliance with RACT II requirements are already incorporated into the Title V Operating Permit, TV-32-00055. This includes records associated with NO_x CEM data and records of maintenance for those sources subject to good operating practices.

25 Pa. Code 127.511 Monitoring and related recordkeeping and reporting requirements

Monitoring, recordkeeping, and reporting requirements have been developed as a result of this case-by-case determination**.**

25 Pa. Code 127.541 Significant operating permit modifications

This Title V permit change will be processed as a significant permit modification and subject to the public notifications in accordance with 25 Pa. Code 1§27.521 and §127.541.

ALTERNATIVE RACT PROPOSAL AND PETITION FOR ALTERNATIVE COMPLIANCE SCHEDULE (RACT II PROPOSAL)

In accordance with §129.99(d)(1), the facility shall submit a written RACT proposal in accordance with the procedures in §129.92(a)(1)-(5), (7)-(10) and (b).

The affected sources are identified as Source ID 031 – Boiler No. 1 (Unit 1) (6,792 MMBTU/hr), Source ID 032 – Boiler No.2 (Unit 2), (6,792 MMBTU/hr) and Source ID 033 – Boiler No. 3 (Unit 3) (7,260 MMBTU/hr.) These units are categorized as wall-fired boilers fueled by pulverized bituminous coal and equipped with LNB, SOFA and SCRs and optimized for NOx control.

Existing NOx Emission Control Summary (Combustion and Post Combustion Controls)

On Units 1 and 2 (Source IDs 031 and 032), HCG installed low NOx burners (LNB) and separated over-fire air (SOFA) systems in 1995 and added selective catalytic reduction (SCR) NOx controls in 2001. The optimized SCR systems were upgraded in 2009 for year round operation and in 2018 to improve the performance of the SCR systems. The 2018 upgrade included installation of new Ammonia Injection Grids (AIG) and static mixers in the exhaust upstream to provide better mixing of the ammonia.

On Unit 3 (Source ID 033), HCG installed LNB in 1977, SOFA in 1995, and SCR NOx controls in 2003. The SCR was upgraded in 2009 to operate year round. In 2018, SCR upgrades were not necessary since the distance between the AIG and the catalyst beds were adequate for mixing of the ammonia in the exhaust stream.

The Department understands that each unit is equipped with low-NO_x burners (LNB) with overfire air (OFA) and a selective catalytic reduction (SCR) system. LNB/OFA creates a fuel rich primary combustion zone resulting in incomplete combustion which is then completed in secondary or tertiary combustion zones assisted by the OFA. LNB will change the combustion zone profile within the boiler through increases to air velocity and/or more precise combustion zone flame monitoring. OFA will create a fuel rich primary combustion zone and suppress flame temperature. LNB/SOFA combustion control systems are effective with a 10 to 60% NOx emission reduction. HCG estimates up to 20% NOx reduction for these units.

Basic components of the SCR system include the ammonia feed system that includes a feed pump, vaporizers, the AIG, and the SCR catalyst bed. Grids and mixers promote increased mixing of injected ammonia with the flue gas; allowing for increased reduction of NO_x in the downstream catalyst reactor. If any components of the ammonia feed system fail the NOx reduction reaction may not occur. SCR systems are effective with up to a 90% NOx emission reduction.

Optimized SCR systems each have four (4) layers of catalyst. Each being 1 meter thick containing 160 catalyst modules with 60 catalyst logs in each module and containing 100 tons of catalyst. LNB/OFA Optimization and SCR Optimization and use of the economizer by-pass system during startup, shutdown and low load reduce NOx emissions but reduction rates vary and cannot be quantified here.

Evaluation of Technical Feasibility

TABLE 2. RACT II DETERMINATION FOR UNITS 1 & 2 and TABLE 3. RACT II DETERMINATION FOR UNIT 3, below, summarize the §129.92(a)(1)-(5) and (b) top down analysis performed by HCG and identify the available NOx reduction technologies, controls, and operating practices for this facility.

The Department conducted an independent top-down analysis of additional NOx control technologies for comparison. See the Department's Homer City Technical Evaluation for Case-by-Case NOx RACT memo dated October 14, 2021 from Vince Pascucci, Naishadh Bhatt, and Viren Trivedi for detailed analysis.

The Department agrees with the HCG's RACT analysis using this top-down approach, that there are no practical or economically feasible additional NOx control technologies options to consider near the approximate RACT II cost-effectiveness threshold of $3,500/ton of NOx removed (Pennsylvania Bulletin, Vol. 46, No. 17, April 23, 206, page 2044, preamble).

The Department performed a case-by-case evaluation of the NOx emission limits for each unit. This evaluation and resulting NOx limit RACT determination is also included in the top-down summary Tables 2 and 3, RACT II column, below, and differs from RACT II limits proposed by HCG, below in Table 1. HCG PROPOSED RACT II CASE-BY CASE NOX LIMIT SUMMARY.

HCG Proposed RACT II Emission Rate and Operating Scenarios

HCG proposed NOx RACT II emission limits for normal operation of their coal-fired combustion units based on 2019-2020 NOx emission data and defined operation modes is as follows:

TABLE 1. HCG PROPOSED RACT II CASE-BY CASE NOX LIMIT SUMMARY

Operating Scenario/ Averaging Time	Source 031 Unit 1 (Lbs./MMBTU)	Source 032 Unit 2 (Lbs./MMBTU)	Source 033 Unit 3 (Lbs./MMBTU)
Non Ozone Season/ 30-day rolling average	0.11	0.11	0.10
Ozone Season (May 1-Sept 30)/ 24-hour block average**	0.12	0.12	0.11

This 2019-2020 period includes when the current controls and practices were fully implemented. The 24-hour limits do not include emissions during periods of start-up, shutdown, and low load operations. These limits apply to when the OFA is operating and above 600 °F.

