



AIR AND RADIATION ADMINISTRATION DRAFT TITLE V - PART 70 OPERATING PERMIT

DOCKET # 24-033-2737

COMPANY: Parkway Generation Keys
Energy Center, LLC (PSEG)

LOCATION: 10322 N. Keys Road
Brandywine, MD 20613

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**MARYLAND DEPARTMENT OF THE ENVIRONMENT
AIR AND RADIATION ADMINISTRATION
AIR QUALITY PERMITS PROGRAM**

TITLE V – PART 70 OPERATING PERMIT PROGRAM OVERVIEW

Title V of the Clean Air Act (amended) requires each state to implement a federally enforceable operating permit program for major sources of air pollution. This program, the Part 70 Permit Program, also known as the Title V Permit Program, is designed to provide a comprehensive administrative document (a Part 70 Operating Permit) that identifies all air emissions sources at a given facility and the federal air quality regulations applicable to those sources. The permit establishes the methodology by which the owner/operator will demonstrate compliance, and includes testing, monitoring, record-keeping, and reporting requirements for each emissions source.

A Part 70 Operating Permit does not authorize new construction, and does not add any new emissions limitations, standards, or work practices on an affected facility. There may, however, be additional testing, record keeping, monitoring, and reporting requirements. A Part 70 Operating Permit is a five-year renewable permit. A responsible official for each facility subject to a Part 70 Operating Permit is required to annually certify compliance with each applicable requirement for that facility.

When an application for a Part 70 Operating Permit is received, the Department will complete a technical review of the application and will prepare a draft Part 70 Operating Permit and Fact Sheet. The Fact Sheet will explain the basis and technical analysis used by the Department to develop the federally enforceable permit conditions, including the required testing, monitoring, record keeping, and reporting provisions for each emissions unit at the permitted facility. The Fact Sheet will also include a description of the facility operations and the current compliance status with applicable requirements. If there are any discrepancies between the Part 70 Operating Permit application and the draft permit, the Fact Sheet will contain a discussion of the inconsistencies and the final resolution.

Public Participation Process

The Part 70 Operating Permit Program provides the public, adjacent states, and EPA the opportunity to review and submit comments on draft permits. The public may also request a public hearing on the draft permit.

The purpose of a public hearing is to give interested parties the opportunity to submit comments for the record which are germane to the draft federally enforceable permit conditions. Comments made at the hearing, or in writing to the Department during the comment period, should address errors and deficiencies in the permit such as unidentified emissions units, incorrect or deficient regulation citation, deficient record keeping, monitoring, reporting or testing requirements and unresolved compliance issues. After the public comment period has closed, the Department will review the formal testimony as part of the final review and prepare a Response to Comments document which will be sent to the EPA along with the draft Part 70 Operating Permit and Fact Sheet.

Testimony on state-only requirements will be kept on file at the Department as part of the formal record, however, state-only rules and regulations are not federally enforceable, and therefore are not within the scope of the EPA review. The Department will keep a record of the identity of the commenters, their statements, a summary of the issues raised during the public comment period, and the Response to Comments document for at least five years.

Citizen Petition to EPA to Object to Permit Issuance

Interested parties may petition the EPA to object to the Part 70 Permit if the EPA has not already objected, within 60 days after the 45-day EPA review period has ended. The petition period will be posted on the EPA website. The EPA will only consider objections to the federally enforceable provisions of the draft permit which were raised with reasonable specificity during the public comment period, unless: (1) the petitioner demonstrates that it was impractical to raise the objections within the public comment period, or (2) the grounds for the objection arose after the comment period. If the EPA agrees with the petition, the Department will reopen, revise, or revoke the permit as determined.

Applicant Objection to Permit Issuance and Recourse

If the applicant objects to the federally enforceable permit conditions contained in the issued Part 70 Operating Permit, the applicant has 15 days from receipt of the issued permit to request a contested case hearing. More information on that can be found in 40 CFR, Part 70, and COMAR 26.11.03.11.

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AIR AND RADIATION ADMINISTRATION**

**NOTICE OF PUBLIC HEARING AND
OPPORTUNITY TO SUBMIT WRITTEN COMMENTS**

Pursuant to regulations governing the control of air pollution in the State of Maryland, COMAR 26.11.03.07, the Maryland Department of the Environment (the Department) has prepared a draft Title V – Part 70 Operating Permit for Parkway Generation Keys Energy Center, LLC (PSEG Keys Energy Center), located 10322 North Keys Road, Brandywine, Maryland 20613. The issuance of this permit will be the subject of a virtual public hearing to be held on July 26, 2023 at 6:30 PM.

The Department has made a tentative determination that the Title V - Part 70 Operating Permit can be issued. A final determination on issuance of the permit will only be made after review of all pertinent information presented at the public hearing or received via written comments during the comment period. Copies of the application, the draft Title V - Part 70 Operating Permit with conditions, the Fact Sheet and other supporting documents are available for public inspection on the Department website:

<https://tinyurl.com/DraftTitleV>

To attend the virtual public hearing, please register using the following link no later than 5:00 PM on July 25, 2023:

<https://tinyurl.com/RegisterPSEGKeysHearing>

On the day of the public hearing, registered attendees will receive instructions on how to join the virtual hearing using a computer and internet connection or telephone.

Interested persons may make oral comments at the hearing. In lieu of oral statements at the hearing, written comments may be submitted to Ms. Shannon Heafey, Title V Coordinator, by email at shannon.heafey@maryland.gov, or by mail to Ms. Shannon Heafey, Air and Radiation Administration, 1800 Washington Boulevard, Suite 720, Baltimore, Maryland 21230-1720, no later than August 4, 2023.

Comments will be accepted by the Department if they raise issues of law or material fact regarding applicable requirements of Title V of the Clean Air Act, and/or regulations implementing the Title V Program in Maryland found in COMAR.

The Department will provide an interpreter for deaf and hearing-impaired persons provided that a request is made for such service at least ten (10) days prior to the hearing.

Further information may be obtained by emailing or calling Ms. Shannon Heafey, Title V Coordinator, Air Quality Permits Program, Air and Radiation Administration at (410) 537-4433.

Christopher R. Hoagland, Director
Air and Radiation Administration

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BACKGROUND

PSEG Keys Energy Center is a 755 MW, two-on-one combined-cycle, natural gas-fired combustion turbine electric generating facility located near Brandywine, Maryland in Prince George's County. The SIC code for this facility is 4911. The main sources of emissions are two (2) Siemens Model SGT6-5000Fee combustion turbines (CTs), each rated at 2,330 MMBtu/hr. The CTs fire natural gas only. Each CT exhaust to its own heat recovery steam generator (HRSG) which includes a Forney natural gas duct burner rated at 443 MMBtu/hr. Emissions from the CTs and duct burners are controlled by an SCR and an oxidation catalyst system. Steam from the HRSGs is routed to a single steam turbine generator. Ancillary equipment includes a natural gas-fired Cleaver Brooks auxiliary boiler rated at 87.1 MMBtu/hr., a diesel-fired emergency generator rated at 1,500 kW, a Cummins diesel-fired fire water pump engine rated at 260 brake horsepower and several sources of fugitive emissions.

On October 31, 2014, the Maryland Public Service Commission (PSC) issued a Certificate of Public Convenience and Necessity (CPCN) for Keys Energy Center (KEC). Subsequently PSEG acquired the project and on October 11, 2017, the PSC approved amendments to the KEC CPCN 9297 to reflect several minor design changes. KEC began commercial operation in 2018.

New Source Performance Standards (NSPS) – 40 CFR Part 60

Several emission units at the KEC are subject to the following NSPS:

Subpart IIII for Stationary Compression Ignition Internal Combustion Engines applies to stationary compression ignition (CI) internal combustion engines (ICE) constructed after July 11, 2005 and either manufactured after April 1, 2006 or modified or reconstructed after July 11, 2005.

Subpart KKKK for Combustion Turbines: Standards of Performance for Stationary Combustion Turbines applies to stationary combustion turbine with a heat input at peak load equal to or greater than 10.7 gigajoules (10 MMBtu) per hour, based on the higher heating value of the fuel, which commenced construction, modification, or reconstruction after February 18, 2005.

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National Emission Standard for Hazardous Air Pollutants (NESHAP) – 40 CFR Part 63

KEC is not a major HAP Emissions Source. Instead it is an area HAP emission source and is subject to the following MACTs:

Subpart ZZZZ — Stationary Reciprocating Internal Combustion Engines. Requirements for Existing Stationary RICE Located at Area Sources of HAP Emissions: 1500 kW emergency generator and 275 hp fir pump engine are subject to this subpart.

The following table summarizes the actual emissions from Keys Energy Center based on its Annual Emission Certification Reports:

Table 1: Actual Emissions

Year	NO _x (TPY)	SO _x (TPY)	PM ₁₀ (TPY)	CO (TPY)	VOC (TPY)	Total HAP (TPY)
2018	65.01	5.00	19.03	48.72	9.89	16.0

The major source threshold for triggering Title V permitting requirements in Prince George's county is 25 tons per year for VOC, 25 tons for NO_x, and 100 tons per year for any other criteria pollutants and 10 tons for a single HAP or 25 tons per year for total HAPs. Since the actual NO_x emission from the facility are greater than the major source threshold, Keys Energy Center is required to obtain a Title V – Part 70 Operating Permit under COMAR 26.11.03.01.

As a major source of NO_x, this facility is also subject to requirements of Reasonably Available Control Technology (RACT) for NO_x found in COMAR 26.11.09.08. KEC is also subject to the Cross-State Air Pollution Rule (CSAPR) which replaced the Clean Air Interstate Rule (CAIR).

The Department on May 09, 2019 received KEC's Part 70 initial permit application. An administrative completeness review was conducted and the application was deemed to be administratively complete. A completeness determination letter was sent to KEC on May 17, 2019 granting KEC an application shield.

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COMPLIANCE ASSURANCE MONITORING (CAM)

CAM is intended to provide a reasonable assurance of compliance with applicable requirements under the Clean Air Act for large emission units that rely on air pollution control (APC) equipment to achieve compliance. The CAM approach establishes monitoring for the purpose of: (1) documenting continued operation of the control measures within ranges of specified indicators of performance (such as emissions, control device parameters, and process parameters) that are designed to provide a reasonable assurance of compliance with applicable requirements; (2) indicating any excursions from these ranges; and (3) responding to the data so that the cause or causes of the excursions are corrected. In order for a unit for a unit to be subject to CAM, the unit must be located at a major source, be subject to an emission limitation or standard; use a control device to achieve compliance; have post-control emissions of at least 100% of the major source amount (for initial CAM submittals); and must not otherwise be exempt from CAM. Applicability determinations are made on a pollutant-by-pollutant basis for each emission unit.

KEC conducted a Compliance Assurance Monitoring (CAM) analysis for the facility and determined that EU1 and EU2 are subject to the (CAM) Rule 40 CFR Subpart 64 for VOC emissions.

ACID RAIN PERMIT

Title IV of the Clean Air Act set a goal of reducing annual SO₂ emissions by 10 million tons below 1980 levels. To achieve these reductions, the law required a two-phase tightening of the restrictions placed on fossil fuel-fired power plants.

Phase I began in 1995 and affected 263 units at 110 mostly coal-burning electric utility plants located in 21 eastern and Midwestern states. An additional 182 units joined Phase I of the program as substitution or compensating units, bringing the total of Phase I affected units to 445. Emissions data indicate that 1995 SO₂ emissions at these units nationwide were reduced by almost 40 percent below their required level.

Phase II, which began in the year 2000, tightened the annual emissions limits imposed on these large, higher emitting plants and also set restrictions on smaller, cleaner plants fired by coal, oil, and gas, encompassing over 2,000 units in all. The program affects existing utility units serving generators with an output capacity of greater than 25 megawatts and **all new utility** units.

An Acid Rain Permit is attached to the Part 70 Permit as Appendix A

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CROSS-STATE AIR POLLUTION RULE (CSAPR)

The U.S. Environmental Protection Agency (EPA) issued the Cross-State Air Pollution Rule (CSAPR) in July 2011 to address Clean Air Act requirements concerning interstate transport of air pollution and to replace the previous Clean Air Interstate Rule (CAIR) which the D.C. Circuit remanded to the EPA for replacement. Following the original rulemaking, CSAPR was amended by three further rules known as the Supplemental Rule, the First Revisions Rule, and the Second Revisions Rule. As amended, CSAPR requires 28 states to limit their state-wide emissions of sulfur dioxide (SO₂) and/or nitrogen oxides (NO_x) in order to reduce or eliminate the states' contributions to fine particulate matter and/or ground-level ozone pollution in other states. The emissions limitations are defined in terms of maximum state-wide "budgets" for emissions of annual SO₂, annual NO_x, and/or ozone season NO_x by each state's large electricity generating units (EGUs). The emissions budgets are implemented in two phases of generally increasing stringency. As the mechanism for achieving compliance with the emissions limitations, CSAPR establishes federal implementation plans (FIPs) that require large EGUs in each affected state to participate in one or more new emission trading programs that supersede the existing CAIR emissions trading programs. On December 30, 2011, in response to petitions challenging CSAPR, the D.C. Circuit granted a stay of the rule, ordering the EPA to continue administering CAIR on an interim basis. In a subsequent decision, the Court vacated CSAPR but on April 29, 2014, the U.S. Supreme Court reversed that decision and remanded the case to the D.C. Circuit Court for further proceedings. In order to allow CSAPR to replace CAIR in an orderly manner, EPA filed a motion asking the D.C. Circuit to lift the stay and to toll, by three years, all CSAPR compliance deadlines that had not yet passed. On October 23, 2014, the Court granted the EPA's motion.

Consistent with the Court's order, compliance with CSAPR's Phase 1 emissions budgets is now required in 2015 and 2016 and compliance with the rule's Phase 2 emissions budgets and assurance provisions is now required in 2017 and beyond.

This initial Part 70 permit identifies the applicable regulations of the CSAPR rule as found in 40 CFR Part 97 subparts AAAAAA- NO_x Annual Trading Program, subparts BBBBBB- NO_x Ozone Season Trading Program, and subpart CCCCCC SO₂ Group 1 Trading Program.

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REGIONAL GREENHOUSE GAS INITIATIVE

The Regional Greenhouse Gas Initiative (RGGI) is a market-based carbon dioxide (CO₂) cap and trade program designed to reduce CO₂ emissions from fossil fuel-fired power plants. The Healthy Air Act required Maryland to join RGGI by July 2007. Maryland joined RGGI by signing RGGI's multi-state Memorandum of Understanding (MOU) on April 20, 2007. The MOU requires Maryland to adopt regulations by December 31, 2008, implementing the RGGI program. The Maryland CO₂ Budget Trading Program, Code of Maryland Regulations (COMAR) 26.09.01 to .03, became effective on July 17, 2008. COMAR 26.09.04 became effective as an emergency action on April 4, 2008 and as a permanent action on August 25, 2008.

The regulations require the following:

- 1) Implement a cap and trade program for CO₂ emissions from fossil fuel-fired electric generating units located in Maryland having a capacity of at least 25 megawatts;
- 2) Distribute CO₂ allowances to stakeholders through auction, sale and/or allocation;
- 3) Require each affected source to have a CO₂ budget account representative and a compliance account;
- 4) Require each budget unit to hold in its source's compliance account at the end of each 3-year control period one allowance for each ton of CO₂ emissions emitted in that period;
- 5) Require sources to monitor emissions and submit quarterly and annual emission reports;
- 6) Establish set-aside accounts for voluntary renewable purchase, limited industrial generator exemptions, and long-term contract generators;
- 7) Establish a consumer benefit or strategic energy purpose fund to support energy efficiency, directly mitigate electricity ratepayer impacts, promote renewable or non-carbon emitting energy technologies, stimulate or reward investment in the development of innovative carbon emissions abatement technologies with significant carbon reduction potential, and fund administration of the program; and
- 8) Establish procedures to evaluate and award allowances to persons who undertake offset projects that will reduce CO₂ emissions.
- 9) Require affected sources to submit an application for a CO₂ Budget Permit. A CO₂ Budget Permit is an attachment to the Part 70 permit. This permit is state-only enforceable.

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GREENHOUSE GAS (GHG) EMISSIONS

KEC emits the following greenhouse gases (GHGs) related to Clean Air Act requirements: carbon dioxide, methane, and nitrous oxide. These GHGs originate from various processes (i.e., CTs, and engines) contained within the facility premises applicable to KEC. The facility triggered Prevention of Significant Deterioration (PSD) requirements for GHG emissions as part of the CPCN; therefore, there are facility-wide GHG emissions limit. Emission certifications reports for the 2018 showed that KEC is a major source (threshold: 100,000tpy CO_{2e}) for GHG's (see Table 3 shown below). The Permittee shall quantify facility wide GHGs emissions and report them in accordance with Section 3 of the Part 70 permit.

The following table summarizes the actual emissions from KEC based on its Annual Emission Certification Reports:

Table 3: Greenhouse Gases Emissions Summary

GHG	Conversion factor	2018 tpy CO_{2e}
Carbon dioxide CO ₂	1	756,095.01
Methane CH ₄	25	21.68
Nitrous Oxide N ₂ O	298	1.84
Total GHG CO_{2eq}		756,118.53

EMISSION UNIT IDENTIFICATION

KEC has identified the following emission units as being subject to Title V permitting requirements and having applicable requirements.

Table 2: Emission Unit Identification

Emissions Unit Number	MDE - ARA Registration Number	Emissions Unit Name and Description	Date of Installation
EU1	033-2737-5-1578 & 5-1580	CT11: Siemens Model SGT6-5000Fee natural gas-fired combustion turbine rated at 2,330 MMBtu/hr equipped with HRSG11: Heat recovery steam generator which includes Forney natural gas-fired duct burner rated at 443 MMBtu/hr.	December 2017

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Emissions Unit Number	MDE - ARA Registration Number	Emissions Unit Name and Description	Date of Installation
		Controls: Selective Catalyst Reduction and oxidation catalyst	
EU2	033-2737-5-1579 & 5-1581	CT12: Siemens Model SGT6-5000Fee natural gas-fired combustion turbine rated at 2,330 MMBtu/hr. equipped with HRS12: Heat recovery steam generator which includes Forney natural gas-fired duct burner rated at 443 MMBtu/hr. Controls: Selective Catalyst Reduction and oxidation catalyst	December 2017
EU3	033-2737-5-1582	Cleaver Brooks natural gas-fired auxiliary boiler rated at 87.1 MMBtu/hr.	January 2018
EU4	033-2737-9-1485	MTU-Onsite Energy diesel-fired power block emergency generator rated at 1,500 kW	November 2017
EU5	033-2737-9-1484	Cummins diesel-fired water pump engine rated at 260 brake horsepower	October 2017
EU6	N/A	Natural gas pipeline components, including valves, flanges, pump seals, pressure relief valves, and six (6) catalytic heaters – all within the facility boundary	September 2017
EU7	N/A	Circuit breakers containing sulfur hexafluoride (SF6)	October 2017
EU8	N/A	Two (2) fuel oil storage tanks: 900 gallons (emergency generator) and 350 gallons (fire pump)	October & November 2017
EU9	N/A	On-site paved and unpaved roads	N/A

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AN OVERVIEW OF THE PART 70 PERMIT

The Fact Sheet is an informational document. If there are any discrepancies between the Fact Sheet and the Part 70 permit, the Part 70 permit is the enforceable document.

Section I of the Part 70 Permit contains a brief description of the facility and an inventory list of the emissions units for which applicable requirements are identified in Section IV of the permit.

Section II of the Part 70 Permit contains the general requirements that relate to administrative permit actions. This section includes the procedures for renewing, amending, reopening, and transferring permits, the relationship to permits to construct and approvals, and the general duty to provide information and to comply with all applicable requirements.

Section III of the Part 70 Permit contains the general requirements for testing, record keeping and reporting; and requirements that affect the facility as a whole, such as open burning, air pollution episodes, particulate matter from construction and demolition activities, asbestos provisions, ozone depleting substance provisions, general conformity, and acid rain permit. This section includes the requirement to report excess emissions and deviations, to submit an annual emissions certification report and an annual compliance certification report, and results of sampling and testing.

Section IV of the Part 70 Permit identifies the emissions standards, emissions limitations, operational limitations, and work practices applicable to each emissions unit located at the facility. For each standard, limitation, and work practice, the permit identifies the basis upon which the Permittee will demonstrate compliance. The basis will include testing, monitoring, record keeping, and reporting requirements. The demonstration may include one or more of these methods.

Section V of the Part 70 Permit contains a list of insignificant activities. These activities emit very small quantities of regulated air pollutants and do not require a permit to construct or registration with the Department. For insignificant activities that are subject to a requirement under the Clean Air Act, the requirement is listed under the activity.

Section VI of the Part 70 Permit contains State-only enforceable requirements. Upon issuance of the Part 70 Permit, the Part 70 permit supersedes the facility's

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current State Permit to Operate. Section VI identifies requirements that are not based on the Clean Air Act, but solely on Maryland air pollution regulations. These requirements generally relate to the prevention of nuisances and implementation of Maryland's Air Toxics Program.

**REGULATORY REVIEW/TECHNICAL REVIEW/COMPLIANCE
METHODOLOGY**

Emission Unit – EU1 & EU2

EU1: CT11: Siemens Model SGT6-5000Fee natural gas-fired combustion turbine rated at 2,330 MMBtu/hr. equipped with **HRSG11:** Heat recovery steam generator which includes Forney natural gas-fired duct burner rated at 443 MMBtu/hr. [033-2737-5-1578 & 5-1580]

Controls: Selective Catalyst Reduction and oxidation catalyst.

EU2: CT12: Siemens Model SGT6-5000Fee natural gas-fired combustion turbine rated at 2,330 MMBtu/hr. equipped with **HRSG12:** Heat recovery steam generator which includes Forney natural gas-fired duct burner rated at 443 MMBtu/hr. [033-2737-5-1579 & 5-1581]

Controls: Selective Catalyst Reduction and oxidation catalyst

Compliance Status

Annual performance testing of the two (2) CTs was conducted on Sept 23-29th 2019 under both duct firing and without duct firing. The results are as follows:

Pollutant	CT12 – duct burner On	CT12 - duct burner Off	CT11 – duct burner On	CT11-duct burner Off	Limit
NO _x	1.44 ppm	1.42ppm	1.41 ppm	1.44 ppm	2 ppm
CO	0	0	0	0	2 ppm
VOC	0.02 ppm	0.00 ppm	0.02 ppm	0.02 ppm	On: 2 ppm Off: 1 ppm
SO ₂	0.00001lb./MMBtu	0.00001 lb./MMBtu	0.00001 lb./MMBtu	0.00002 lb./MMBtu	0.06 lb./MMBtu
PM ₁₀	17.92 lb./hr.	13.32 lb./hr.	19.14 lb./hr.	19.28 lb./hr.	On: 15 lb./hr. Off: 11 lb./hr.
PM filterable	5.07 lb./hr.	13.32 lb./hr.	5.99 lb./hr.	4.49 lb./hr.	On: 12.2 lb./hr. Off: 8.8 lb./hr.
CO ₂	849 lb./MW-hr.	824 lb./MW-hr.	822 lb./MW-hr.	727 lb./MW-hr.	869 lb./MW-hr.

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The PM₁₀ levels exceeded the limits and a NOV was issued. The Permittee retested on December 2-3, 2019. The results showed that the PM₁₀ levels were below the required limits. See table below.

Pollutant	CT12 – duct burner On	CT12 - duct burner Off	CT11 – duct burner On	CT11-duct burner Off	Limit
PM ₁₀	8.25 lb./hr.	5.98 lb./hr.	3.70 lb./hr.	2.79 lb./hr.	On: 15 lb./hr. Off: 11 lb./hr.

EU1 and EU2 start up dates are May 5 and May 16th respectively. Also, EU1 & EU2 commenced commercial operation on May 18th and June 2, 2018 respectively. Initial performance testing of the two (2) CTs was conducted on October 25-27, 2018. Both CTs were tested with the duct burners on and off. The results are as follows:

Pollutant	CT12 – duct burner On	CT12 - duct burner Off	CT11 – duct burner On	CT11-duct burner Off	Limit
NO _x	1.17 ppm	1.29 ppm	1.40 ppm	1.52 ppm	2 ppm
CO	0	0	0	0	2 ppm
VOC	0.13 ppm	0.05 ppm	0.05 ppm	0.05 ppm	On: 2 ppm Off: 1 ppm
SO ₂	0.0003 lb./MMBtu	0.0003 lb./MMBtu	0.0003 lb./MMBtu	0.0003 lb./MMBtu	0.06 lb./MMBtu
PM ₁₀	6.17 lb./hr.	4.27 lb./hr.	10.53 lb./hr.	5.60 lb./hr.	On: 15 lb./hr. Off: 11 lb./hr.
PM filterable	2.05 lb./hr.	1.37 lb./hr.	2.54 lb./hr.	1.00 lb./hr.	On: 12.2 lb./hr. Off: 8.8 lb./hr.
CO ₂	796.67 lb./MW-hr.	757.27 lb./MW-hr.	797.68 lb./MW-hr.	753.07 lb./MW-hr.	869 lb./MW-hr.
NH ₃	1.93 ppm @ 15% O ₂	0.94 ppm @ 15% O ₂	1.88 ppm @ 15% O ₂	1.22 ppm @ 15% O ₂	5 ppm @ 15% O ₂

CEMs certification completed August 15, 2018.

Applicable Standards and limits:

A. Control of Visible Emissions

COMAR 26.11.09.05A - Visible Emissions.

- (2) Areas III and IV. “In Areas III and IV, a person may not cause or permit the discharge of emissions from any fuel burning equipment, other than water in an uncombined form, which is visible to human observers except that, for the purpose of demonstrating compliance using COM data, emissions that are visible to a human observer are those that are equal to or greater than 10 percent opacity.”

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- (3) Exceptions. "Section A(1) and (2) of this regulation do not apply to emissions during load changing, soot blowing, startup, or adjustments or occasional cleaning of control equipment if:
- (a) The visible emissions are not greater than 40 percent opacity; and
 - (b) The visible emissions do not occur for more than 6 consecutive minutes in any sixty minute period."

Compliance Demonstration

The Permittee shall conduct visible observations in accordance with EPA Reference Method 22 at least once each calendar quarter to verify that there are no visible emissions during operation. If visible emissions are observed, PSEG Keys shall inspect combustion control system; perform necessary adjustments and/or repairs within 48 hours, and document in writing the results of inspection, adjustments, and/or repair. After 48 hours, if the required adjustments and/or repairs have not eliminated the visible emissions, PSEG Keys shall perform Method 9 observations once daily for at least one hour until corrective actions have reduced the visible emissions to less than 20 percent opacity. **[Reference: COMAR 26.11.02.02(H)]**

All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: COMAR 26.11.01.05 and CPCN Case 9297 Condition B-I-7]**

The Permittee shall report incidents of excess emissions in accordance with Section III Condition 4 "Report of Excess Emissions and Deviations" **[Reference: COMAR 26.11.01.07 & COMAR 26.11.03.06C(7)]**

B. Control of Particulate Matter

(1) **COMAR 26.11.06.03B(2)(a)** - Particulate Matter from Confined Sources. "A person may not cause or permit to be discharged into the outdoor atmosphere from any other installation, particulate matter in excess of 0.03 gr/SCFD (68.7 mg/dscm)."

(2) **PM (filterable) BACT** : 8.8 lb./hr. without duct firing and 12.2 lb./hr. with duct firing at all times. (3-hour block average)

PM₁₀ (filterable and condensable) BACT: 11.0 lb./hr. without duct firing and 15.0 lb./hr. with duct firing at all times.

[Reference: CPCN 9297, Conditions B-IV-5 & B-IV-6 & Table B-1]

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Compliance Demonstration

(1) The Permittee shall conduct stack tests shall be conducted **annually** for **PM, PM₁₀, PM_{2.5}** ... After three continuous years of conducting annual stack tests, the Permittee may request the Department to reduce the frequency of the stack tests. **[Reference: CPCN 9297, Condition B-IV-8]**

(2) The Permittee shall conduct annual performance test using EPA Method 5, 201A/202 or equivalent method approved by MDE-ARA. **[Reference: CPCN 9297 Table B-I]**

All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: CPCN 9297 Condition B-I-7]**

Final results of each compliance stack performance test shall be submitted to the Department within 60 days after completion of the test. **[Reference: CPCN 9297 Condition B-IV-13]**

C. Control of Sulfur Oxides

The Permittee must not burn in the stationary CT any fuel which contains total potential sulfur emissions in excess of 26 ng/J (0.060 lb. SO₂/MMBtu) heat input. **[Reference: CPCN 9297, Table B-1 & 40 CFR §60.4330(a)(2)]**

See Cross State Air Pollutant Rule (CSAPR) in Table IV-1a and Acid Rain Permit attached as Appendix A.

Compliance Demonstration

The Permittee shall conduct stack tests shall be conducted **annually** for ... **SO₂** (unless fuel sulfur content is determined through fuel sampling in lieu of stack testing in accordance with 40 CFR §60.4415 as noted in Table B-1), ... After three continuous years of conducting annual stack tests, the Permittee may request the Department to reduce the frequency of the stack tests. **[Reference: CPCN 9297, Condition B-IV-8]**

"You may elect not to monitor the total sulfur content of the fuel combusted in the turbine, if the fuel is demonstrated not to exceed potential sulfur emissions of 26 ng SO₂/J (0.060 lb SO₂/MMBtu) heat input for units located in continental areas.... You must use one of the following sources of information to make the required demonstration:

(a) The fuel quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the fuel, specifying that the maximum total

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sulfur content for oil use in continental areas is 0.05 weight percent (500 ppmw) or less." **[Reference: 40 CFR §60.4365(a)]**

All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: CPCN Case 9297 Condition B-I-7]**

If the Permittee elects to demonstrate compliance with the SO₂ emission limit in 40 CFR §60.4330 using methods described in §60.4415(a) as described in CPCN Case 9297 Table B-1, the Permittee shall submit periodic representative fuel sampling records. **[Reference: CPCN Case 9297 Condition B-IV-18]**

D. Control of Nitrogen Oxides

(1) **COMAR 26.11.09.08G. - Requirements for Fuel-Burning Equipment with a Capacity Factor of 15 Percent or Less, and Combustion Turbines with a Capacity Factor Greater than 15 Percent.**

"(2) A person who owns or operates a combustion turbine with a capacity factor greater than 15 percent shall meet an hourly average NO_x emission rate of not more than **42 ppm when burning gas** or 65 ppm when burning fuel oil (dry volume at 15 percent oxygen) or meet applicable Prevention of Significant Deterioration limits, whichever is more restrictive. "

Compliance Demonstration

Emissions shall be continuously monitored via NO_x CEMS.

The Permittee shall maintain annual fuel use records on site for not less than 3 years, and make these records available to the Department upon request.

[Reference: COMAR 26.11.09.08K(3)]

"When demonstration of compliance with the NO_x emission standards in this regulation is based on CEM data, quarterly emission reports shall be submitted to the Department on or before the thirtieth day of the month following the end of each calendar quarter." **[Reference: COMAR 26.11.09.08K(1)]**

(2) **40 CFR Part 60, Subpart KKKK - Standards of Performance for Stationary Combustion Turbines for which Construction, Modification or Reconstruction commenced after February 18, 2005.**

Emission Limits

§60.4315 - What pollutants are regulated by this subpart?

The pollutants regulated by this subpart are nitrogen oxide (NO_x) and sulfur dioxide (SO₂).

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§60.4320 - What emission limits must I meet for nitrogen oxides (NO_x)?
You must meet the emission limits for NO_x specified in Table 1 to this subpart.