OPERATION SCENARIOS

Since previous presumptive RACT II limitations provided no exemption from the limit, HCG's proposal qualifies that any exceedance of the emissions rates occurring as a result of *off normal operations* including start-ups, shutdowns and low load operations, as defined in the "*Definitions*", below, or days when the unit was directed by the electric grid operator to operate pursuant to any emergency generation operations required by the electric grid operator, including necessary testing for such emergency operations, or which otherwise occurred during operations which are deemed consistent with the unit's technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions shall not be included in the calculation of the 24- hour and 30-day emission rates and shall not be considered a violation of these limitations.

PJM (Regional Transmission Organization) determines operating duration and output for each available unit in the electric grid. HCG cannot predict how long a unit will be at low load, when load will increase, or whether load will increase sufficiently for generation of catalyst fouled with ABS during low load operation. To minimize or avoid detrimental effects of ammonium bisulfate (ABS) deposition on the catalyst, HCG SCRs are designed to discontinue ammonia injection when the SCR is below minimum operating temperature.

***Definitions*:**

Normal Operation:

Catalyst bed Temperatures 600 °F to 650 °F and operation of the SCR system

Off Normal Operations:

Startup is defined as beginning upon firing fuel in a boiler after shutdown event for any purpose and ending when the flue gas temperature in the SCR catalyst bed is above the minimum effective operating temperature. The operator shall achieve the minimum operating temperature of the SCR system as expeditiously as practicable, consistent with good air pollution control practices.

Shutdown is defined as beginning when none of the steam from the boiler is used to generate electricity for sale over the electric grid for any other purpose (including on-site use), or when no fuel is being fired in the boiler and when the flue gas temperature entering the SCR catalyst beds system drops below the minimum effective operating temperature. Shutdown ends when all three conditions are met.

Low Load Operation means when PJM reduces the output of a unit to an output level where minimum operating temperatures cannot be maintained in the SCR reactor.

Operation and Control Modes:

Normal Operation for Units 1, 2, & 3 is described by HCG as maintaining catalyst bed temperatures between 600°F and 650°F and controlling the SCR systems with a Distributed Control System (DCS). After the catalyst reaches operating temperature, the ammonia feed to the Ammonia Injection Grid (AIG) is regulated through the DCS based on emission data from the certified NOx CEMS. The ammonia injection rate changes based on the NOx generated in the boiler which is a function of the boiler operating load, load changes, and exhaust flow. As

the load changes, the rate of ammonia injection follows. There is a lag between the rate of NOx generated and the rate of ammonia injection so that the ammonia injection cannot be directly correlated with actual NOx emissions.

Off Normal Operations include start-ups and shutdowns as follows:

For Source ID 031-Unit 1 and Source ID 032- Unit 2 (supercritical boilers)

Units 1 & 2 (supercritical boilers) are equipped with an economizer water bypass system that reduces the time between the initiation of the coal firing during startup and the injection of ammonia into the SCR system.

At startup, the water bypass systems reduce the boiler feedwater flow through the economizer, which is immediately upstream of the SCR reactor. The reduced water flow through the economizer allows the exhaust gas to retain a higher temperature allowing the SCR reactor to reach minimum operating temperature more quickly, maximizing the time that ammonia can be injected into the SCR system and optimizing the time NOx reductions occur.

At shutdown, the water bypass systems maximize the temperature of the exhaust gases to the SCR catalyst to keep the catalyst beds above the minimum temperature for a longer period. At low load operation on a controlled shutdown, the ammonia feed to the SCR is discontinued and fuel firing stops. The water bypass systems maximize the temperature of the SCR catalyst during shutdown periods. This mode of operation maintains the temperature in the catalyst beds above the minimum operating temperature for as long as possible. When the Unit load reaches low load operation, on a controlled shutdown, the ammonia feed to the SCR is discontinued and fuel firing stops.

For Source ID 033 -Unit 3 (drum boiler):

Unit 3 is equipped with an economizer gas bypass system that reduces the time between the initiation of start-up and the injection of ammonia into the SCR system.

At startup, the gas bypass system routes boiler exhaust gas around the economizer, which is immediately upstream of the SCR reactor. The hot exhaust gas bypassing the economizer allows the exhaust gas to retain a higher temperature allowing the SCR reactor to reach minimum operating temperature more quickly, maximizing the time that ammonia can be injected into the SCR system and optimizing the time NOx reductions occur.

During shutdowns, the gas side bypass system is used to maximize the temperature of the exhaust gases during shutdown periods. This mode of operation maintains the temperature in the catalyst beds above the minimum operating temperature for as long as possible. When the Unit load reaches low load operation, on a controlled shutdown, the ammonia feed to the SCR is discontinued. and fuel firing stops.

Low Load Operation (below 600°F)

During low load operation for Units 1, 2, & 3, the exhaust of the units may not be above the minimum operation temperature (600°F) for the SCR catalyst. Injection of ammonia into the

SCR catalyst bed when the bed temperature is below the minimum operating temperature can result in catalyst deterioration and loss of NOx control effectiveness if the operating time at high temperature is not adequate to evaporate the ABS. Long term operation at temperatures below the ammonium bisulfate (ABS) condensation temperature can lead to permanent damage of the catalyst and reduction of NOx removal efficiency.

ABS condensation/deposition occurring during short term operation at temperatures below the minimum can be removed by operating the system above 600 °F. When the units are operating at minimum load, it is difficult to operate above 600 °F without increasing the electrical output. Electrical output is controlled by PJM not Homer City. ABS deposited on the preheater cannot be removed by vaporization at higher temperatures. They must physically be removed using high pressure water lances. This results in a 4 day removal from service.

Monitoring and Work practices are employed to ensure proper operation of the SCR and ammonia feed system and to minimize any detrimental ABS deposition on the catalyst. The activities are critical to maintaining the long term effectiveness of the SCR system.

Monitoring:

The operating temperature of the catalyst is the most critical factor affecting the NOx control, operation and longevity of the SCR system. The optimal operating temperature for NOx reduction is between 600 and 650 °F. Above this temperature can lead to catalytic sintering and below can result in the formation of ammonium bisulfate (ABS) which condenses on the catalysts and leads to significant and possibly permanent reduction in catalyst activity. ABS can also be deposited on the Air Preheater surfaces thus reducing the gas path through the air preheater adversely affecting boiler operations.

The second most critical factor affecting SCR system performance is whether ammonia is being injected into the exhaust stream

A Distributed Control System (DCS) monitors and controls all aspects of boiler firing control, steam turbine management, generator management, and all air pollution control devices. The DCS monitors, controls and continually optimizes all aspects of the SCR system operation including:

- Monitors the outlet temperature of the SCR gas path
- Determines SCR minimum operating temperature
- Ammonia injection initiation
- Monitors SCR outlet temperature
- Boiler firing rate
- Boiler gas NOx rate
- Stack gas NOx rate
- Calculates the amount of ammonia required to achieve NOx emission rate
- Differential pressure drop across the combustion air heaters to monitor ammonia slip
- Alarms if the differential pressure is above normal operating ranges.
- Increases or decreases boiler firing rate and steam output to respond to PJM requested output.
- As boiler firing rate changes the SCR controls are automatically changed to respond to exhaust NOx and ammonia injection levels.
- Controls SCR soot blower sequencing and alarms

NOx emissions from each unit are monitored with a 40 CFR 75 certified NOx Continuous Emission Monitoring System (CEMS). The DCS receives input on NOx emission from the CEMS on each boiler and adjusts operating conditions and control equipment to optimize the NOx treatment efficiency over a wide variety of conditions.

Work Practices

HCG implements a preventative maintenance program to assure proper maintenance of the ammonia feed system. Redundant ammonia vaporizers are installed in the system and can be brought online in the event of a failure. Replacement ammonia pumps are on site for immediate replacement in the event of a failure. Diagnosis and corrective actions of failures typically occur within 8 hours.

Optimized SCR systems each have four (4) layers of catalyst. Each being 1 meter thick containing 160 catalyst modules with 60 catalyst logs in each module and containing 100 tons of catalyst. Typically, one (1) new layer of catalyst is installed every 2 years depending on operating hour and catalyst activity levels. Each unit is off-line for approximately 16 days during the replacement.

In addition to ABS, fly ash from the boiler exhaust gases accumulate on the surface of each catalyst layer. Steam soot blowers are operated routinely by the DCS to move the ash down through each catalyst bed to the ash hoppers at the bottom of each SCR. During scheduled outages for maintenance, fly ash is vacuumed from the SCR system. At that time the SCR, ammonia injection grid piping, catalyst seals, and soot blowing systems are inspected, and repaired, as needed.

Homer City GS contends that the controls, monitoring, and work practices currently in use are RACT II.

Testing

HCG will monitor and test NOx emissions in accordance with the requirements of Chapter 139 and as proposed in the special conditions, below.

Recordkeeping and Reporting

HCG keep records as required by §129.100 and proposed in the special conditions, below.

Compliance Schedule

RACT II for Homer City in this the case-by-case RACT II proposal does not require installation of any new equipment, and does not require modification of operations, as Homer City has already installed control systems meeting RACT II for PC fired electric generating units, and has already optimized operation of these sources and their air pollution controls. Consequently, Homer City is able to comply with the proposed RACT conditions as soon as this case-by-case RACT II proposal is approved by the PADEP.

DEPARTMENTAL CASE-BY-CASE EVALUATION OF THE NOX EMISSION LIMIT

The Department performed a detailed analysis of the HCG performance data [See the Department's Homer City Technical Evaluation for Case-by-Case NOx RACT memo dated October 14, 2021 from Vince Pascucci, Naishadh Bhatt, and Viren Trivedi for detailed analysis]

and concluded that the proposed RACT II NOx emission limits described in Table 1. HCG Proposed RACT II Case-by Case NOx Limit Summar**y**, above, are higher than can reasonably be expected to be achieved for RACT II.

NOx RACT II CONCLUSION

For Source 031 (Unit 1), Source 032 (Unit 2), and Source 033 (Unit 3), no additional control technologies are deemed RACT II.