Table 1 to Subpart KKKK of Part 60—Nitrogen Oxide Emission Limits for New Stationary Combustion Turbines		
Combustion turbine type	Combustion turbine heat input at peak load (HHV)	NO_x emission standard (30 day rolling average)
New, modified, or reconstructed turbine firing natural gas	> 850 MMBtu/h	15 ppm at 15 percent O ₂ or 54 ng/J of useful output (0.43 lb/MWh)

Compliance Demonstration

The Permittee shall conduct annual performance test as required by 40 CFR §60.4400(a). **[Reference: CPCN 9297 Table B-I]**
Emissions shall be continuously monitored via NO_x CEMS. [40 CFR §60.4340(a)-(b)]. **[Reference: CPCN 9297, Condition B-IV-3]**

Final results of each compliance stack performance test shall be submitted to the Department within 60 days after completion of the test. **[Reference: COMAR 26.11.01.05B and CPCN 9297 Condition B-IV-13]**

The Permittee shall submit electronic quarterly reports from the DHAS to the EPA Clean Air Markets Division System as specified in 40 CFR §75.64. **[Reference: 40 CFR §75.64 and CPCN 9297 Condition B-IV-14]**

The Permittee shall submit the following CEMS reports to the Department for all CEMS required to be operated with the CTs: (a) CEMS Systems Downtime Reports as required by COMAR 26.11.01.11E(1); (b) Quarterly CEMS Summary Reports as required by COMAR 26.11.01.11E(2)(c). **[Reference: COMAR 26.11.01.11E and CPCN 9297 Condition B-IV-15]**

The Permittee shall submit reports of excess emissions and monitor downtime associated with the CTs/HRSGs in accordance with 40 CFR §60.7(c). Excess emissions as defined in 40 CFR §60.4380 (NO_x) and 40 CFR §60.4385 (SO₂) shall be reported for all periods of unit operation, including startup, shutdown, and malfunction. **[Reference: 40 CFR §60.4375 and CPCN 9297 Condition B-IV-16]**

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(3) **NO_x LAER** requirements and the **NO_x BACT** requirements listed in the CPCN 9297: NO_x emission limit of 2.0 ppmvd at 15% O₂ with and without duct firing, except during periods of startup and shutdown. (3-hour block average); NO_x During Startup/Shutdown: 245.2 lb./event (cold startup); 82.9 lb./event (warm startup); 71.4 lb./event (hot startup); 60 lb./event (shutdown).
[Reference: CPCN 9297, Conditions B-IV-5 & B-IV-6 & Table B-1]

Compliance Demonstration

The Permittee shall conduct annual performance test using EPA Method 7E or equivalent method approved by MDE-ARA. (3-hour block average). **[Reference: CPCN 9297 Table B-I]**

Emissions shall be continuously monitored via NO_x CEMS. **[Reference: 40 CFR §60.4340(a)-(b)]**. PSEG Keys shall calculate monthly emissions (during startup/shutdown events) from the CTs/HRSGs, based on emissions measured using the CEMS to demonstrate compliance with the facility-wide emissions limit in Condition B-III-3. Final results of each compliance stack performance test shall be submitted to the Department within 60 days after completion of the test.
[Reference: COMAR 26.11.01.05B and CPCN 9297 Condition B-IV-13]

The Permittee shall submit electronic quarterly reports from the DHAS to the EPA Clean Air Markets Division System as specified in 40 CFR §75.64.
[Reference: 40 CFR §75.64 and CPCN 9297 Condition B-IV-14]

The Permittee shall submit the following CEMS reports to the Department for all CEMS required to be operated with the CTs: (a) CEMS Systems Downtime Reports as required by COMAR 26.11.01.11E(1); (b) Quarterly CEMS Summary Reports as required by COMAR 26.11.01.11E(2)(c). **[Reference: COMAR 26.11.01.11E and CPCN 9297 Condition B-IV-15]**

The Permittee shall submit reports of excess emissions and monitor downtime associated with the CTs/HRSGs in accordance with 40 CFR §60.7(c). Excess emissions as defined in 40 CFR §60.4380 (NO_x) and 40 CFR §60.4385 (SO₂) shall be reported for all periods of unit operation, including startup, shutdown, and malfunction. **[Reference: 40 CFR §60.4375 and CPCN 9297 Condition B-IV-16]**

E. Control of VOC

VOC LAER requirements listed in the CPCN 9297: VOC emission limit: 1.0 ppmvd at 15% O₂ without duct firing and 2.0 ppmvd at 15% O₂ with duct firing, except during periods of startup and shutdown. (3-hour block average); 164

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lb./event (cold startup); 63 lb./event (warm startup); 52.6 lb./event (hot startup; 12 lb./event (shutdown).

[Reference: CPCN 9297, Conditions B-IV-6 & Table B-1]

See CAM Requirements in Table IV-1b.

Compliance Demonstration

The Permittee shall conduct annual performance test using Method 18/25A or equivalent method approved by MDE-ARA. **[Reference: CPCN 9297 Table B-I]** CO CEMS data shall be used as a surrogate for VOC emissions. A correlation shall be developed between CO and VOC emissions based on an initial stack test. The emission correlation shall be verified annually by stack test or a new correlation established. Monthly emissions during normal operation shall be calculated using the VOC emission rates and monthly fuel throughput rates to the CTs/HRSGs. The VOC emissions factors during startup and shutdown provided by the vendor and number and type of startup and shutdown events shall be used to calculate the monthly emissions during startup and shutdown events. The monthly emissions shall be used to demonstrate compliance with the facility-wide VOC emissions limit in Condition B-III-3. **[Reference: CPCN 9297 Table B-I]**

Final results of each compliance stack performance test shall be submitted to the Department within 60 days after completion of the test. **[Reference: CPCN 9297 Condition B-IV-13]**

F. Control of Ammonia

The Permittee shall limit emissions of ammonia resulting from un-reacted ammonia (ammonia slip) from each of the SCRs installed on the CTs/HTSGs as specified in Table B-1. Emission Limit (not to exceed) 5 ppmvd at 15% O₂.

[Reference: CPCN 9297, Condition B-IV-7 & Table B-1]

Compliance Demonstration

The Permittee shall conduct performance stack tests at least once every five years using EPA Method CTM-027 or equivalent method approved by MDE-ARA. **[Reference: CPCN 9297 Table B-I]**

Final results of each compliance stack performance test shall be submitted to the Department within 60 days after completion of the test. **[Reference: COMAR 26.11.01.05B and CPCN 9297 Condition B-IV-13]**

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G. Control of CO₂

(1) **40 CFR Part 60 Subpart TTTT** for Greenhouse Gas Emissions for Electric Generating Units.

§60.5520 - What CO₂ emissions standard must I meet?

(a) For each affected EGU subject to this subpart, you must not discharge from the affected EGU any gases that contain CO₂ in excess of the applicable CO₂ emission standard specified in table 1 or 2 of this subpart, consistent with paragraphs (b), (c), and (d) of this section, as applicable.

(b) Except as specified in paragraphs (c) and (d) of this section, you must comply with the applicable gross energy output standard, and your operating permit must include monitoring, recordkeeping, and reporting methodologies based on the applicable gross energy output standard. For the remainder of this subpart (for sources that do not qualify under paragraphs (c) and (d) of this section), where the term “gross or net energy output” is used, the term that applies to you is “gross energy output.”

Table 2 of Subpart TTTT of Part 60—CO₂ Emission Standards for Affected Stationary Combustion Turbines That Commenced Construction After January 8, 2014 and Reconstruction After June 18, 2014 (Net Energy Output-Based Standards Applicable as Approved by the Administrator)

[Note: Numerical values of 1,000 or greater have a minimum of 3 significant figures and numerical values of less than 1,000 have a minimum of 2 significant figures]

Affected EGU	CO₂ Emission standard
Newly constructed or reconstructed stationary combustion turbine that supplies more than its design efficiency or 50 percent, whichever is less, times its potential electric output as net-electric sales on both a 12-operating month and a 3-year rolling average basis and combusts more than 90% natural gas on a heat input basis on a 12-operating-month rolling average basis	450 kg of CO ₂ per MWh of gross energy output (1,000 lb. CO ₂ /MWh); or 470 kilograms (kg) of CO ₂ per megawatt-hour (MWh) of net energy output (1,030 lb./MWh).

Compliance Demonstration

§60.5535 - How do I monitor and collect data to demonstrate compliance?

“(c) If your affected EGU exclusively combusts liquid fuel and/or gaseous fuel, as an alternative to complying with paragraph (b) of this section, you may determine the hourly CO₂ mass emissions according to paragraphs (c)(1) through (4) of this section. If you use non-uniform fuels as specified in §60.5520(d)(2), you may determine CO₂ mass emissions during the compliance period according to paragraph (c)(5) of this section.

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(2) For each measured hourly heat input rate, use Equation G-4 in appendix G to part 75 of this chapter to calculate the hourly CO₂ mass emission rate (tons/h). You may determine site-specific carbon-based F-factors (F_c) using Equation F-7b in section 3.3.6 of appendix F to part 75 of this chapter, and you may use these F_c values in the emissions calculations instead of using the default F_c values in the Equation G-4 nomenclature.

(3) For each “valid operating hour” (as defined in §60.5540(a)(1)), multiply the hourly tons/h CO₂ mass emission rate from paragraph (c)(2) of this section by the EGU or stack operating time in hours (as defined in §72.2 of this chapter), to convert it to tons of CO₂. Then, multiply the result by 909.1 to convert from tons of CO₂ to kg. Round off to the nearest two significant figures.

(4) The hourly CO₂ tons/h values and EGU (or stack) operating times used to calculate CO₂ mass emissions are required to be recorded under §75.57(e) of this chapter and must be reported electronically under §75.64(a)(6) of this chapter. You must use these data to calculate the hourly CO₂ mass emissions.

(5) If you operate a combustion turbine firing non-uniform fuels, as an alternative to following paragraphs (c)(1) through (4) of this section, you may determine CO₂ emissions during the compliance period using one of the following methods:

(i) Units firing fuel gas may determine the heat input during the compliance period following the procedure under §60.107a(d) and convert this heat input to CO₂ emissions using Equation G-4 in appendix G to part 75 of this chapter.

(ii) You may use the procedure for determining CO₂ emissions during the compliance period based on the use of the Tier 3 methodology under §98.33(a)(3) of this chapter.

(d) Consistent with §60.5520, you must determine the basis of the emissions standard that applies to your affected source in accordance with either paragraph (d)(1) or (2) of this section, as applicable:

(2) If you operate a source subject to an emissions standard established on a heat-input basis (e.g., lb. CO₂/MMBtu) and your affected source uses non-uniform heating value fuels as delineated under §60.5520(d), you must determine the total heat input for each fuel fired during the compliance period in accordance with one of the following procedures:

(i) Appendix D to part 75 of this chapter;

(ii) The procedures for monitoring heat input under §60.107a(d);

(iii) If you monitor CO₂ emissions in accordance with the Tier 3 methodology under §98.33(a)(3) of this chapter, you may convert your CO₂ emissions to heat input using the appropriate emission factor in table C-1 of part 98 of this chapter. If your fuel is not listed in table C-1, you must determine a fuel-specific carbon-based F-factor (F_c) in accordance with section 12.3.2 of EPA Method 19 of appendix A-7 to this part, and you must convert your CO₂ emissions to heat input using **Equation G-4** in appendix G to part 75 of this chapter.”

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§60.5560 - What records must I maintain?

“(a) You must maintain records of the information you used to demonstrate compliance with this subpart as specified in §60.7(b) and (f).”

§60.5565 - In what form and how long must I keep my records?

“(a) Your records must be in a form suitable and readily available for expeditious review.

(b) You must maintain each record for 3 years after the date of conclusion of each compliance period.

(c) You must maintain each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §60.7. Records that are accessible from a central location by a computer or other means that instantly provide access at the site meet this requirement. You may maintain the records off site for the remaining year(s) as required by this subpart.”

§60.5555 - What reports must I submit and when?

“(a) You must prepare and submit reports according to paragraphs (a) through (d) of this section, as applicable.

(1) For affected EGUs that are required by §60.5525 to conduct initial and on-going compliance determinations on a 12-operating-month rolling average basis, you must submit electronic quarterly reports as follows. After you have accumulated the first 12-operating months for the affected EGU, you must submit a report for the calendar quarter that includes the twelfth operating month no later than 30 days after the end of that quarter. Thereafter, you must submit a report for each subsequent calendar quarter, no later than 30 days after the end of the quarter.

(2) In each quarterly report you must include the following information, as applicable:

(i) Each rolling average CO₂ mass emissions rate for which the last (twelfth) operating month in a 12-operating-month compliance period falls within the calendar quarter. You must calculate each average CO₂ mass emissions rate for the compliance period according to the procedures in §60.5540. You must report the dates (month and year) of the first and twelfth operating months in each compliance period for which you performed a CO₂ mass emissions rate calculation. If there are no compliance periods that end in the quarter, you must include a statement to that effect;

(ii) If one or more compliance periods end in the quarter, you must identify each operating month in the calendar quarter where your EGU violated the applicable CO₂ emission standard;

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- (iii) If one or more compliance periods end in the quarter and there are no violations for the affected EGU, you must include a statement indicating this in the report;
- (iv) The percentage of valid operating hours in each 12-operating-month compliance period described in paragraph (a)(1)(i) of this section (*i.e.*, the total number of valid operating hours (as defined in §60.5540(a)(1)) in that period divided by the total number of operating hours in that period, multiplied by 100 percent);
- (v) Consistent with §60.5520, the CO₂ emissions standard (as identified in table 1 or 2 of this part) with which your affected EGU must comply; and
- (vi) Consistent with §60.5520, an indication whether or not the hourly gross or net energy output ($P_{\text{gross/net}}$) values used in the compliance determinations are based solely upon gross electrical load.
- (3) In the final quarterly report of each calendar year, you must include the following:
- (i) Consistent with §60.5520, gross energy output or net energy output sold to an electric grid, as applicable to the units of your emission standard, over the four quarters of the calendar year; and (*January 30th of each year; include a hard copy to the MDE-ARA*)
- (ii) The potential electric output of the EGU.
- (b)** You must submit all electronic reports required under paragraph (a) of this section using the Emissions Collection and Monitoring Plan System (ECMPS) Client Tool provided by the Clean Air Markets Division in the Office of Atmospheric Programs of EPA.
- (c)(1)** For affected EGUs under this subpart that are also subject to the Acid Rain Program, you must meet all applicable reporting requirements and submit reports as required under subpart G of part 75 of this chapter.
- (2) For affected EGUs under this subpart that are not in the Acid Rain Program, you must also meet the reporting requirements and submit reports as required under subpart G of part 75 of this chapter, to the extent that those requirements and reports provide applicable data for the compliance demonstrations required under this subpart.
- (3)(i) For all newly-constructed affected EGUs under this subpart that are also subject to the Acid Rain Program, you must begin submitting the quarterly electronic emissions reports described in paragraph (c)(1) of this section in accordance with §75.64(a) of this chapter, *i.e.*, beginning with data recorded on and after the earlier of:
- (A) The date of provisional certification, as defined in §75.20(a)(3) of this chapter; or
- (B) 180 days after the date on which the EGU commences commercial operation (as defined in §72.2 of this chapter).

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(ii) For newly-constructed affected EGUs under this subpart that are not subject to the Acid Rain Program, you must begin submitting the quarterly electronic reports described in paragraph (c)(2) of this section, beginning with data recorded on and after:

(A) The date on which reporting is required to begin under §75.64(a) of this chapter, if that date occurs on or after October 23, 2015; or

(B) October 23, 2015, if the date on which reporting would ordinarily be required to begin under §75.64(a) of this chapter has passed prior to October 23, 2015.

(iii) For reconstructed or modified units, reporting of emissions data shall begin at the date on which the EGU becomes an affected unit under this subpart, provided that the ECMPS Client Tool is able to receive and process net energy output data on that date. Otherwise, emissions data reporting shall be on a gross energy output basis until the date that the Client Tool is first able to receive and process net energy output data.

(4) If any required monitoring system has not been provisionally certified by the applicable date on which emissions data reporting is required to begin under paragraph (c)(3) of this section, the maximum (or in some cases, minimum) potential value for the parameter measured by the monitoring system shall be reported until the required certification testing is successfully completed, in accordance with §75.4(j) of this chapter, §75.37(b) of this chapter, or section 2.4 of appendix D to part 75 of this chapter (as applicable). Operating hours in which CO₂ mass emission rates are calculated using maximum potential values are not “valid operating hours” (as defined in §60.5540(a)(1)), and shall not be used in the compliance determinations under §60.5540.

(d) For affected EGUs subject to the Acid Rain Program, the reports required under paragraphs (a) and (c)(1) of this section shall be submitted by:

(1) The person appointed as the Designated Representative (DR) under §72.20 of this chapter; or

(2) The person appointed as the Alternate Designated Representative (ADR) under §72.22 of this chapter; or

(3) A person (or persons) authorized by the DR or ADR under §72.26 of this chapter to make the required submissions.”

(2) **GHG (as CO₂) BACT** requirements listed in the CPCN 9297: 869 lb./CO₂/MW-hr. with and without duct firing (gross). (12-month rolling average).

See CO₂ Budget Permit attached as Appendix B.