The Department has determined that lower NOx emission rates are achievable and proposes RACT II emission rates for these units as derived from the Department's Homer City Technical Evaluation for Case-by-Case NOx RACT memo (dated October 14, 2021 from V. Pascucci, N. Bhatt, and V. Trivedi) as follows:

- Emissions of NOx expressed as NO2 for Units 1 and 2 are individually limited to a maximum of 0.080 lb/MMBtu on a daily average basis.
- Emissions of NOx expressed as NO2 for Unit 3 are individually limited to a maximum of 0.070 lb/MMBtu on a daily average basis.
- Emissions of NOx expressed as NO2 from Units 1 and 2 are individually limited to a maximum of 0.45 lb/MMBtu on a daily average basis under all operating conditions.
- Emissions of NOx expressed as NO_2 from Unit 3 are individually limited to a maximum of **0.27 lb/MMBtu** on a daily average basis under all operating conditions.
- Emissions of NOx expressed as NO2 from Units 1 and 2 are individually limited to a maximum **550 lbs/hr** on a 30-operating day rolling average basis under all operating conditions.
- Emissions of NOx expressed as NO2 from Unit 3 are individually limited to a maximum **510 lbs/hr** on a 30-operating day rolling average basis under all operating conditions.

The Department defined the terms *startup, shutdown*, and *daily average* in the special conditions to be consistent with other RACT II permitted sources. Additionally, monitoring, testing, recordkeeping, work practices, and reporting conditions are consistent with other RACT II permitted facilities.

TABLE 2. RACT II DETERMINATION FOR UNITS 1 & 2 (Source IDs 031 and 032)					
Top Down Methodology					
Step 1	**Step 2**	**Step 3**	**Step 4**	**Step 5**	**RACT II**
Control Technologies Identified	**Technically Infeasible Control Options**	**Remaining Control Options Ranked by Effectiveness (Control efficiency)**	**Control Evaluation**	**BACT/BAT Selected**	**Method of Compliance & Permit Conditions**
Switch to Natural Gas Shifting Generation Full Oxy-fuel Combustion Partial Oxy-fuel Combustion Oxygen Enhanced Combustion Low NOx Burner Upgrade Low NOx Burner FGR SOFA ROFA Full Operation SCR SCR Optimization Economizer Bypass during off normal operation (SU/SD) SCR Replacement SNCR Good Combustion Practices Combustion Monitoring Preventative Maintenance Program	Switch to Natural Gas Shifting Generation Full Oxy-fuel Combustion Partial Oxy-fuel Combustion Oxygen Enhanced Combustion FGR ROFA SCR Replacement SNCR SCR operation during low load operations (T<600°F)	Full Operation SCR (up to 90%) Low NOx Burner (up to 20%) SOFA (up to 20%) Low NOx Burner SOFA Optimization Low NOx Burner Upgrade SCR Optimization Economizer Bypass during off normal operation SU/SD Good Combustion Practices Combustion Monitoring Preventative Maintenance Program	Combination of all practical and economically feasible controls are used HCG Cost Estimate (2019$): Low NOx Burner upgrade cost is projected to be $17,305/ton of NOx removed- deemed not economically feasible.	Full Operation SCR Low NOx Burner SOFA SCR Optimization Good Combustion Practices Combustion Monitoring Preventative Maintenance Program	**Restriction: RACT II** **NOx: 0.080 lb/MMBtu** on a daily average. Except during periods of startup, shut down, malfunction, emergency generation, & testing **NOx: 0.45 lb/MMBtu** on a daily average basis under all operating conditions. **NOx: 550 lb/hr** on a 30-day rolling avg basis under all operating conditions. **Monitoring:** NOx CEMS Digital Process Controls (DCS) **Work Practice Standard:** PM program for ammonia feed system Maintain and operate each source and control device in accordance with the manufacturer's emissions-related specifications, if available, or in accordance with good combustion and air pollution control practices. SU/SD- start-up/shutdown

TABLE 3. RACT II DETERMINATION FOR UNIT 3 (Source ID 033)					
Top Down Methodology					
Step 1	**Step 2**	**Step 3**	**Step 4**	**Step 5**	**RACT II**
Control Technologies Identified	**Technically Infeasible Control Options**	**Remaining Control Options Ranked by Effectiveness (Control efficiency)**	**Control Evaluation**	**BACT/BAT Selected**	**Method of Compliance & Permit Conditions**
Switch to Natural Gas Shifting Generation Full Oxy-fuel Combustion Partial Oxy-fuel Combustion Oxygen Enhanced Combustion Low NOx Burner Upgrade Low NOx Burner FGR SOFA ROFA Full Operation SCR SCR Optimization SCR Replacement SNCR Good Combustion Practices Combustion Monitoring Preventative Maintenance Program	Switch to Natural Gas Shifting Generation Full Oxy-fuel Combustion Partial Oxy-fuel Combustion Oxygen Enhanced Combustion Low NOx Burner Upgrade FGR ROFA SCR Replacement SNCR SCR operation during low load operations (T<600°F)	Full Operation SCR (up to 90%) Low NOx Burner (up to 20%) SOFA (up to 20%) Low NOx Burner SOFA Optimization Low NOx Burner Upgrade SCR Optimization Economizer Bypass during off normal operation SU/SD Good Combustion Practices Combustion Monitoring Preventative Maintenance Program	Combination of all practical and economically feasible controls are used HCG Cost Estimate (2019$): Low NOx Burner upgrade cost is projected to be $31,706/ton of NOx removed - deemed not economically feasible.	Full Operation SCR Low NOx Burner SOFA SCR Optimization Good Combustion Practices Combustion Monitoring Preventative Maintenance Program	**Restriction: RACT II** **NOx: 0.070 lb/MMBtu** on a daily average basis. Except during periods of startup, shut down malfunction, emergency generation, and testing **NOx: 0.27 lb/MMBtu** on a daily average basis under all operating conditions. **NOx: 510 lbs NOx/hr** on a 30-operating day rolling avg. basis under all operating conditions. **Monitoring:** NOx CEMS Digital Process Controls (DCS) **Work Practice Standard:** PM program for ammonia feed system Maintain and operate each source and control device in accordance with the manufacturer's emissions-related specifications, if available, or in accordance with good combustion and air pollution control practices.

RECOMMENDATIONS

Homer City operates LNB/SOFA and SCR, the most effective NOx emissions control options available, for the Homer City Units and implements and good combustion and maintenance practices for Units 1, 2 and 3. The emissions controls are optimized and operated to minimize NOx emissions.

Homer City proposes that the emission control systems installed, optimized, maintained, and operated as discussed in this review memo, above, constitutes RACT II for Units 1, 2, and 3.

Homer City Generation, L.P. has demonstrated that Units 1, 2, and 3 LNB/OFA, and/or SCR systems are be capable of complying with NO_x presumptive RACT II limitations and based on recent operational data are capable of operating at lower rates at certain times. Along with the Department proposed NOx emission rate limitations, this plan approval will include Units 1, 2 and 3 interim NO_x emission limitations in the special conditions.

I recommend publishing a notice of proposed revision to the State Implementation Plan for NOx, notice of public hearing, and notice of intent to modify Air Quality Title V Operating Permit 32-00055.

The RACT II Proposal will be incorporated into the facility operating permit after submittal of the operating permit modification application which will include the following:

- Facility operating permit application cover sheet
- Fee
- Compliance History
- Municipal/County notifications and receipts
- GIF
- Description of the RACT II conditions & the RACT II application

For the permit issuance, the following is a list TV Permit (AUTH# 1183369) changes based on HGS identifying conditions relating to 25 Pa. Code 129.97 and 129.100 presumptive RACT II limitations and requested that they be deleted from the Title V permit and replaced with proposed conditions provided in the application. The Department has determined that the following conditions need to be revised or deleted as appropriate:

Section C.IX.022- RACT II submittal deadline- delete

Section C.IX.023 – Compliance Schedule- delete

Section E Group, BOILERS-GEN REQTS-Condition E.I.004 revise to remove presumptive NOx limits with new case-by-case RACT II NOx limits.

Section E Group, BOILERS-GEN REQTS-Condition E.III.009 - 25 Pa. Code 129.100 requirements- Revise to indicate that (a) through (c) are no longer applicable.

Section E Group, BOILERS-GEN REQTS-Condition E.III.010 - 25 Pa. Code 129.100 requirements. HGC requested that this condition be deleted- Instead it should be revised and cited under 127.511 with a notation as under the authority of 129.100(d).

Section E Group, BOILERS-GEN REQTS-Condition E.IV.011 - 25 Pa. Code 129.100 requirements HGC requested that this condition be deleted. Instead it needs to be revised to cite the exact 129.100 regulatory language specifying (d) and (i) or cited under 127.511, as is.

Section E Group, BOILERS-GEN REQTS-Condition E.IV.012 - 25 Pa. Code 129.100 requirements. HGC requested that this condition be deleted. Instead it needs to be revised to cite 127.511 under authority of 127.100(b).

Section E Group, BOILERS-GEN REQTS-Condition E.V.013 - 25 Pa. Code 129.100 requirements- Revised as not subject to 127.100(c).

DEP concludes that the following NOx emissions limits are reasonable and are to be incorporated in RACT permit as they reflect control levels achieved by the application of existing control technologies and after considering both the economic and technological analysis of other NOx mitigations measures. The following special conditions shall be included in the operating permit for RACT II compliance:

1. The Owner/Operator shall comply with the following NOx emission limitations for Source ID 031-Unit 1, Source ID 032-Unit 2 and Source ID 033-Unit 3:

   Emissions of NOx expressed as NO_2 for Units 1 and 2 are individually limited to a maximum of **0.080 lb NOx /MMBtu** while Unit 3 is limited to a maximum **of 0.070 lb NOx/MMBtu** on a daily average basis. These limits exclude, emissions during start-up, shut-down, and malfunction; operation pursuant to emergency generation required by PJM, including any necessary testing for such emergency operations; and during periods in which compliance with this emission limit would require operation of any equipment in a manner inconsistent with technological limitations, good engineering and maintenance practices, and/or good air pollution control practices for minimizing emissions.

   Startup means: The period in which operation of the EGU is initiated after a shutdown event for any purpose. Startup ends when any of the steam from the boiler is used to generate electricity for sale over the grid or for any other purpose (including on-site use). Any fraction of an hour in which startup occurs constitutes a full hour of startup.

   Shutdown means: The period in which cessation of operation of an EGU is initiated for any purpose. Shutdown begins when the EGU no longer generates electricity or when no fuel is being fired in the EGU, whichever is earlier. Any fraction of an hour in which shutdown occurs constitutes a full hour of shutdown.

   Daily average means: The total mass for each of the hours during the calendar day divided by the total heat input for each of the hours during the calendar day. This calculation methodology would also apply to the limits contained in (#2 & #3), below.

[25 Pa. Code §127.12b] [Additional authority for this condition is derived from 25 Pa. Code §129.99]

2. Emissions of NOx expressed as NO_2 from Units 1 and 2 are individually limited to a maximum of 0.45 lb/MMBtu on a daily average basis under all operating conditions.

3. Emissions of NOx expressed as NO_2 from Unit 3 are individually limited to a maximum of 0.27 lb/MMBtu on a daily average basis under all operating conditions.

4. Emissions of NOx expressed as NO_2 from Units 1 and 2 are individually limited to a maximum 550 lbs/hr on a 30-operating day rolling average basis under all operating conditions.