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Compliance Demonstration

The Permittee shall conduct annual performance test for CO₂ using EPA Method 3A or equivalent method approved by MDE-ARA. Monitor CO₂ emissions from each CTs/HRSGs using Equation G-4 in Appendix G to Part 75 of this chapter. The total generation (MW) shall be monitored to calculate the emission rate of CO₂ (lb./MW-hr.), determined each month by summing the CO₂ emissions for all hours in which power is being generated to the grid during the previous 12 months and dividing that value by the sum of the electrical energy output over that same period. **[Reference: CPCN 9297 Table B-I]** All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: CPCN 9297 Condition B-I-7]** Final results of each compliance stack performance test shall be submitted to the Department within 60 days after completion of the test. **[Reference: CPCN 9297 Condition B-IV-13]**

H. Control of CO

CO BACT requirements listed in the CPCN 9297: **CO emission limit:** 2.0 ppmvd at 15% O₂ with and without duct firing, except during periods of startup and shutdown; **CO During Startup/Shutdown:** 1,064 lb./event (cold startup); 311 lb./event (warm startup); 269 lb./event (hot startup); 60 lb./event (shutdown). **[Reference: CPCN 9297, Conditions B-IV-5 & Table B-1]**

Compliance Demonstration

The Permittee shall conduct annual performance test using EPA Method 10, or equivalent method approved by MDE-ARA. **[Reference: CPCN 9297, Table B-1]** Emissions shall be continuously monitored via CO CEMS. [COMAR 26.11.01.11]. PSEG Keys shall calculate monthly emissions from the CTs/HRSGs based on emissions measured using the CEMS to demonstrate compliance with the facility-wide emissions limit in Condition B-III-3. **[Reference: CPCN 9297, Table B-1]** Final results of each compliance stack performance test shall be submitted to the Department within 60 days after completion of the test. **[Reference: CPCN 9297 Condition B-IV-13]** The Permittee shall submit electronic quarterly reports from the DHAS to the EPA Clean Air Markets Division System as specified in 40 CFR §75.64. **[Reference: CPCN 9297 Condition B-IV-14]** The Permittee shall submit the following CEMS reports to the Department for all CEMS required to be operated with the CTs: (a) CEMS Systems Downtime Reports as required by COMAR 26.11.01.11E(1); (b) Quarterly CEMS Summary

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Reports as required by COMAR 26.11.01.11E(2)(c). **[Reference: COMAR 26.11.01.11E and CPCN 9297 Condition B-IV-15]**

The Permittee shall submit reports of excess emissions and monitor downtime associated with the CTs/HRSGs in accordance with 40 CFR §60.7(c). Excess emissions as defined in 40 CFR §60.4380 (NO_x) and 40 CFR §60.4385 (SO₂) shall be reported for all periods of unit operation, including startup, shutdown, and malfunction. **[Reference: CPCN 9297 Condition B-IV-16]**

I. Operational Limits

(1) The Permittee shall use only pipeline quality natural gas in the combustion turbines and duct burners. **[Reference: CPCN Case 9297 Condition B-IV-1]**

Compliance Demonstration

All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: CPCN 9297 Condition B-I-7]**

The Permittee shall submit a quarterly report to the Department to be postmarked by the 30th day of the month following the end of each calendar quarter that includes summary of the monthly and consecutive rolling 12-month total fuel use and hours of operation for each CT and duct burner. **[Reference: CPCN 9297 Condition B-IV-18]**

(2) The Permittee shall install a fuel flow meter and continuously monitor the fuel flow for each CT/HRSG and duct burner. The total fuel usage per month shall be recorded. **[Reference: CPCN Case 9297 Condition B-IV-10]**

Compliance Demonstration

The Permittee shall continuously monitor the fuel flow to each CT/HRSG and duct burner. **[Reference: CPCN 9297 Condition B-IV-10]** The Permittee shall keep records of summary of the monthly and consecutive 12-month total fuel use and hour of operation for each CT and duct burner. **[Reference: COMAR 26.11.03.06C]**. The Permittee shall submit a quarterly report to the Department to be postmarked by the 30th day of the month following the end of each calendar quarter that includes summary of the monthly and consecutive rolling 12-month total fuel use and hours of operation for each CT and duct burner. **[Reference: CPCN 9297 Condition B-IV-18]**

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J. BACT Requirements

Heat Rate: Emission Limit (not to exceed) - 6,802 Btu/kWh (net)(LHV).

Compliance Demonstration

The Permittee shall conduct annual thermal efficiency test in accordance with ASME PTC-46, or another methodology approved by MDE-ARA, and compare results to design thermal efficiency value. An exceedance of the heat rate limit is not considered a violation of this permit, but triggers a requirement for PSEG Keys to submit a maintenance plan to MDE-ARA which specifies the actions PSEG Keys plans to take in order to achieve the heat rate limit. The plan shall include a timeframe that the heat rate limit will be met not to exceed 60 days unless agreed to by MDE-ARA. **[Reference: CPCN 9297 Table B-I]**
All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: CPCN 9297 Condition B-I-7]**

Emission Unit – EU1 & EU2 Cont'd - CSAPR

EU1: CT11: Siemens Model SGT6-5000Fee natural gas-fired combustion turbine rated at 2,330 MMBtu/hr. equipped with **HRSG11:** Heat recovery steam generator which includes Forney natural gas-fired duct burner rated at 443 MMBtu/hr. [033-2737-5-1578 & 5-1580]
Controls: Selective Catalyst Reduction and oxidation catalyst.

EU2: CT12: Siemens Model SGT6-5000Fee natural gas-fired combustion turbine rated at 2,330 MMBtu/hr. equipped with **HRSG12:** Heat recovery steam generator which includes Forney natural gas-fired duct burner rated at 443 MMBtu/hr. [033-2737-5-1579 & 5-1581]
Controls: Selective Catalyst Reduction and oxidation catalyst

Applicable Standards and limits:

TR NO_x Annual Trading Program 40 CFR Part 97 Subpart AAAAA

The Permittee shall comply with the provisions and requirements of §97.401 through §97.435.

Note: §97.406(c) NO_x emissions requirements. For TR NO_x Annual emissions limitation: As of the allowance transfer deadline for a control period in a given year, the owners and operators of each TR NO_x Annual source and each TR

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NO_x Annual unit at the source shall hold, in the source's compliance account, TR NO_x Annual allowances available for deduction for such control period under §97.424(a) in an amount not less than the tons of total NO_x emissions for such control period from all TR NO_x Annual units at the source.

Allowance transfer deadline means, for a control period in a given year, midnight of March 1 (if it is a business day), or midnight of the first business day thereafter (if March 1 is not a business day), immediately after such control period and is the deadline by which a TR NO_x Annual allowance transfer must be submitted for recordation in a TR NO_x Annual source's compliance account in order to be available for use in complying with the source's TR NO_x Annual emissions limitation for such control period in accordance with §§97.406 and 97.424.

TR NO_x Ozone Season Trading Program 40 CFR Part 97 Subpart BBBBB

The Permittee shall comply with the provisions and requirements of §97.501 through §97.535.

Note: §97.506(c) NO_x emissions requirements. For TR NO_x Ozone Season emissions limitation: As of the allowance transfer deadline for a control period in a given year, the owners and operators of each TR NO_x Ozone Season source and each TR NO_x Ozone Season unit at the source shall hold, in the source's compliance account, TR NO_x Ozone Season allowances available for deduction for such control period under §97.524(a) in an amount not less than the tons of total NO_x emissions for such control period from all TR NO_x Ozone Season units at the source.

Allowance transfer deadline means, for a control period in a given year, midnight of December 1 (if it is a business day), or midnight of the first business day thereafter (if December 1 is not a business day), immediately after such control period and is the deadline by which a TR NO_x Ozone Season allowance transfer must be submitted for recordation in a TR NO_x Ozone Season source's compliance account in order to be available for use in complying with the source's TR NO_x Ozone Season emissions limitation for such control period in accordance with §§97.506 and 97.524.

TR SO₂ Group 1 - Trading Program 40 CFR Part 97 Subpart CCCCC

The Permittee shall comply with the provisions and requirements of §97.601 through §97.635.

Note: §97.606(c) SO₂ emissions requirements. For TR SO₂ Group 1 emissions limitation: As of the allowance transfer deadline for a control period in a given year, the owners and operators of each TR SO₂ Group 1 source and each TR SO₂ Group 1 unit at the source shall hold, in the source's compliance account, TR SO₂ Group 1 allowances available for deduction for such control period under

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§97.624(a) in an amount not less than the tons of total SO₂ emissions for such control period from all TR SO₂ Group 1 units at the source.
Allowance transfer deadline means, for a control period in a given year, midnight of March 1 (if it is a business day), or midnight of the first business day thereafter (if March 1 is not a business day), immediately after such control period and is the deadline by which a TR SO₂ Group 1 allowance transfer must be submitted for recordation in a TR SO₂ Group 1 source's compliance account in order to be available for use in complying with the source's TR SO₂ Group 1 emissions limitation for such control period in accordance with §§97.606 and 97.624.

Compliance Demonstration

The Permittee shall comply with the monitoring, recordkeeping and reporting requirements found in §97.606, §97.630, §97.631, §97.632, and §97.633.

The Permittee operates continuous emission monitoring system (CEMS) pursuant to 40 CFR Part 75, Subpart B (for SO₂ monitoring) and 40 CFR Part 75, Subpart H (for NO_x monitoring).

The Permittee shall comply with the monitoring, recordkeeping and reporting requirements found in §97.406, §97.430, §97.431, §97.432, and §97.433 for the NO_x Annual Trading Program and §97.506, §97.530, §97.531, §97.532, and §97.533 for the NO_x Ozone Season Trading Program.

Emission Unit – EU1 & EU2 Cont'd - CAM

EU1: CT11: Siemens Model SGT6-5000Fee natural gas-fired combustion turbine rated at 2,330 MMBtu/hr. equipped with **HRSG11:** Heat recovery steam generator which includes Forney natural gas-fired duct burner rated at 443 MMBtu/hr. [033-2737-5-1578 & 5-1580]

Controls: Selective Catalyst Reduction and oxidation catalyst.

EU2: CT12: Siemens Model SGT6-5000Fee natural gas-fired combustion turbine rated at 2,330 MMBtu/hr. equipped with **HRSG12:** Heat recovery steam generator which includes Forney natural gas-fired duct burner rated at 443 MMBtu/hr. [033-2737-5-1579 & 5-1581]

Controls: Selective Catalyst Reduction and oxidation catalyst

Applicable Standards and limits:

CAM is intended to provide a reasonable assurance of compliance with applicable requirements under the Clean Air Act for large emission units that rely

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on air pollution control (APC) equipment to achieve compliance. The CAM approach established monitoring for the purpose of:

- (1) Documenting continued operation of the control measures within ranges of specified indicators of performances (such as emissions, control device parameters, and process parameters) that are designed to provide a reasonable assurance of compliance with applicable requirements;
- (2) Indicating any excursions from these ranges; and
- (3) Responding to the data so that the causes of or caused excursions are corrected.

In order for a unit to be subject to CAM, the unit must be located at a major source, be subject to an emission limitation or standard; use a control device to achieve compliance; have pre-control emissions of at least 100 percent of the major source amount; and must not otherwise be exempt from CAM. Applicability determinations are made on a pollutant-by-pollutant basis for each emission unit.

EU1 and EU2 meet all the above criteria for VOC emissions and are therefore subject to the CAM requirements for VOC.

VOC: Emission limit: ≤ 1.0 ppmvd at 15% O₂ without duct firing and ≤ 2.0 ppmvd at 15% O₂ with duct firing, except during periods of startup and shutdown.

Compliance Demonstration

Monitoring Approach and Rationale

The CAM indicator selected for VOC emissions is the CO emission rate measured by the CO CEMs. The CO emission rate was chosen as the CAM indicator because the same parameters that influence the oxidation catalyst control of CO also influence control of VOC. Elevated CO levels are an indicator that emissions of VOC may also be elevated. The CO will be measured continuously by the CO CEMS. CO levels that remain below the prescribed CO emission limit will indicate that the oxidation catalyst system is performing adequately and will provide reasonable assurance of ongoing compliance with the permitted VOC emission limitations.

The indicator range for CO is the emission limitation established in the permit. Both the proposed indicator range and averaging period are based on the values prescribed in the permit.

In the event of an excursion of the CO emission limitation, the occurrence will be evaluated by a station operator to determine the procedures necessary to correct

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the condition. In addition to correcting the condition, the operator will also ensure that the following recordkeeping and reporting requirements are met:

- (1) Time of day and duration of any excursion and resulting corrective actions will be recorded.
- (2) A list of all excursions, their duration and corrective actions will be reported in the quarterly summary report.

Table IV-1b	
COMPLIANCE ASSURANCE MONITORING (CAM) Plan	
Emission Units: EU1 & EU2	
Applicable Requirement	VOC: Emission limit: ≤ 1.0 ppmvd at 15% O ₂ without duct firing and ≤ 2.0 ppmvd at 15% O ₂ with duct firing, except during periods of startup and shutdown.
I. Indicator	CO emission rate (ppmvd at 15% O ₂)
Measurement Approach	CO is measured and recorded using a certified CEMs
II. Indicator Range	CO emissions less than or equal to the CO emission limitation prescribed in the permit (i.e., ≤ 2.0 ppmvd @ 15% O ₂).
III. Performance Criteria: The CO CEMs meet the performance criteria for installation and operation as prescribed in the equipment protocol and Performance Specification Test protocol prepared in accordance with applicable EPA and MDE requirements.	
1. Data Representativeness	The indicator is based on the CO BACT emission level prescribed by the Department. CO data will be collected and validated in accordance with applicable EPA and MDE requirements.
2. Verification of Operational Status	CO CEMs data availability is in accordance with applicable EPA and MDE requirements.
3. AQ/QC Practices and Criteria	CO QA/QC procedures are consistent with the applicable EPA and MDE requirements.
4. Monitoring Frequency	CO is measured on a continuous basis with the exception of QA/QC periods, monitor malfunction periods and periods where the module is not combusting fuel.
5. Data Collection Procedures	CO data is collected by a computerized Data Acquisition System meeting applicable EPA and MDE requirements.
6. Averaging Period	CO emission rate is a 3-hour block average pursuant to Table B-1 in the CPCN 9297.

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Emission Unit – EU3

EU3: Cleaver Brooks natural gas-fired auxiliary boiler rated at 87.1 MMBtu/hr.
[033-2737-5-1582]

Applicable Standards and limits:

A. Control of Visible Emissions

COMAR 26.11.09.05A - Visible Emissions.

- (2) Areas III and IV. "In Areas III and IV, a person may not cause or permit the discharge of emissions from any fuel burning equipment, other than water in an uncombined form, which is visible to human observers except that, for the purpose of demonstrating compliance using COM data, emissions that are visible to a human observer are those that are equal to or greater than 10 percent opacity."
- (3) Exceptions. "Section A(1) and (2) of this regulation do not apply to emissions during load changing, soot blowing, startup, or adjustments or occasional cleaning of control equipment if:
- (a) The visible emissions are not greater than 40 percent opacity; and
 - (b) The visible emissions do not occur for more than 6 consecutive minutes in any sixty minute period."

Compliance Demonstration

The Permittee shall conduct visible emissions observation in accordance with EPA Reference Method 22 at least once each calendar quarter to verify that there are no visible emissions during operation. If the auxiliary boiler is not operated in a calendar quarter, the Permittee shall document this and no visible emission observation is required. If visible emissions are observed, the Permittee shall inspect the combustion control system, perform necessary adjustments and/or repairs within 48 hours, and document in writing the results of the inspection, adjustments and/or repairs. After 48 hours, if the required adjustments and/or repairs have not eliminated the visible emissions, the Permittee shall perform EPA Reference Method 9 observations once daily for at least one hour until corrective action have reduced the visible emissions to less than 20 percent opacity. **[Reference : CPCN 9297 Condition B-V-8]**

All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: COMAR 26.11.01.05 and CPCN 9297 Condition B-I-7]**

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B. Control of Particulate Matter

COMAR 26.11.06.03B(2)(a) - Particulate Matter from Confined Sources.

“A person may not cause or permit to be discharged into the outdoor atmosphere from any other installation, particulate matter in excess of 0.03 gr/SCFD (68.7 mg/dscm).”

Compliance Demonstration

Emissions of PM and PM₁₀ shall be calculated using fuel measurements and vendor guaranteed emission rates. **[Reference: CPCN 9297 Condition B-V-7(b)]**

All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: COMAR 26.11.01.05 and CPCN 9297 Condition B-I-7]**

C. Control of Nitrogen Oxides

COMAR 26.11.09.08E. - Requirements for Fuel-Burning Equipment with a Rated Heat Input Capacity of 100 Million Btu Per Hour or Less. “A person who owns or operates fuel-burning equipment with a rated heat input capacity of 100 Million Btu per hour or less shall:

- (1) Submit to the Department an identification of each affected installation, the rated heat input capacity of each installation, and the type of fuel burned in each;
- (2) Perform a combustion analysis for each installation at least once each year and optimize combustion based on the analysis;
- (3) Maintain the results of the combustion analysis at the site for at least 2 years and make this data available to the Department and the EPA upon request;
- (4) Once every 3 years, require each operator of the installation to attend operator training programs on combustion optimization that are sponsored by the Department, the EPA, or equipment vendors; and
- (5) Prepare and maintain a record of training program attendance for each operator at the site, and make these records available to the Department upon request.”

Compliance Demonstration

The Permittee shall:

- (1) Maintain the results of the combustion analysis at the site for at least 2 years and make this data available to the MDE-ARA and the EPA upon request.

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- (2) Prepare and maintain a record of training program attendance for each operator at the site, and make these records available to MDE-ARA upon request.

[Reference: CPCN 9297 Condition B-V-14(b) & B-V-14(c)]

D. Operational Limit

- (1) The auxiliary boiler shall be fueled exclusively on pipeline quality natural gas at all times when operating. **[Reference: CPCN Case 9297 Condition B-V-3]**

Compliance Demonstration

All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: CPCN 9297 Condition B-I-7]**

The Permittee shall submit a quarterly report to the Department to be postmarked by the 30th day of the month following the end of each quarter. **[Reference: CPCN 9297 Condition B-III-4]**

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- (2) The heat input to the auxiliary boiler shall not exceed 372,000 MMBtu in any 12-month rolling period. **[Reference: CPCN Case 9297 Condition B-V-4]**

Compliance Demonstration

The Permittee shall install a fuel flow meter on the auxiliary boiler to continuously monitor the fuel flow. The fuel usage shall be recorded at least on a monthly basis. **[Reference: CPCN Case 9297 Condition B-V-9]**

The Permittee shall maintain records of natural gas fuel usage in the auxiliary boiler on a monthly basis. **[Reference: 40 CFR §60.48c(g)(1)-(3) and CPCN Case 9297 Condition B-V-12]**

The Permittee shall maintain records of any maintenance performed on the auxiliary boiler for two years from the date of the record. **[Reference: 40 CFR §60.48c(i) and CPCN Case 9297 Condition B-V-16]**

The Permittee shall submit a quarterly report of the monthly fuel usage to the Department to be postmarked by the 30th day of the month following the end of each quarter. **[Reference: CPCN 9297 Condition B-III-4(a)]**

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E. BACT Requirements

Emissions from the auxiliary boiler shall meet the following BACT limits, through the use of efficient boiler design, exclusive use of pipeline quality natural gas, the use of ultra-low NO_x burners, and application of good combustion practices:

- (a) Emissions of NO_x shall not exceed 0.01 lbs./MMBtu on a 3-hr block average basis;
- (b) Emissions of CO shall not exceed 0.080 lbs./MMBtu on a 3-hr block average basis;
- (c) Emissions of PM shall not exceed 0.0075 lbs./MMBtu on a 3-hr block average basis;
- (d) Emissions of PM 10 shall not exceed 0.0075 lbs./MMBtu on a 3-hr block average basis;
- (e) Facility-wide GHG emissions shall not exceed 2,467,793 tons in any rolling 12-month period.

[Reference: CPCN Case 9297 Condition B-V-5]

Compliance Demonstration

Compliance with the BACT emission limits shall be demonstrated as follows: Emissions of NO_x, VOC, CO, PM, and PM₁₀ shall be calculated using fuel measurements and vendor guaranteed emission rates.

To demonstrate compliance with BACT for GHG pollutants, the Permittee shall conduct an annual combustion analysis on the auxiliary boiler. The results of the combustion analysis shall be provided to MDE-ARA within 45 days of its completion.

Methane (CH₄) and nitrous oxide (N₂O) emissions from the auxiliary boiler shall be calculated in accordance with the methodology and emission factors noted in 40 CFR 98, Subpart C. On a monthly basis, fuel consumption, coupled with the appropriate emission factors and global warming potentials (25 for CH₄ and 298 for N₂O) shall be used to calculate the CH₄ and N₂O emissions on a CO₂e basis. These emission rates, summed with the monthly CO₂ emissions based on 40 CFR §98, Subpart C or other methods approved by MDE-ARA shall be used to calculate GHG emissions from the auxiliary boiler on a CO₂e basis.

[Reference: CPCN Case 9297 Condition B-V-7(b), (c) & (d)]

All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: CPCN 9297 Condition B-I-7]**

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The results of the combustion analysis shall be provided to MDE-ARA within 45 days of its completion.

[Reference: CPCN 9297 Condition B-III-4 & B-V-7(c)]

F. LAER Requirements

Emissions from the auxiliary boiler shall meet the following LAER limits, through the use of efficient boiler design, exclusive use of pipeline quality natural gas, the use of ultra-low NO_x burners, and application of good combustion practices:

- (a) NO_x emissions shall not exceed 0.01 lb/MMBtu on a 3-hr block average basis; and
- (b) VOC emissions shall not exceed 0.002 lb/MMBtu on a 3-hr block average basis.

[Reference: CPCN Case 9297 Condition B-V-6]

Compliance Demonstration

Compliance with the LAER emission limits shall be demonstrated as follows: Emissions of NO_x, and VOC, shall be calculated using fuel measurements and vendor guaranteed emission rates. **[Reference: CPCN Case 9297 Condition B-V-7(b)]**

All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: CPCN 9297 Condition B-I-7]**

Emissions Unit - EU4 & EU5

EU4: MTU-Onsite Energy diesel-fired power block emergency generator rated at 1500 kW. [033-2737-9-1485]

EU5: Cummins diesel-fired water pump engine rated at 260 brake horsepower. [033-2737-9-1484]

Applicable Standards and limits:

A. Control of Visible Emissions

COMAR 26.11.09.05E - Stationary Internal Combustion Engine Powered Equipment.

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- “(2) Emissions During Idle Mode. A person may not cause or permit the discharge of emissions from any engine, operating at idle, greater than 10 percent opacity.
- (3) Emissions During Operating Mode. A person may not cause or permit the discharge of emissions from any engine, operating at other than idle conditions, greater than 40 percent opacity.
- (4) Exceptions.
- (a) Section E(2) of this regulation does not apply for a period of 2 consecutive minutes after a period of idling of 15 consecutive minutes for the purpose of clearing the exhaust system.
- (b) Section E(2) of this regulation does not apply to emissions resulting directly from cold engine start-up and warm-up for the following maximum periods:
- (i) Engines that are idled continuously when not in service: 30 minutes;
- (ii) All other engines: 15 minutes.
- (c) Section E(2) and (3) of this regulation do not apply while maintenance, repair, or testing is being performed by qualified mechanics.”

Compliance Demonstration

The Permittee shall properly operate and maintain the engines in a manner to minimize visible emissions. The Permittee shall retain records of preventive maintenance on site for at least five years and make these records available to the Department upon request. **[Reference: COMAR 26.11.03.06C]**

The Permittee shall report incidents of visible emissions in accordance with Permit Condition 4, Section III, Plant Wide Condition, “Report of Excess Emissions and Deviations”

B. Control of Sulfur Oxides

COMAR 26.11.09.07A(2) - Sulfur Content Limitations for Fuel.

“ A person may not burn, sell, or make available for sale any fuel with a sulfur content by weight in excess of or which otherwise exceeds the following limitations: In Areas III and IV: (b) Distillate fuel oils, 0.3 percent.”

Compliance Demonstration

The Permittee shall obtain a certification from the fuel supplier indicating that the fuel oil complies with the limitation on sulfur content of the fuel oil. **[Reference: COMAR 26.11.03.06C].**

The Permittee shall retain fuel supplier certifications for each fuel delivery that documents the sulfur content of the ultra-low sulfur diesel (ULSD) is 15 ppm

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sulfur by weight or less. Fuel supplier certification shall include the following information:

- (1) The name of the oil supplier;
- (2) The sulfur content of the oil;
- (3) The method used to determine the sulfur content of the oil. ASTM D129-00, D2622-98, D4294-02, D1266-98, D5453-00, or D1552-01 may be used; and
- (4) A statement that the sampling was performed according to either the single tank composite sampling procedure or the all-levels sampling procedure in ASTM D4057-88, "Standard Practice for Manual Sampling of Petroleum and Petroleum Products" and that no additions have been made to the supplier's tank since sampling. [40 CFR 60.17].

[Reference: CPCN 9297 Condition B-VI-12]

Note: The Permittee shall use fuel that meets specification approved by the Department.

The Permittee shall report fuel supplier certification to the Department upon request. **[Reference: COMAR 26.11.09.07C].**

C. Control of Nitrogen Oxides

COMAR 26.11.09.08E. - Requirements for Fuel-Burning Equipment with a Rated Heat Input Capacity of 100 Million Btu Per Hour or Less. "A person who owns or operates fuel-burning equipment with a rated heat input capacity of 100 Million Btu per hour or less shall:

- (1) Submit to the Department an identification of each affected installation, the rated heat input capacity of each installation, and the type of fuel burned in each;
- (2) Perform a combustion analysis for each installation at least once each year and optimize combustion based on the analysis;
- (3) Maintain the results of the combustion analysis at the site for at least 2 years and make this data available to the Department and the EPA upon request;
- (4) Once every 3 years, require each operator of the installation to attend operator training programs on combustion optimization that are sponsored by the Department, the EPA, or equipment vendors; and
- (5) Prepare and maintain a record of training program attendance for each operator at the site, and make these records available to the Department upon request."

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Compliance Demonstration

The Permittee shall:

- (1) Maintain the results of the combustion analysis at the site for at least 2 years and make this data available to the MDE-ARA and the EPA upon request.
- (2) Prepare and maintain a record of training program attendance for each operator at the site, and make these records available to MDE-ARA upon request.

[Reference: CPCN 9297 Condition B-V-13(b) & B-V-13(c)]

The Permittee shall submit:

- (1) The results of combustion analysis to the department and the EPA upon request. **[Reference: COMAR 26.11.09.08E(3)]**
- (2) A record of training program attendance for each operator to the Department upon request. **[Reference: COMAR 26.11.09.08E(5)].**

D. Operational Limit

The emergency diesel generator and the fire water pump engine shall be fired with diesel fuel only. **[Reference: CPCN Case 9297 Condition B-VI-5]**

Compliance Demonstration

All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: CPCN 9297 Condition B-I-7]**

The Permittee shall submit a quarterly report to the Department to be postmarked by the 30th day of the month following the end of each quarter.

[Reference: CPCN 9297 Condition B-III-4]

Emissions Unit - EU4 & EU5 Cont'd

EU4: MTU-Onsite Energy diesel-fired power block emergency generator rated at 1500 kW. [033-2737-9-1485]

EU5: Cummins diesel-fired water pump engine rated at 260 brake horsepower. [033-2737-9-1484]

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Applicable Standards and limits:

A. NSPS Requirements

For EU4 only (1500 kW)

(1) The diesel-fired emergency generator shall be equipped with a non-resettable hour meter prior to startup of the engine. **[Reference: 40 CFR §60.4209(a) & CPCN Case 9297 Condition B-VI-8(e)]**

(2) Exhaust emissions from the diesel fired emergency generator must not exceed:

Non-methane hydrocarbons (NMHC) + NO_x: 6.4 grams per kilowatt hour (g/kW-hr) (4.8 g/hp-hr.);

CO: 3.5 g/kW-hr (2.6 g/hp-hr.); and

PM: 0.2 g/kW-hr (0.15 g/hp-hr.).

[Reference: 40 CFR §60.4205(b), 40 CFR §60.4202(a)(2), 40 CFR §89.112(a) and Table 1, CPCN Case 9297 Condition B-VI-3(a)]

(3) Exhaust opacity from the emergency generator must not exceed:

20 percent during the acceleration mode;

15 percent during the lugging mode; and

50 percent during the peaks in either the acceleration or lugging modes.

[Reference: 40 CFR §60.4205(b) 40 CFR §60.4202(a)(2), and 40 CFR §89.113(a)]

(4) There is no time limit on the use of the emergency generator in emergency situations. **[Reference: 40 CFR §60.4211(f)(1)]**

The Permittee may operate the emergency stationary ICE for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The Permittee 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 calendar year. **[Reference: 40 CFR §60.4211(f)(2)(i)]**

Note: Effective May 2, 2016, emergency generators are no longer allowed to participate for emergency demand response operation unless they meet the requirements of a non-emergency generator of the same model year. This engine does not meet the standards for a non-emergency generator, therefore, operation for emergency demand response or during periods of voltage deviation are not permitted.

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Compliance Demonstration

The stationary CI internal combustion engine must comply with the emission standards specified in §60.4205(b) as applicable. The engine must be installed and configured according to the manufacturer's emission-related specifications.

[Reference: 40 CFR §60.4211(c)]

Opacity levels are to be measured and calculated as set forth in 40 CFR part 86, subpart I. **[Reference: 40 CFR §89. 113(b)]**

(4) See Record Keeping Requirements.

Emissions of NO_x +NMHC, CO PM and PM₁₀ shall be calculated using vendor guaranteed emission rates and used to calculate 12-month rolling emissions.

[Reference: CPCN Case 9297 Condition B-VI-9(a)]

All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: CPCN 9297 Condition B-I-7]**

The Permittee shall submit a quarterly report of the monthly fuel usage and hours of operation of emergency generator to the Department to be postmarked by the 30th day of the month following the end of each quarter. **[Reference: CPCN 9297 Condition B-III-4(d)]**

(2) The Permittee shall submit a quarterly report to the Department to be postmarked by the 30th day of the month following the end of each quarter.

[Reference: CPCN 9297 Condition B-III-4]

For EU5 only (260 bhp)

(1) The diesel fired fire water pump must meet the following emissions standards:

NMHC + NO_x: 4.0 g/kW-hr (3.0 g/hp-hr.);

CO: 3.5 g/kW-hr (2.6 g/hp-hr.)

PM: 0.20 g/kW-hr (0.15 g/hp-hr.).

[Reference: 40 CFR §60.4205(c), 40 CFR Part 60, Subpart IIII, Table 4, and CPCN Case 9297 Condition B-VI-3(b)]

(2) The fire water pump shall be equipped with a non-resettable hour meter prior to startup of the engine. **[Reference: 40 CFR §60.4209(a) & CPCN Case 9297 Condition B-VI-8(e)]**

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Compliance Demonstration

Emissions of NO_x +NMHC, CO PM and PM₁₀ shall be calculated using vendor guaranteed emission rates and used to calculate 12-month rolling emissions.

[Reference: CPCN Case 9297 Condition B-VI-9(a)]

All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: CPCN 9297 Condition B-I-7]**

The Permittee shall submit a quarterly report to the Department to be postmarked by the 30th day of the month following the end of each quarter.

[Reference: CPCN 9297 Condition B-III-4]

For EU4 & EU5 only

The diesel fuel used in the emergency generator and the fire water pump must meet the following specifications:

Sulfur content – 15 ppm maximum

Cetane index or aromatic content as follows:

A minimum cetane index of 40; or

A maximum aromatic content of 35 volume percent.

[Reference: 40 CFR §60.4207(b) and 40 CFR §80.510(b)]

The diesel-fired emergency generator and the fire water pump shall be certified to the emissions standards in §60.4205(b), as applicable. The generator must be installed and configured according to the manufacturer's specifications.

[Reference: 40 CFR §60.4211(c)]

Compliance Demonstration

The Permittee must operate and maintain the diesel fired emergency generator and the diesel fired fire water pump according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer. The Permittee may only change those settings that are permitted by the manufacturer. The Permittee must meet the requirements of 40 CFR Part 89, as applicable. **[Reference: 40 CFR §60.4211(a)]**

The Permittee shall provide fuel supplier certifications for each fuel delivery that documents the sulfur content of the ultra-low sulfur diesel (ULSD) is 15 ppm sulfur by weight or less. Fuel supplier certification shall include the following information:

- (a) The name of the fuel oil supplier;
- (b) The sulfur content of the fuel oil;

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(c) The method used to determine the sulfur content of the fuel oil. ASTM D129-00, D2622-98, D4294-02, D1266-98, D5453-00, or D1552-01 may be used; and
(d) A statement that the sampling was performed according to either the single tank composite sampling procedures or the all-levels sampling procedure in ASTM D4057-88, "Standard Practice for Manual Sampling of Petroleum Products" and that no additions have been made to the supplier's tank since sampling.

[Reference: 40 CFR §60.17 and CPCN Case 9297 Condition B-VI-12]

Note: The Permittee shall use fuel that meets specification approved by the Department.

B. BACT Requirements

(1) The auxiliary diesel generator shall be designed to meet the following BACT emission limits through the exclusive use of ultra-low sulfur diesel (ULSD) fuel and good combustion practices:

NO_x+NMHC, CO, and PM (filterable) emissions shall not exceed the applicable NSPS Subpart IIII emission limitations;

PM₁₀ (filterable and condensable) emissions shall not exceed 0.18 g/hp-hour; and

Facility-wide GHG emissions shall not exceed 2,467,793 tons in any rolling 12-month period. **[Reference: CPCN Case 9297 Condition B-VI-6(a)]**

(2) The fire water pump engine shall be designed to meet the following BACT limits through the exclusive use of ULSD fuel and good combustion practices: NO_x+NMHC, CO, and PM (filterable) emissions shall not exceed the applicable NSPS Subpart IIII emission limitations;

PM₁₀ (filterable and condensable) emissions shall not exceed 0.18 g/hp-hour; and

Facility-wide GHG emissions shall not exceed 2,467,793 tons in any rolling 12-month period. **[Reference: CPCN Case 9297 Condition B-VI-6(b)]**

Compliance Demonstration

The Permittee shall calculate PM₁₀ emissions using vendor guaranteed emission rates. **[Reference: CPCN Case 9297 Condition B-VI-9(a)]**

Methane (CH₄) and nitrous oxide (N₂O) emissions from the auxiliary generator and fire water pump engine shall be calculated in accordance with the methodology and emissions factors noted in 40 CFR 98, Subpart C. On a monthly basis, fuel consumption, coupled with the appropriate emission factors and global warming potentials (25 for CH₄ and 298 for N₂O) shall be used to calculate the CH₄ and N₂O emissions on a CO₂e basis. These emission rates,

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summed with the monthly CO₂ emissions based on 40 CFR 98, Subpart C or other methods approve by MDE-ARA shall be used to establish GHG emissions from the auxiliary generator and fire water pump engine on a CO₂e basis.

[Reference: CPCN Case 9297 Condition B-VI-9(b)]

All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: CPCN 9297 Condition B-I-7]**

The Permittee shall submit a quarterly report to the Department to be postmarked by the 30th day of the month following the end of each quarter.