5. Emissions of NOx expressed as NO_2 from Unit 3 are individually limited to a maximum 510 lbs/hr on a 30-operating day rolling average basis under all operating conditions.

6. The owner or operator shall calibrate, operate, and maintain all elements of the SCR system and units in accordance with the manufacturer's specifications, in a manner consistent with good engineering and air pollution control practices when the SCR system is in use. [§127.441 Work Practice]

7. The owner or operator shall operate and maintain LNB in accordance with the manufacturer's specifications and in a manner consistent with good engineering and air pollution control practices. (State only requirement) [§127.441 Work Practice (Non RACT Condition)]

8. The owner or operator shall maintain NOx controls as effectively as reasonably possible during startups and shutdowns.

9. The owner or operator shall take steps to bring NOx controls back into full service as quickly as practicable whenever the control equipment experiences a malfunction.

10. The owner or operator shall document and report to the DEP, information regarding the cause of the malfunction and the steps for bringing the controls back.

11. All operators of Boilers No. 1, 2, & 3 (Units 1, 2, & 3), selective catalytic reduction system (SCR), and low NOx burners (LNB) shall be trained in the operation and maintenance of the unit(s) they are assigned to operate by qualified personnel. [§127.441 (Non RACT Condition)]

12. The owner or operator shall develop, maintain and implement an operation and maintenance plan (O&M Plan) for Boilers No. 1, 2, & 3 (Units 1, 2, & 3), and the **SCR within 30-days of issuance**. The O&M Plan shall include, but not be limited to the following:

    (a) Inspection, repairs, and preventive maintenance procedures to be followed to ensure proper operation Boilers No. 1, 2, & 3 (Units 1, 2, & 3), and associated **SCR** systems and continuing compliance with the applicable emission limits specified in this Permit.

    (b) A description of preventive maintenance schedules, spare parts inventories, procedures and protocols for unscheduled outages, and provisions for equipment

replacement and measures to be taken to protect **SCR** system in the event of failure or shutdown.

(c) Inspections of duct work and boiler casing and repairs of leaks to maintain flue gas temperature.

(d) Details of the practices and procedures to be followed during periods of startup, shutdown and upset conditions in order to prevent emissions in excess of the standards specified in this permit.

13. The owner or operator shall develop, maintain and implement an operation and maintenance plan (O&M Plan) for the Boilers No. 1, 2, & 3 (Units 1, 2, & 3) and the low NOx burners (LNB), **within 30-days of issuance**. The O&M Plan shall include, but not be limited to the following:

(a) Inspection, repairs, and preventive maintenance procedures to be followed to ensure proper operation of all three units and **LNB** and continuing compliance with the emission standards specified in this Permit.

(b) A description of preventive maintenance schedules, spare parts inventories, procedures and protocols for unscheduled outages, and provisions for equipment replacement and measures to be taken to protect air pollution control equipment in the event of any control equipment failure or shutdown.

(c) Details of the practices and procedures to be followed during periods of startup, shutdown and upset conditions in order to prevent emissions in excess of the standards specified in this permit.

(d) Inspections, repair and testing of Over Fire Air (OFA) components.

(e) Details of the practices and procedures to be followed to ensure that the boiler is tuned to optimize NOx reduction over combustion efficiency, including but not limited to the properly adjusted burner angle.

14. The facility shall tune Sources 031, 032, and 033 (Boilers No. 1, 2, & 3) **to minimize NOx emissions** within 6 months of the effective date of this permit. [§127.441 (Non RACT Condition).]

15. The facility shall tune Sources 031, 032, and 033 (Boiler No. 1, 2, & 3**) to minimize NOx** emissions annually after the initial boiler tuning. [§127.441 (Non RACT Condition)].

16. Within 3 months of the effective date of this permit, the facility shall set the SCR for Units 1 and 2 at a target NOx emission rate set-point of 0.06 lb. NOx per MMBtu. (State only requirement)

17. Within 3 months of the effective date of this permit, the facility shall set the SCR for Unit 3 at a target NOx emission rate set-point of 0.05 lb. NOx per MMBtu. (State only requirement)

18. After operating the SCR with an outlet NOx emission rate set-point of 0.06 lb per MMBtu for Units 1 and 2 for twelve consecutive months, the facility shall submit an engineering

study within 180 days that analyzes the overall environmental performance of the system at that set-point. (State only requirement)

19. After operating the SCR with an outlet NOx emission rate set-point of 0.05 lb per MMBtu for Unit 3 for twelve consecutive months, the facility shall submit an engineering study within 180 days that analyzes the overall environmental performance of the system at that set-point. (State only requirement)

20. Within the first 60 days of each calendar year, the facility shall perform a catalyst activity test.

21. Within 60 days of receiving the results of catalyst activity test, the facility shall consult with the SCR catalyst vendor to monitor SCR performance in accordance the catalyst management plans (CMPs) developed for the SCR systems. Corrective action, if required, shall be completed by April 30th .

22. Inclusion and Revisions of 40 CFR Part 97 CSAPR Related Subparts (Subpart EEEEE is replaced with Subpart GGGGG).

23. The facility shall maintain the following records of the tune-up:
    (a) The date of the tuning procedure.
    (b) The name of the service company and the technician performing the procedure.
    (c) The final operating rate or load.
    (d) The final NOx and CO emission rates.
    (e) The final excess oxygen rate. [§127.441 (Non RACT Condition)]

24. The owner/operator shall monitor the following for Boiler 1, 2 & 3 (Sources 031, 032 & 033):

    (a) The SCR inlet temperature, continuously, in order to determine compliance with the O&M Plan.
    (b) The owner/operator shall monitor and record the times at which the SCR inlet temperature transitions across the 600°F threshold.
    (c) The ammonia injection rate to the SCR, continuously, in order to determine compliance with the O&M Plan.

25. The owner/operator shall keep records of the following for Sources 031, 032, and 033 (Boiler No. 1, 2, & 3) to demonstrate compliance with 25 Pa. Code §§ 129.99 in the following manner:

    (a) The SCR inlet temperature continuously with at least one reading every 15 minutes.

    (b) When the SCR inlet temperature transitions across the 600°F threshold.

    (c) The ammonia injection rate to the SCR hourly with at least one reading every hour.

    (d) The records must include sufficient data, including SCR inlet temperature for each boiler; times at which the SCR inlet temperature transitions across the 600°F threshold for each boiler; ammonia injection rate for each boiler, and calculations to demonstrate that the requirements of §§ 129.99 are met.

(e) Data or information required to determine compliance shall be recorded and maintained in a time frame consistent with the averaging period of the requirement. [§127.441]

26. The owner/operator shall submit quarterly reports to the Department for Sources 031, 032, and 033 (Boiler No. 1, 2, & 3) of the following:

    a. The SCR inlet temperature on an hourly average basis.

    b. The ammonia injection rate to the SCR on an hourly average basis.

    c. The quarterly reports shall be submitted according to the following schedule:

    d. The quarterly report for the period of January 1- March 31 is due no later than April 30. The quarterly report for the period of April 1 - June 30 is due no later than July 30.

    e. The quarterly report for the period of July 1 - September 30 is due no later than October 30. The quarterly report for the period of October 1 - December 31 is due no later than January 30.

27. Monitoring Requirements: [Additional authority for this permit condition is derived from, 40 CFR Part 75, 40 CFR Sections 52.2020, and 25 Pa. Code Sections 139.4, & 139.101]

    a. Continuous Emission Monitoring Requirements

    The following continuous emission monitoring systems (CEMS) must be installed, approved by the Department, operated and maintained in accordance with the requirements of 25 Pa. Code Chapter 139, Subchapter C (relating to requirements for source monitoring for stationary sources), and the "Submittal and Approval", "Record Keeping and Reporting", and "Quality Assurance" requirements of Revision No. 8 of the Department's Continuous Source Monitoring Manual, 274-0300-001.

For Source IDs 031 & 032: Units No. 1 & 2

Pollutant	Measurement	Averaging Period	Standard	Basis
NO_x	lb/mmbtu	Calendar Day	0.080 lb/mmbtu	Continuously excluding emissions during start-up, shut-down, and malfunction; operation pursuant to emergency generation required by PJM, including any necessary testing for such emergency operations; and during periods in which compliance with this emission limit would require operation of any equipment in a manner inconsistent with technological limitations, good engineering and maintenance practices, and/or good air pollutioncontrol practices for minimizing emissions
NO_x	lb/mmbtu	Calendar Day	0.45 lb/mmbtu	Continuously under all operating conditions
NO_x	lb/hr	30-operating dayrolling average	550 lb/hr	Continuously under all operating conditions

For Source ID 033: Units No. 3

Pollutant	Measurement	Averaging Period	Standard	Basis
NO_x	lb/mmbtu	Calendar Day	0.070 lb/mmbtu	Continuously excluding emissions during start-up, shut-down, and malfunction; operation pursuant to emergency generation required by PJM, including any necessary testing for such emergency operations; and during periods in which compliance with this emission limit would require operation of any equipment in a manner inconsistent with technological limitations, good engineering and maintenance practices, and/or good air pollutioncontrol practices for minimizing emissions
NO_x	lb/mmbtu	Calendar Day	0.27 lb/mmbtu	Continuously under all operating conditions
NO_x	lb/hr	30-operating dayrolling average	510 lb/hr	Continuously under all operating conditions

Note: Compliance with any subsequently issued revisions to the Continuous Source Monitoring Manual will constitute compliance with the terms of this permit.

b. Data Availability Standards

1. The continuous emission monitoring systems (CEMS) for NO_x are required by 25 Pa. Code §139.101(12) to meet at least one of the following minimum data availability requirements unless other data availability requirements are stipulated elsewhere:

In each calendar month, at least 90% of the time periods for which an emission standard or operational parameter applies shall be valid as set forth in the Quality Assurance section of the Manual (Revision No. 8 of the Department's Continuous Source Monitoring Manual, 274-0300-001).

In each calendar quarter, at least 95% of the hours shall be valid as set forth in the Quality Assurance section of the Manual (Revision No. 8 of the Department's Continuous Source Monitoring Manual, 274-0300-001).

Note: Compliance with any subsequently issued revisions to the Continuous Source Monitoring Manual will constitute compliance with the terms of this permit.

c. Certification and Testing

Requirements Initial

Application (Phase I)
Upon promulgation of a monitoring requirement, a proposal containing information as listed in the Phase I section of the Department's Continuous Source Monitoring Manual for the proposed CEMS must be submitted to the Department 180 days prior to the initial startup of a new source and within 180 days of promulgation of a monitoring requirement for an existing source.

Performance Testing (Phase II)
After approval of Phase I, the applicant shall proceed with purchasing, installation, and performance testing. The CEM Section must be advised in writing at least 45 days prior to Performance Specification Testing to provide the opportunity to observe and participate in all testing. A testing protocol, describing all testing procedures and methodology to be used must accompany the notice of testing. Schedule changes must be reported seven days prior to testing except that failed tests may be repeated immediately. Testing as listed in the Phase II section of the Department's Continuous Source Monitoring Manual must be completed for the CEMS[s] no later than 180 days after initial source startup and no later than 60 days after the source achieves normal process capacity. During testing, the source must be operated in a manner that is representative of normal operating conditions. All other notifications and performance specification testing must be conducted in accordance with the Department's Continuous Source Monitoring Manual.