[Reference: CPCN 9297 Condition B-III-4]

C. LAER Requirements

The emergency generator and fire water pump engine shall each be designed such that emissions shall not exceed the applicable limits in NSPS Subpart IIII for NO_x+NMHC through the use of ULSD fuel and good combustion practices at all times. **[Reference: CPCN Case 9297 Condition B-VI-7]**

Compliance Demonstration

The Permittee shall operate and maintain the engines in accordance to the manufacturers' written instructions and procedures approved by the engines manufacturer, over the entire life of the engine. **[Reference: 40 CFR §60.4206]**
All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: CPCN 9297 Condition B-I-7]**

The Permittee shall submit a quarterly report to the Department to be postmarked by the 30th day of the month following the end of each quarter.

[Reference: CPCN 9297 Condition B-III-4]

Emissions Unit - EU6, EU7, EU8, & EU9

EU6: Natural gas pipeline components, including valves, flanges, pump seals, pressure relief valves, and six (6) catalytic heaters – all within the facility boundary.

EU7: Circuit breakers containing sulfur hexafluoride (SF₆).

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EU8: Two (2) fuel oil storage tanks: 900 gallons (emergency generator) and 350 gallons (fire pump).

EU9: On-site paved and unpaved roads

Applicable Standards and limits:

A. BACT Requirements: **EU6**

Greenhouse Gas (GHG) Best Available Control Technology (BACT) for the natural gas pipeline components associated with the pipeline shall be the implementation of an Audio, Visual, and Olfactory (AVO) Program on file at power plant site for review upon request by the agency. In accordance with the AVO program Plan, the AVO inspections shall be documented, leaks identified from the AVO assessment shall be repaired within five days of discovery, repairs documented, and associated repair records maintained. **[Reference: CPCN Case 9297 Condition B-VII-1]**

Compliance Demonstration

The Permittee shall maintain all records of monitoring and repair associated with the natural gas pipeline components at the facility in accordance with the AVO Program Plan for at least five years after the completion of the calendar year in which they were collected. This data shall be readily available for inspection by the Department. **[Reference: CPCN Case 9297 Condition B-VII-3]**

B. Control of GHG Emissions: **EU6**

The GHG emissions from the natural gas pipeline components shall be limited to meet the facility-wide GHG emissions limit listed in CPCN Case 9297 Condition B-III-3. The emissions from the natural gas pipeline components shall be calculated as follows:

- (a) The GHG emissions from the natural gas pipeline components shall be based on EPA AP-42 emission factors, methodology described in 40 CFR Part §98 Subpart W, or other MDE-approved emission factors;
- (b) The total GHG emissions from the natural gas pipeline components shall be presented on a CO_{2e} basis.

[Reference: CPCN Case 9297 Condition B-VII-2]

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Compliance Demonstration

All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: CPCN 9297 Condition B-I-7]**

C. BACT Requirements: EU7

GHG BACT for the circuit breakers shall be installation of circuit breakers that are designed to meet ANSI C37.013 or equivalent to detect and minimize SF6 leaks. Leaks detected shall be repaired within five days of discovery; repairs documented, and associated repair records maintained. **[Reference: CPCN Case 9297 Condition B-VIII-1]**

Compliance Demonstration

The Permittee shall maintain all records of monitoring and repair associated with the circuit breakers at the Facility for at least five years after the completion of the calendar year in which they were collected. This data shall be readily available for inspection by the Department. **[Reference: CPCN Case 9297 Condition B-VIII-3]**

D. Control of GHG Emissions: EU7

The GHG emissions from the circuit breakers shall be limited to meet the facility-wide GHG emissions limit listed in CPCN Case 9297 Condition B-III-3. The emissions from the circuit breakers shall be calculated as follows:

- (a) SF6 emissions from the circuit breakers shall be calculated using a manufacturer provided leak rate, the methodology in 40 CFR §98, Subpart DD, and assuming 8,760 hours per year of operation;
- (b) The total GHG emissions from the circuit breakers shall be presented on a CO_{2e} basis.

[Reference: CPCN Case 9297 Condition B-VIII-2]

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Compliance Demonstration

All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: CPCN 9297 Condition B-I-7]**

E. Control of VOC: EU8

Lowest Achievable Emission Rate (LAER): The VOC emissions from the storage tanks (combined) shall not exceed 0.1 tons in any 12-month rolling period, through periodic maintenance on the tanks to minimize fugitive emissions. **[Reference: CPCN Case 9297 Condition B-IX-2]**

Compliance Demonstration

The Permittee shall maintain records of periodic maintenance performed on the tanks to minimize fugitive emissions for at least five years after the completion of the calendar year in which they were collected. This data shall be readily available for inspection by the Department. **[Reference: CPCN Case 9297 Condition B-IX-3]**

F. Control of PM and PM₁₀ Emissions: EU9

Best Available Control Technology (BACT): The Permittee shall minimize PM and PM₁₀ emissions from onsite roadways by taking reasonable precautions to prevent particulate matter from becoming airborne by sweeping or water application dust control, as needed. **[Reference: COMAR 26.11.06.03D and CPCN Case 9297 Condition B-X-1]**

Compliance Demonstration

The Permittee shall prepare and maintain a plan that contains an explanation of the reasonable precautions or best management practices (BMP) Plan that will be used to prevent particulate matter from becoming airborne.

The Permittee shall update the BMP Plan, as required by the initial Part 70 permit for this facility when a revision is needed to ensure that reasonable precautions will be used to prevent particulate matter from this equipment from becoming airborne and that adequate inspection will be conducted and documented. The BMP shall include provisions for routine inspections of emission sources and controls, corrective measures, and recordkeeping for such.

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The Permittee shall maintain the written reasonable precautions (BMP) at the facility and make it available to the Department upon request. The Permittee shall report the results of the inspections and provide a copy of the current BMP plan upon request by the Department. **[Reference: COMAR 26.11.03.06C]**

Emissions Unit - Facility-wide/Plant-wide

Facility-wide/Plant-wide

Applicable Standards and limits:

Operational Limits

- (1) Plant-wide emissions, including emissions during periods of startup and shutdown, shall be limited to the following in any consecutive 12-month rolling period:

Pollutant	Emission Limit (tons per year)
Particulate Matter (PM) – Filterable	77.2
Particulate Matter (PM ₁₀) – Filterable and Condensable	94.4
Nitrogen Oxides (NO _x)	156.0
Carbon Monoxide (CO)	203.4
Volatile Organic Compounds (VOCs)	56.2
Greenhouse Gas (GHG) as Carbon Dioxide Equivalent (CO _{2e})	2,467,793

[Reference: CPCN Case 9297 Condition B-III-3]

- (2) Facility-wide emissions of Particulate Matter less than 2.5 microns (PM_{2.5}) (Filterable and Condensable) shall not exceed 100 tons per 12-month rolling period. **[Reference: CPCN Case 9297 Condition B-III-1(k)]**

Compliance Demonstration

For CTs/HRSGs and Duct Burners: The Permittee shall monitor the fuel usage in million standard cubic feet (MMSCF) continuously and record the heat input (MMBtu) per month to the CTs and duct burners. **[Reference: CPCN Case 9297 Condition B-III-8(a)(ii)]**

For Aux Boiler: PM_{2.5} emissions from the auxiliary boiler shall be calculated based on the monthly heat input (MMBtu/month) to the auxiliary boiler and an emission factor of 0.0075 lb/MMBtu) or any lower emission factor established by performance tests. **[Reference: CPCN Case 9297 Condition B-III-8(b)]**

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Emergency generator and fire pump engine: PM_{2.5} emissions from the auxiliary generators and the firewater pump engine shall be calculated based on the monthly hours of operation and an emission factor provided by vendor which the engine is designed to meet. In the absence of an emission factor provided by the vendor, PM_{2.5} emissions shall be calculated based on the monthly hours of operation and the appropriate AP-42 or other MDE-approved emission factor for PM_{2.5}. **[Reference: CPCN Case 9297 Condition B-III-8(c)]**

All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: CPCN 9297 Condition B-I-7]**

The Permittee shall submit quarterly reports to MDE-ARA to be postmarked by the 30th day of the month following the end of each calendar quarter that includes the following information: summarizes the monthly and consecutive rolling 12-month total emissions (in tons per month and tons per year) of PM, PM₁₀, NO_x, CO, VOC, and GHG (as CO_{2e}) separately for each emission unit and total emissions of those pollutants for all the facility's sources. **[Reference: CPCN 9297 Condition B-III-4(e)]**

The Permittee shall certify the actual emissions of regulated air pollutants from all installations at the facility. Certification shall be on a form obtained from MDE-ARA and shall be submitted to MDE-ARA not later than April 1 of the year following the year for which the certification is required. All emission certification submitted pursuant to this section and which contains all information required by COMAR 26.11.01.05-1 for NO_x and VOC, satisfies the requirements of COMAR 26.11.01.05-1. [COMAR 26.11.02.19D]. **[Reference: CPCN 9297 Condition B-III-2(d)]**

COMPLIANCE SCHEDULE

PSEG Keys Energy Center is currently in compliance with all applicable air quality regulations.

TITLE IV – ACID RAIN

PSEG Keys Energy Center is subject to the Acid Rain Program requirements. The Phase II Acid Rain Permit will be issued in conjunction with this Part 70 permit.

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TITLE VI – OZONE DEPLETING SUBSTANCES

PSEG Keys Energy Center is not subject to Title VI requirements.

SECTION 112(r) – ACCIDENTAL RELEASE

PSEG Keys Energy Center is not subject to the requirements of Section 112(r).

PERMIT SHIELD

PSEG Keys Energy Center did not request a permit shield.

INSIGNIFICANT ACTIVITIES

This section provides a list of insignificant emissions units that were reported in the Title V permit application. The applicable Clean Air Act requirements, if any, are listed below the insignificant activity.

- (1) No. 5 Fuel burning equipment using gaseous fuels or no. 1 or no. 2 fuel oil, and having a heat input less than 1,000,000 Btu (1.06 gigajoules) per hour;

[For Areas III and IV]

The affected fuel burning units are subject to the following requirements:

COMAR 26.11.09.05A(2). “In Areas III and IV, a person may not cause or permit the discharge of emissions from any fuel burning equipment, other than water in an uncombined form, which is visible to human observers except that, for the purpose of demonstrating compliance using COM data, emissions that are visible to a human observer are those that are equal to or greater than 10 percent opacity.”

COMAR 26.11.09.05A(3) Exceptions. “Section A(1) and (2) of this regulation do not apply to emissions during load changing,

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soot blowing, startup, or adjustments or occasional cleaning of control equipment if:

- (a) The visible emissions are not greater than 40 percent opacity; and
- (b) The visible emissions do not occur for more than 6 consecutive minutes in any sixty-minute period."

[For Distillate Fuel Oil]

COMAR 26.11.09.07A(2)(b), which establishes that the Permittee may not burn, sell, or make available for sale any distillate fuel with a sulfur content by weight in excess of 0.3 percent.

- (2) ✓ Space heaters utilizing direct heat transfer and used solely for comfort heat;
- (3) ✓ Equipment for drilling, carving, cutting, routing, turning, sawing, planning, spindle sanding, or disc sanding of wood or wood products;
- (4) Containers, reservoirs, or tanks used exclusively for:
 - (a) No. 26 Storage of lubricating oils;
Includes an average of five (5) storage totes of lubricating oils used to fill the twenty-one (21) dedicated lube oil tanks/containers.
 - (b) No. 1 Storage of Numbers 1, 2, 4, 5, and 6 fuel oil and aviation jet engine fuel;
- (5) ✓ Laboratory fume hoods and vents;

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STATE ONLY ENFORCEABLE REQUIREMENTS

This section of the permit contains state-only enforceable requirements. The requirements in this section will not be enforced by the U.S. Environmental Protection Agency. The requirements in this section are not subject to COMAR 26.11.03 10 - Public Petitions for Review to EPA Regarding Part 70 Permits.

1. Applicable Regulations:

COMAR 26.11.06.08 - Nuisance.

"An installation or premises may not be operated or maintained in such a manner that a nuisance or air pollution is created. Nothing in this regulation relating to the control of emissions may in any manner be construed as authorizing or permitting the creation of, or maintenance of, nuisance or air pollution."

COMAR 26.11.06.09 - Odors.

"A person may not cause or permit the discharge into the atmosphere of gases, vapors, or odors beyond the property line in such a manner that a nuisance or air pollution is created."

CO₂ Budget Permit

The Permittee shall comply with the requirements of the CO₂ Budget Permit issued for Keys Energy Center. Note: A CO₂ Budget Permit will be issued in conjunction with this Part 70 permit and is attached to the Part 70 permit as Appendix B.

2. Record Keeping and Reporting:

The Permittee shall submit to the Department, by April 1 of each year during the term of this permit, a written certification of the results of an analysis of emissions of toxic air pollutants from the Permittee's facility during the previous calendar year. The analysis shall include either:

- (a) a statement that previously submitted compliance demonstrations for emissions of toxic air pollutants remain valid; or
- (b) a revised compliance demonstration, developed in accordance with requirements included under COMAR 26.11.15 & 16, that accounts for changes in operations, analytical methods, emissions determinations, or other factors that have invalidated previous demonstrations.

DRAFT PERMIT

Wes Moore
Governor

Serena Mcllwain
Secretary

Air and Radiation Administration

1800 Washington Boulevard, Suite 720
Baltimore, MD 21230

☐ Construction Permit

☒ Part 70 Operating Permit

PERMIT NO.:
24-033-2737

DATE ISSUED:
Date Issued

PERMIT FEE:
To Be Paid in Accordance with
COMAR 26.11.02.19B

EXPIRATION DATE:
November 30, 2027

LEGAL OWNER & ADDRESS

Parkway Generation Keys Energy Center, LLC
10322 N Keys Rd
Brandywine, MD 20613-8200

Attention: Mr. William S. Clancy, Plant Manager

SITE

Keys Energy Center
10322 N Keys Rd
Brandywine, MD 20613-8200

Prince George's County

AI # 93478

SOURCE DESCRIPTION

A 755 MW, two on one combined-cycle, natural gas fired combustion turbine electrical generating facility.

This source is subject to the conditions described on the attached pages.

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SECTION I SOURCE IDENTIFICATION

1. DESCRIPTION OF FACILITY

PSEG Keys Energy Center is a 755 MW, two-on-one combined-cycle, natural gas-fired combustion turbine electric generating facility. The main sources of emissions are two (2) Siemens Model SGT6-5000Fee combustion turbines (CTs), each rated at 2,330 MMBtu/hr. The CTs fire natural gas only. Each CT exhaust to its own heat recovery steam generator (HRSG) which includes a Forney natural gas duct burner rated at 443 MMBtu/hr. Emissions from the CTs and duct burners are controlled by an SCR and an oxidation catalyst system. Steam from the HRSGs is routed to a single steam turbine generator. Ancillary equipment includes a natural gas-fired Cleaver Brooks auxiliary boiler rated at 87.1 MMBtu/hr, a diesel-fired emergency generator rated at 1,500 kW, a Cummins diesel-fired fire water pump engine rated at 260 brake horsepower and several sources of fugitive emissions.

2. FACILITY INVENTORY LIST

Emissions Unit Number	MDE - ARA Registration Number	Emissions Unit Name and Description	Date of Installation
EU1	033-2737-5-1578 & 5-1580	CT11: Siemens Model SGT6-5000Fee natural gas-fired combustion turbine rated at 2,330 MMBtu/hr equipped with HRSG11: Heat recovery steam generator which includes Forney natural gas-fired duct burner rated at 443 MMBtu/hr. Controls: Selective Catalyst Reduction and oxidation catalyst	December 2017
EU2	033-2737-5-1579 & 5-1581	CT12: Siemens Model SGT6-5000Fee natural gas-fired combustion turbine rated at 2,330 MMBtu/hr equipped with HRSG12: Heat recovery steam generator which includes Forney natural gas-fired duct burner rated at 443 MMBtu/hr. Controls: Selective Catalyst Reduction and oxidation catalyst	December 2017
EU3	033-2737-5-1582	Cleaver Brooks natural gas-fired auxiliary boiler rated at 87.1 MMBtu/hr	January 2018

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Emissions Unit Number	MDE - ARA Registration Number	Emissions Unit Name and Description	Date of Installation
EU4	033-2737-9-1485	MTU-Onsite Energy diesel-fired power block emergency generator rated at 1,500 kW	November 2017
EU5	033-2737-9-1484	Cummins diesel-fired water pump engine rated at 260 brake horsepower	October 2017
EU6	N/A	Natural gas pipeline components, including valves, flanges, pump seals, pressure relief valves, and six (6) catalytic heaters – all within the facility boundary	September 2017
EU7	N/A	Circuit breakers containing sulfur hexafluoride (SF6)	October 2017
EU8	N/A	Two (2) fuel oil storage tanks: 900 gallons (emergency generator) and 350 gallons (fire pump)	October & November 2017
EU9	N/A	On-site paved and unpaved roads	N/A

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SECTION II GENERAL CONDITIONS

1. DEFINITIONS

[COMAR 26.11.01.01] and [COMAR 26.11.02.01]

The words or terms in this Part 70 permit shall have the meanings established under COMAR 26.11.01 and .02 unless otherwise stated in this permit.