Final Approval (Phase III)
The final report of testing as listed in the Phase III section of the Department's Continuous Source Monitoring Manual must be submitted to the Bureau no later than 60 days after completion of the testing. The owner or operator of the source shall not be issued an operating permit until the CEMS have received Phase III approval, in writing from the Department, when installation of a CEMS is made a condition of the plan approval. Until Phase III Department approval is obtained, operation shall be covered solely under condition of a plan approval.

Note: Compliance with any subsequently issued revisions to the Continuous Source Monitoring Manual will constitute compliance with the terms of this permit.

28. Recordkeeping Requirements: [Additional authority for this permit condition is derived from 40 CFR Part 75, 40 CFR Sections 52.2020, and 25 Pa. Code Sections 139.101(5) and 139.101(12).]

(a) The owner/operator shall comply with the recordkeeping requirements established in 25 Pa. Code Chapter 139, Subchapter C (relating to requirements for source monitoring for stationary sources), the "Record Keeping and Reporting" requirements in the Department's Continuous Source Monitoring Manual, Revision No. 8, 274-0300-001.

(b) Records shall be retained for at least 5 years and shall be made available to the Department upon request.

Note: Compliance with any subsequently issued revision to the Continuous Source Monitoring Manual will constitute compliance with this permit.

29. Reporting Requirements: [Additional authority for this permit condition is derived from, 40 CFR Part 75, 40 CFR Sections 52.2020, and 25 Pa. Code Sections 139.101(1)(iv)4, 139.101(10) & 139.101(12)]

(a) The owner/operator shall submit quarterly reports of continuous emission monitoring to the Department in accordance with the requirements established in 25 Pa. Code Chapter 139, Subchapter C (relating to requirements for source monitoring for stationary sources), the "Record Keeping and Reporting" requirements as established in the Department's Continuous Source Monitoring Manual, Revision No. 8, 274-0300-001.

(b) The owner/operator shall report emissions for all periods of unit operation, including startup, shutdown, and malfunction.

(c) Initial quarterly reports following system certification shall be submitted to the Department within 35 days following the date upon which the Department notifies the owner or operator, in writing, of the approval of the continuous source monitoring system for use in determining compliance with applicable emission standards.

(d) Subsequent quarterly reports shall be submitted to the Department within 30 days after the end of each calendar quarter.

(e) Failure to submit required reports of continuous emission monitoring within the time periods specified in this Condition, shall constitute violations of this Permit, unless approved in advance by the Department in writing.

Note: Compliance with any subsequently issued revision to the Continuous Source Monitoring Manual will constitute compliance with this permit.

30. Quality Assurance Requirements: [Additional authority for this permit condition is derived from, 40 CFR Part 75, 40 CFR Sections 52.2020, and 25 Pa. Code Sections 139.101(1)(iv), 139.101(2), 139.101(3), 139.101(4), 139.101(6), 139.101(7), 139.101(8), 139.101(12), 139.101(14), and 139.101(15)]

Continuous Emission Monitoring Systems and components must be operated and maintained in accordance with the requirements established in 25 Pa. Code Chapter 139, Subchapter C (relating to requirements for source monitoring for stationary sources), the "Quality Assurance" requirements in the Department's Continuous Source Monitoring Manual, Revision No. 8, 274- 0300-001.

Note: Compliance with any subsequently issued revision to the Continuous Source Monitoring Manual will constitute compliance with this permit.

31. Testing Requirements: [25 Pa. Code §127.441(c) & Chapter 139; §§114(a)(3), 504(b) of the CAA] Sampling, Testing and Monitoring Procedures

    The owner/operator shall perform the emissions monitoring analysis procedures or test methods required under an applicable requirement including procedures and methods under Sections 114(a)(3) (42 U.S.C.A.§§ 7414 (a)(3)) or 504(b) (42 U.S.C.A.§§ 7661c(b)) of the Clean Air Act.

    Note: Compliance with any subsequently issued revisions to the Continuous Source Monitoring Manual will constitute compliance with the terms of this permit.

32. In accordance with §129.99(g), the emission limit and requirements specified in the plan approval or operating permit issued by the Department or appropriate approved local air pollution control agency under subsection (f) supersede the emission limit and requirements in the existing plan approval or operating permit issued to the owner or operator of the source prior to April 23, 2016, on the date specified in the plan approval or operating permit issued by the Department or appropriate approved local air pollution control agency under subsection (f), except to the extent the existing plan approval or operating permit contains more stringent requirements.

33. In accordance with §129.100(d), the owner and operator of an air contamination source subject to this section and §§129.96-129.99 shall keep records to demonstrate compliance with §§129.96-129.99 in the following manner:

    a. The records must include sufficient data and calculations to demonstrate that the requirements of 25 PA Code 129.96 – 129.99 are met.

    b. Data or information required to determine compliance shall be recorded and maintained in a time frame consistent with the averaging period of the requirement.

34. In accordance with §129.100(i), records shall be retained by the owner or operator for 5 years and made available to the Department or appropriate approved local air pollution control agency upon receipt of a written request from the Department or appropriate approved local air pollution control agency.

35. The SCR minimum operating temperature shall be measured using the sensors at the outlet of the SCR.