2. ACRONYMS

ARA	Air and Radiation Administration
BACT	Best Available Control Technology
Btu	British thermal unit
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CEM	Continuous Emissions Monitor
CFR	Code of Federal Regulations
CO	Carbon Monoxide
COMAR	Code of Maryland Regulations
EPA	United States Environmental Protection Agency
FR	Federal Register
gr	grains
HAP	Hazardous Air Pollutant
MACT	Maximum Achievable Control Technology
MDE	Maryland Department of the Environment
MVAC	Motor Vehicle Air Conditioner
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NO _x	Nitrogen Oxides
NSPS	New Source Performance Standards
NSR	New Source Review
OTR	Ozone Transport Region
PM	Particulate Matter
PM ₁₀	Particulate Matter with Nominal Aerodynamic Diameter of 10 micrometers or less
ppm	parts per million
ppb	parts per billion
PSD	Prevention of Significant Deterioration
PTC	Permit to construct
PTO	Permit to operate (State)
SIC	Standard Industrial Classification

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SO ₂	Sulfur Dioxide
TAP	Toxic Air Pollutant
tpy	tons per year
VE	Visible Emissions
VOC	Volatile Organic Compounds

3. EFFECTIVE DATE

The effective date of the conditions in this Part 70 permit is the date of permit issuance, unless otherwise stated in the permit.

4. PERMIT EXPIRATION

[COMAR 26.11.03.13B(2)]

Upon expiration of this permit, the terms of the permit will automatically continue to remain in effect until a new Part 70 permit is issued for this facility provided that the Permittee has submitted a timely and complete application and has paid applicable fees under COMAR 26.11.02.16.

Otherwise, upon expiration of this permit the right of the Permittee to operate this facility is terminated.

5. PERMIT RENEWAL

[COMAR 26.11.03.02B(3)] and [COMAR 26.11.03.02E]

The Permittee shall submit to the Department a completed application for renewal of this Part 70 permit at least 12 months before the expiration of the permit. Upon submitting a completed application, the Permittee may continue to operate this facility pending final action by the Department on the renewal.

The Permittee, upon becoming aware that any relevant facts were omitted or incorrect information was submitted in the permit application, shall submit such supplementary facts or corrected information no later than 10 days after becoming aware that this occurred. The Permittee shall also provide additional information as necessary to address any requirements that become applicable to the facility after the date a completed application was submitted, but prior to the release of a draft permit. This

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information shall be submitted to the Department no later than 20 days after a new requirement has been adopted.

6. CONFIDENTIAL INFORMATION

[COMAR 26.11.02.02G]

In accordance with the provisions of the State Government Article, Sec. 10-611 et seq., Annotated Code of Maryland, all information submitted in an application shall be considered part of the public record and available for inspection and copying, unless the Permittee claims that the information is confidential when it is submitted to the Department. At the time of the request for inspection or copying, the Department will make a determination with regard to the confidentiality of the information. The Permittee, when requesting confidentiality, shall identify the information in a manner specified by the Department and, when requested by the Department, promptly provide specific reasons supporting the claim of confidentiality. Information submitted to the Department without a request that the information be deemed confidential may be made available to the public. Subject to approval of the Department, the Permittee may provide a summary of confidential information that is suitable for public review. The content of this Part 70 permit is not subject to confidential treatment.

7. PERMIT ACTIONS

[COMAR 26.11.03.06E(3)] and [COMAR 26.11.03.20(A)]

This Part 70 permit may be revoked or reopened and revised for cause. The filing of an application by the Permittee for a permit revision or renewal; or a notification of termination, planned changes or anticipated noncompliance by the facility, does not stay a term or condition of this permit.

The Department shall reopen and revise, or revoke the Permittee's Part 70 permit under the following circumstances:

- a. Additional requirements of the Clean Air Act become applicable to this facility and the remaining permit term is 3 years or more;

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- b. The Department or the EPA determines that this Part 70 permit contains a material mistake, or is based on false or inaccurate information supplied by or on behalf of the Permittee;
- c. The Department or the EPA determines that this Part 70 permit must be revised or revoked to assure compliance with applicable requirements of the Clean Air Act; or
- d. Additional requirements become applicable to an affected source under the Federal Acid Rain Program.

8. PERMIT AVAILABILITY

[COMAR 26.11.02.13G]

The Permittee shall maintain this Part 70 permit in the vicinity of the facility for which it was issued, unless it is not practical to do so, and make this permit immediately available to officials of the Department upon request.

9. REOPENING THE PART 70 PERMIT FOR CAUSE BY THE EPA

[COMAR 26.11.03.20B]

The EPA may terminate, modify, or revoke and reissue a permit for cause as prescribed in 40 CFR §70.7(g)

10. TRANSFER OF PERMIT

[COMAR 26.11.02.02E]

The Permittee shall not transfer this Part 70 permit except as provided in COMAR 26.11.03.15.

11. REVISION OF PART 70 PERMITS – GENERAL CONDITIONS

[COMAR 26.11.03.14] and [COMAR 26.11.03.06A(8)]

- a. The Permittee shall submit an application to the Department to revise this Part 70 permit when required under COMAR 26.11.03.15 -.17.

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- b. When applying for a revision to a Part 70 permit, the Permittee shall comply with the requirements of COMAR 26.11.03.02 and .03 except that the application for a revision need include only information listed that is related to the proposed change to the source and revision to the permit. This information shall be sufficient to evaluate the proposed change and to determine whether it will comply with all applicable requirements of the Clean Air Act.
- c. The Permittee may not change any provision of a compliance plan or schedule in a Part 70 permit as an administrative permit amendment or as a minor permit modification unless the change has been approved by the Department in writing.
- d. A permit revision is not required for a change that is provided for in this permit relating to approved economic incentives, marketable permits, emissions trading, and other similar programs.

12. SIGNIFICANT PART 70 OPERATING PERMIT MODIFICATIONS

[COMAR 26.11.03.17]

The Permittee may apply to the Department to make a significant modification to its Part 70 Permit as provided in COMAR 26.11.03.17 and in accordance with the following conditions:

- a. A significant modification is a revision to the federally enforceable provisions in the permit that does not qualify as an administrative permit amendment under COMAR 26.11.03.15 or a minor permit modification as defined under COMAR 26.11.03.16.
- b. This permit does not preclude the Permittee from making changes, consistent with the provisions of COMAR 26.11.03, that would make the permit or particular terms and conditions of the permit irrelevant, such as by shutting down or reducing the level of operation of a source or of an emissions unit within the source. Air pollution control equipment shall not be shut down or its level of operation reduced if doing so would violate any term of this permit.
- c. Significant permit modifications are subject to all requirements of COMAR 26.11.03 as they apply to permit issuance and renewal,

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including the requirements for applications, public participation, and review by affected states and EPA, except:

- (1) An application need include only information pertaining to the proposed change to the source and modification of this permit, including a description of the change and modification, and any new applicable requirements of the Clean Air Act that will apply if the change occurs;
 - (2) Public participation, and review by affected states and EPA, is limited to only the application and those federally enforceable terms and conditions of the Part 70 permit that are affected by the significant permit modification.
- d. As provided in COMAR 26.11.03.15B(5), an administrative permit amendment may be used to make a change that would otherwise require a significant permit modification if procedures for enhanced preconstruction review of the change are followed that satisfy the requirements of 40 CFR 70.7(d)(1)(v).
 - e. Before making a change that qualifies as a significant permit modification, the Permittee shall obtain all permits-to-construct and approvals required by COMAR 26.11.02.
 - f. The Permittee shall not make a significant permit modification that results in a violation of any applicable requirement of the Clean Air Act.
 - g. The permit shield in COMAR 26.11.03.23 applies to a final significant permit modification that has been issued by the Department, to the extent applicable under COMAR 26.11.03.23.

13. MINOR PERMIT MODIFICATIONS

[COMAR 26.11.03.16]

The Permittee may apply to the Department to make a minor modification to the federally enforceable provisions of this Part 70 permit as provided in COMAR 26.11.03.16 and in accordance with the following conditions:

- a. A minor permit modification is a Part 70 permit revision that:

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- (1) Does not result in a violation of any applicable requirement of the Clean Air Act;
- (2) Does not significantly revise existing federally enforceable monitoring, including test methods, reporting, record keeping, or compliance certification requirements except by:
 - (a) Adding new requirements,
 - (b) Eliminating the requirements if they are rendered meaningless because the emissions to which the requirements apply will no longer occur, or
 - (c) Changing from one approved test method for a pollutant and source category to another;
- (3) Does not require or modify a:
 - (a) Case-by-case determination of a federally enforceable emissions standard,
 - (b) Source specific determination for temporary sources of ambient impacts, or
 - (c) Visibility or increment analysis;
- (4) Does not seek to establish or modify a federally enforceable permit term or condition for which there is no corresponding underlying applicable requirement of the Clean Air Act, but that the Permittee has assumed to avoid an applicable requirement to which the source would otherwise be subject, including:
 - (a) A federally enforceable emissions standard applied to the source pursuant to COMAR 26.11.02.03 to avoid classification as a Title I modification; and
 - (b) An alternative emissions standard applied to an emissions unit pursuant to regulations promulgated under Section 112(i)(5) of the Clean Air Act
- (5) Is not a Title I modification; and

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- (6) Is not required under COMAR 26.11.03.17 to be processed as a significant modification to this Part 70 permit.

b. Application for a Minor Permit Modification

The Permittee shall submit to the Department an application for a minor permit modification that satisfies the requirements of COMAR 26.11.03.03 which includes the following:

- (1) A description of the proposed change, the emissions resulting from the change, and any new applicable requirements that will apply if the change is made;
- (2) The proposed minor permit modification;
- (3) Certification by a responsible official, in accordance with COMAR 26.11.02.02F, that:
 - (a) The proposed change meets the criteria for a minor permit modification, and
 - (b) The Permittee has obtained or applied for all required permits-to-construct required by COMAR 26.11.03.16 with respect to the proposed change;
- (4) Completed forms for the Department to use to notify the EPA and affected states, as required by COMAR 26.11.03.07-.12.

c. Permittee's Ability to Make Change

- (1) For changes proposed as minor permit modifications to this permit that will require the applicant to obtain a permit to construct, the permit to construct must be issued prior to the new change.
- (2) During the period of time after the Permittee applies for a minor modification but before the Department acts in accordance with COMAR 26.11.03.16F(2):
 - (a) The Permittee shall comply with applicable requirements of the Clean Air Act related to the change and the permit terms and conditions described in the application for the minor modification.

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- (b) The Permittee is not required to comply with the terms and conditions in the permit it seeks to modify. If the Permittee fails to comply with the terms and conditions in the application during this time, the terms and conditions of both this permit and the application for modification may be enforced against it.
- d. The Permittee is subject to enforcement action if it is determined at any time that a change made under COMAR 26.11.03.16 is not within the scope of this regulation.
- e. Minor permit modification procedures may be used for Part 70 permit modifications involving the use of economic incentives, marketable permits, emissions trading, and other similar approaches, but only to the extent that the minor permit modification procedures are explicitly provided for in regulations approved by the EPA as part of the Maryland SIP or in other applicable requirements of the Clean Air Act.

14. ADMINISTRATIVE PART 70 OPERATING PERMIT AMENDMENTS

[COMAR 26.11.03.15]

The Permittee may apply to the department to make an administrative permit amendment as provided in COMAR 26.11.03.15 and in accordance with the following conditions:

- a. An application for an administrative permit amendment shall:
 - (1) Be in writing;
 - (2) Include a statement certified by a responsible official that the proposed amendment meets the criteria in COMAR 26.11.03.15 for an administrative permit amendment, and
 - (3) Identify those provisions of this part 70 permit for which the amendment is requested, including the basis for the request.
- b. An administrative permit amendment:
 - (1) Is a correction of a typographical error;

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- (2) Identifies a change in the name, address, or phone number of a person identified in this permit, or a similar administrative change involving the Permittee or other matters which are not directly related to the control of air pollution;
 - (3) requires more frequent monitoring or reporting by the Permittee;
 - (4) Allows for a change in ownership or operational control of a source for which the Department determines that no other revision to the permit is necessary and is documented as per COMAR 26.11.03.15B(4);
 - (5) Incorporates into this permit the requirements from preconstruction review permits or approvals issued by the Department in accordance with COMAR 26.11.03.15B(5), but only if it satisfies 40 CFR 70.7(d)(1)(v);
 - (6) Incorporates any other type of change, as approved by the EPA, which is similar to those in COMAR 26.11.03.15B(1)—(4);
 - (7) Notwithstanding COMAR 26.11.03.15B(1)—(6), all modifications to acid rain control provisions included in this Part 70 permit are governed by applicable requirements promulgated under Title IV of the Clean Air Act; or
 - (8) Incorporates any change to a term or condition specified as State-only enforceable, if the Permittee has obtained all necessary permits-to-construct and approvals that apply to the change.
- c. The Permittee may make the change addressed in the application for an administrative amendment upon receipt by the Department of the application, if all permits-to-construct or approvals otherwise required by COMAR 26.11.02 prior to making the change have first been obtained from the Department.
- d. The permit shield in COMAR 26.11.03.23 applies to administrative permit amendments made under Section B(5) of COMAR 26.11.03.15 , but only after the Department takes final action to revise the permit.

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- e. The Permittee is subject to enforcement action if it is determined at any time that a change made under COMAR 26.11.03.15 is not within the scope of this regulation.

15. OFF-PERMIT CHANGES TO THIS SOURCE

[COMAR 26.11.03.19]

The Permittee may make off-permit changes to this facility as provided in COMAR 26.11.03.19 and in accordance with the following conditions:

- a. The Permittee may make a change to this permitted facility that is not addressed or prohibited by the federally enforceable conditions of this Part 70 permit without obtaining a Part 70 permit revision if:
 - (1) The Permittee has obtained all permits and approvals required by COMAR 26.11.02 and .03;
 - (2) The change is not subject to any requirements under Title IV of the Clean Air Act;
 - (3) The change is not a Title I modification; and
 - (4) The change does not violate an applicable requirement of the Clean Air Act or a federally enforceable term or condition of the permit.
- b. For a change that qualifies under COMAR 26.11.03.19, the Permittee shall provide contemporaneous written notice to the Department and the EPA, except for a change to an emissions unit or activity that is exempt from the Part 70 permit application, as provided in COMAR 26.11.03.04. This written notice shall describe the change, including the date it was made, any change in emissions, including the pollutants emitted, and any new applicable requirements of the Clean Air Act that apply as a result of the change.
- c. Upon satisfying the requirements of COMAR 26.11.03.19, the Permittee may make the proposed change.
- d. The Permittee shall keep a record describing:

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- (1) Changes made at the facility that result in emissions of a regulated air pollutant subject to an applicable requirement of the Clean Air Act , but not otherwise regulated under this permit; and
- (2) The emissions resulting from those changes.
- e. Changes that qualify under COMAR 26.11.03.19 are not subject to the requirements for Part 70 revisions.
- f. The Permittee shall include each off-permit change under COMAR 26.11.03.19 in the application for renewal of the part 70 permit.
- g. The permit shield in COMAR 26.11.03.23 does not apply to off-permit changes made under COMAR 26.11.03.19.
- h. The Permittee is subject to enforcement action if it is determined that an off-permit change made under COMAR 26.11.03.19 is not within the scope of this regulation.

16. ON-PERMIT CHANGES TO SOURCES

[COMAR 26.11.03.18]

The Permittee may make on-permit changes that are allowed under Section 502(b)(10) of the Clean Air Act as provided in COMAR 26.11.03.18 and in accordance with the following conditions:

- a. The Permittee may make a change to this facility without obtaining a revision to this Part 70 permit if:
 - (1) The change is not a Title I modification;
 - (2) The change does not result in emissions in excess of those expressly allowed under the federally enforceable provisions of the Part 70 permit for the permitted facility or for an emissions unit within the facility, whether expressed as a rate of emissions or in terms of total emissions;
 - (3) The Permittee has obtained all permits and approvals required by COMAR 26.11.02 and .03;

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- (4) The change does not violate an applicable requirement of the Clean Air Act;
 - (5) The change does not violate a federally enforceable permit term or condition related to monitoring, including test methods, record keeping, reporting, or compliance certification requirements;
 - (6) The change does not violate a federally enforceable permit term or condition limiting hours of operation, work practices, fuel usage, raw material usage, or production levels if the term or condition has been established to limit emissions allowable under this permit;
 - (7) If applicable, the change does not modify a federally enforceable provision of a compliance plan or schedule in this Part 70 permit unless the Department has approved the change in writing; and
 - (8) This permit does not expressly prohibit the change under COMAR 26.11.03.18.
- b. The Permittee shall notify the Department and the EPA in writing of a proposed on-permit change under COMAR 26.11.03.18 not later than 7 days before the change is made. The written information shall include the following information:
- (1) A description of the proposed change;
 - (2) The date on which the change is proposed to be made;
 - (3) Any change in emissions resulting from the change, including the pollutants emitted;
 - (4) Any new applicable requirement of the Clean Air Act; and
 - (5) Any permit term or condition that would no longer apply.
- c. The responsible official of this facility shall certify in accordance with COMAR 26.11.02.02F that the proposed change meets the criteria for the use of on-permit changes under COMAR 26.11.03.18.
- d. The Permittee shall attach a copy of each notice required by condition b. above to this Part 70 permit.

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- e. On-permit changes that qualify under COMAR 26.11.03.18 are not subject to the requirements for part 70 permit revisions.
- f. Upon satisfying the requirements under COMAR 26.11.03.18, the Permittee may make the proposed change.
- g. The permit shield in COMAR 26.11.03.23 does not apply to on-permit changes under COMAR 26.11.03.18.
- h. The Permittee is subject to enforcement action if it is determined that an on-permit change made under COMAR 26.11.03.18 is not within the scope of the regulation or violates any requirement of the State air pollution control law.

17. FEE PAYMENT

[COMAR 26.11.02.16A(2) & (5)(b)]

- a. The fee for this Part 70 permit is as prescribed in Regulation .19 of COMAR 26.11.02.
- b. The fee is due on and shall be paid on or before each 12-month anniversary date of the permit.
- c. Failure to pay the annual permit fee constitutes cause for revocation of the permit by the Department.

18. REQUIREMENTS FOR PERMITS-TO-CONSTRUCT AND APPROVALS

[COMAR 26.11.02.09.]

The Permittee may not construct or modify or cause to be constructed or modified any of the following sources without first obtaining, and having in current effect, the specified permits-to-construct and approvals:

- a. New Source Review source, as defined in COMAR 26.11.01.01, approval required, except for generating stations constructed by electric companies;

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- b. Prevention of Significant Deterioration source, as defined in COMAR 26.11.01.01, approval required, except for generating stations constructed by electric companies;
- c. New Source Performance Standard source, as defined in COMAR 26.11.01.01, permit to construct required, except for generating stations constructed by electric companies;
- d. National Emission Standards for Hazardous Air Pollutants source, as defined in COMAR 26.11.01.01, permit to construct required, except for generating stations constructed by electric companies;
- e. A stationary source of lead that discharges one ton per year or more of lead or lead compounds measured as elemental lead, permit to construct required, except for generating stations constructed by electric companies;
- f. All stationary sources of air pollution, including installations and air pollution control equipment, except as listed in COMAR 26.11.02.10, permit to construct required;
- g. In the event of a conflict between the applicability of (a. — e.) above and an exemption listed in COMAR 26.11.02.10, the provision that requires a permit applies.
- h. Approval of a PSD or NSR source by the Department does not relieve the Permittee obtaining an approval from also obtaining all permits-to-construct required by (c. — g.) above.

19. CONSOLIDATION OF PROCEDURES FOR PUBLIC PARTICIPATION

[COMAR 26.11.02.11C] and [COMAR 26.11.03.01K]

The Permittee may request the Department to authorize special procedures for the Permittee to apply simultaneously, to the extent possible, for a permit to construct and a revision to this permit.

These procedures may provide for combined public notices, informational meetings, and public hearings for both permits but shall not adversely affect the rights of a person, including EPA and affected states, to obtain information about the application for a permit, to comment on an application, or to challenge a permit that is issued.

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These procedures shall not alter any existing permit procedures or time frames.

20. PROPERTY RIGHTS

[COMAR 26.11.03.06E(4)]

This Part 70 permit does not convey any property rights of any sort, or any exclusive privileges.

21. SEVERABILITY

[COMAR 26.11.03.06A(5)]

If any portion of this Part 70 permit is challenged, or any term or condition deemed unenforceable, the remainder of the requirements of the permit continues to be valid.

22. INSPECTION AND ENTRY

[COMAR 26.11.03.06G(3)]

The Permittee shall allow employees and authorized representatives of the Department, the EPA, and local environmental health agencies, upon presentation of credentials or other documents as may be required by law, to:

- a. Enter at a reasonable time without delay and without prior notification the Permittee's property where a Part 70 source is located, emissions-related activity is conducted, or records required by this permit are kept;
- b. Have access to and make copies of records required by the permit;
- c. Inspect all emissions units within the facility subject to the permit and all related monitoring systems, air pollution control equipment, and practices or operations regulated or required by the permit; and

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- d. Sample or monitor any substances or parameters at or related to the emissions units at the facility for the purpose of determining compliance with the permit.

23. DUTY TO PROVIDE INFORMATION

[COMAR 26.11.03.06E(5)]

The Permittee shall furnish to the Department, within a reasonable time specified by the Department, information requested in writing by the Department in order to determine whether the Permittee is in compliance with the federally enforceable conditions of this Part 70 permit, or whether cause exists for revising or revoking the permit. Upon request, the Permittee shall also furnish to the Department records required to be kept under the permit.

For information claimed by the Permittee to be confidential and therefore potentially not discloseable to the public, the Department may require the Permittee to provide a copy of the records directly to the EPA along with a claim of confidentiality.

The Permittee shall also furnish to the Department, within a reasonable time specified by the Department, information or records requested in writing by the Department in order to determine if the Permittee is in compliance with the State-only enforceable conditions of this permit.

24. COMPLIANCE REQUIREMENTS

[COMAR 26.11.03.06E(1)] and [COMAR 26.11.03.06A(11)] and [COMAR 26.11.02.05]

The Permittee shall comply with the conditions of this Part 70 permit. Noncompliance with the permit constitutes a violation of the Clean Air Act, and/or the Environment Article Title 2 of the Annotated Code of Maryland and may subject the Permittee to:

- a. Enforcement action,
- b. Permit revocation or revision,
- c. Denial of the renewal of a Part 70 permit, or

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- d. Any combination of these actions.

The conditions in this Part 70 permit are enforceable by EPA and citizens under the Clean Air Act except for the State-only enforceable conditions.

Under Environment Article Section 2-609, Annotated Code of Maryland, the Department may seek immediate injunctive relief against a person who violates this permit in such a manner as to cause a threat to human health or the environment.

25. CREDIBLE EVIDENCE

Nothing in this permit shall be interpreted to preclude the use of credible evidence to demonstrate noncompliance with any term of this permit.

26. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE

[COMAR 26.11.03.06E(2)]

The need to halt or reduce activity in order to comply with the conditions of this permit may not be used as a defense in an enforcement action.

27. CIRCUMVENTION

[COMAR 26.11.01.06]

The Permittee may not install or use any article, machine, equipment or other contrivance, the use of which, without resulting in a reduction in the total weight of emissions, conceals or dilutes emissions which would otherwise constitute a violation of any applicable air pollution control regulation.

28. PERMIT SHIELD

[COMAR 26.11.03.23]

A permit shield as described in COMAR 26.11.03.23 shall apply only to terms and conditions in this Part 70 permit that have been specifically

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identified as covered by the permit shield. Neither this permit nor COMAR 26.11.03.23 alters the following:

- a. The emergency order provisions in Section 303 of the Clean Air Act, including the authority of EPA under that section;
- b. The liability of the Permittee for a violation of an applicable requirement of the Clean Air Act before or when this permit is issued or for a violation that continues after issuance;
- c. The requirements of the Acid Rain Program, consistent with Section 408(a) of the Clean Air Act;
- d. The ability of the Department or EPA to obtain information from a source pursuant to Maryland law and Section 114 of the Clean Air Act; or
- e. The authority of the Department to enforce an applicable requirement of the State air pollution control law that is not an applicable requirement of the Clean Air Act.

29. ALTERNATE OPERATING SCENARIOS

[COMAR 26.11.03.06A(9)]

For all alternate operating scenarios approved by the Department and contained within this permit, the Permittee, while changing from one approved scenario to another, shall contemporaneously record in a log maintained at the facility each scenario under which the emissions unit is operating and the date and time the scenario started and ended.

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SECTION III PLANT WIDE CONDITIONS

1. PARTICULATE MATTER FROM CONSTRUCTION AND DEMOLITION

[COMAR 26.11.06.03D]

The Permittee shall not cause or permit any building, its appurtenances, or a road to be used, constructed, altered, repaired, or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne.

2. OPEN BURNING

[COMAR 26.11.07]

Except as provided in COMAR 26.11.07.04, the Permittee shall not cause or permit an open fire from June 1 through August 31 of any calendar year. Prior to any open burning, the Permittee shall request and receive approval from the Department.

3. AIR POLLUTION EPISODE

[COMAR 26.11.05.04]

When requested by the Department, the Permittee shall prepare in writing standby emissions reduction plans, consistent with good industrial practice and safe operating procedures, for reducing emissions creating air pollution during periods of Alert, Warning, and Emergency of an air pollution episode.

4. REPORT OF EXCESS EMISSIONS AND DEVIATIONS

[COMAR 26.11.01.07] and [COMAR 26.11.03.06C(7)]

The Permittee shall comply with the following conditions for occurrences of excess emissions and deviations from requirements of this permit, including those in Section VI – State-only Enforceable Conditions:

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- a. Report any deviation from permit requirements that could endanger human health or the environment, by orally notifying the Department immediately upon discovery of the deviation;
- b. Promptly report all occurrences of excess emissions that are expected to last for one hour or longer by orally notifying the Department of the onset and termination of the occurrence;
- c. When requested by the Department the Permittee shall report all deviations from permit conditions, including those attributed to malfunctions as defined in COMAR 26.11.01.07A, within 5 days of the request by submitting a written description of the deviation to the Department. The written report shall include the cause, dates and times of the onset and termination of the deviation, and an account of all actions planned or taken to reduce, eliminate, and prevent recurrence of the deviation;
- d. The Permittee shall submit to the Department semi-annual monitoring reports that confirm that all required monitoring was performed, and that provide accounts of all deviations from permit requirements that occurred during the reporting periods. Reporting periods shall be January 1 through June 30 and July 1 through December 31, and reports shall be submitted within 30 days of the end of each reporting period. Each account of deviation shall include a description of the deviation, the dates and times of onset and termination, identification of the person who observed or discovered the deviation, causes and corrective actions taken, and actions taken to prevent recurrence. If no deviations from permit conditions occurred during a reporting period, the Permittee shall submit a written report that so states.
- e. When requested by the Department, the Permittee shall submit a written report to the Department within 10 days of receiving the request concerning an occurrence of excess emissions. The report shall contain the information required in COMAR 26.11.01.07D(2).

5. ACCIDENTAL RELEASE PROVISIONS

[COMAR 26.11.03.03B(23)] and [40 CFR 68]

Should the Permittee become subject to 40 CFR 68 during the term of this permit, the Permittee shall submit risk management plans by the date

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specified in 40 CFR 68.150 and shall certify compliance with the requirements of 40 CFR 68 as part of the annual compliance certification as required by 40 CFR 70.

The Permittee shall initiate a permit revision or reopening according to the procedures of 40 CFR 70.7 to incorporate appropriate permit conditions into the Permittee's Part 70 permit.

6. GENERAL TESTING REQUIREMENTS

[COMAR 26.11.01.04]

The Department may require the Permittee to conduct, or have conducted, testing to determine compliance with this Part 70 permit. The Department, at its option, may witness or conduct these tests. This testing shall be done at a reasonable time, and all information gathered during a testing operation shall be provided to the Department.

7. EMISSIONS TEST METHODS

[COMAR 26.11.01.04]

Compliance with the emissions standards and limitations in this Part 70 permit shall be determined by the test methods designated and described below or other test methods submitted to and approved by the Department.

Reference documents of the test methods approved by the Department include the following:

- a. 40 CFR 60, appendix A
- b. 40 CFR 51, appendix M
- c. The Department's Technical Memorandum 91-01 "Test Methods and Equipment Specifications for Stationary Sources", (January 1991), as amended through Supplement 3, (October 1, 1997)

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8. EMISSIONS CERTIFICATION REPORT

**[COMAR 26.11.01.05-1] and [COMAR 26.11.02.19C] and
[COMAR 26.11.02.19D]**

The Permittee shall certify actual annual emissions of regulated pollutants from the facility on a calendar year basis.

- a. The certification shall be on forms obtained from the Department and submitted to the Department not later than April 1 of the year following the year for which the certification is required;
- b. The individual making the certification shall certify that the information is accurate to the individual's best knowledge. The individual shall be:
 - (1) Familiar with each source for which the certifications forms are submitted, and
 - (2) Responsible for the accuracy of the emissions information;
- c. The Permittee shall maintain records necessary to support the emissions certification including the following information if applicable:
 - (1) The total amount of actual emissions of each regulated pollutant and the total of all regulated pollutants;
 - (2) An explanation of the methods used to quantify the emissions and the operating schedules and production data that were used to determine emissions, including significant assumptions made;
 - (3) Amounts, types and analyses of all fuels used;
 - (4) Emissions data from continuous emissions monitors that are required by this permit, including monitor calibration and malfunction information;
 - (5) Identification, description, and use records of all air pollution control equipment and compliance monitoring equipment including:

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- (a) Significant maintenance performed,
 - (b) Malfunctions and downtime, and
 - (c) Episodes of reduced efficiency of all equipment;
- (6) Limitations on source operation or any work practice standards that significantly affect emissions; and
- (7) Other relevant information as required by the Department.

9. COMPLIANCE CERTIFICATION REPORT

[COMAR 26.11.03.06G(6) and (7)]

The Permittee shall submit to the Department and EPA Region III a report certifying compliance with each term of this Part 70 permit including each applicable standard, emissions limitation, and work practice for the previous calendar year by April 1 of each year.

- a. The compliance certification shall include:
 - (1) The identification of each term or condition of this permit which is the basis of the certification;
 - (2) The compliance status;
 - (3) Whether the compliance was continuous or intermittent;
 - (4) The methods used for determining the compliance status of each source, currently and over the reporting period; and
 - (5) Any other information required to be reported to the Department that is necessary to determine the compliance status of the Permittee with this permit.
- b. The Permittee shall submit the compliance certification reports to the Department and EPA simultaneously.

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10. CERTIFICATION BY RESPONSIBLE OFFICIAL

[COMAR 26.11.02.02F]

All application forms, reports, and compliance certifications submitted pursuant to this permit shall be certified by a responsible official as to truth, accuracy, and completeness. The Permittee shall expeditiously notify the Department of an appointment of a new responsible official.

The certification shall be in the following form:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

11. SAMPLING AND EMISSIONS TESTING RECORD KEEPING

[COMAR 26.11.03.06C(5)]

The Permittee shall gather and retain the following information when sampling and testing for compliance demonstrations:

- a. The location as specified in this permit, and the date and time that samples and measurements are taken;
- b. All pertinent operating conditions existing at the time that samples and measurements are taken;
- c. The date that each analysis of a sample or emissions test is performed and the name of the person taking the sample or performing the emissions test;
- d. The identity of the Permittee, individual, or other entity that performed the analysis;

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- e. The analytical techniques and methods used; and
- f. The results of each analysis.

12. GENERAL RECORDKEEPING

[COMAR 26.11.03.06C(6)]

The Permittee shall retain records of all monitoring data and information that support the compliance certification for a period of five (5) years from the date that the monitoring, sample measurement, application, report or emissions test was completed or submitted to the Department.

These records and support information shall include:

- a. All calibration and maintenance records;
- b. All original data collected from continuous monitoring instrumentation;
- c. Records which support the annual emissions certification; and
- d. Copies of all reports required by this permit.

13. GENERAL CONFORMITY

[COMAR 26.11.26.09]

The Permittee shall comply with the general conformity requirements of 40 CFR 93, Subpart B and COMAR 26.11.26.09.

14. ASBESTOS PROVISIONS

[40 CFR 61, Subpart M]

The Permittee shall comply with 40 CFR 61, Subpart M when conducting any renovation or demolition activities at the facility.

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15. OZONE DEPLETING REGULATIONS

[40 CFR 82, Subpart F]

The Permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR 82, Subpart F, except as provided for MVACs in subpart B:

- a. Persons opening appliances for maintenance, service, repair, or disposal shall comply with the prohibitions and required practices pursuant to 40 CFR 82.154 and 82.156.
- b. Equipment used during the maintenance, service, repair or disposal of appliances shall comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.
- c. Persons performing maintenance, service, repairs or disposal of appliances shall be certified by an approved technician certification program pursuant to 40 CFR 82.161.
- d. Persons disposing of small appliances, MVACS, and MVAC-like appliances as defined in 40 CFR 82.152, shall comply with record keeping requirements pursuant to 40 CFR 82.155.
- e. Persons owning commercial or industrial process refrigeration equipment shall comply with the leak repair requirements pursuant to 40 CFR 82.156.
- f. Owners/operators of appliances normally containing 50 or more pounds of refrigerant shall keep records of refrigerant purchased and added to such appliances pursuant to 40 CFR 82.166.

16. ACID RAIN PERMIT

The initial Phase II Acid Rain Permit is attached as Appendix A. The Permittee shall comply with all applicable requirements contained in the Phase II Acid Rain Permit.

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SECTION IV PLANT SPECIFIC CONDITIONS

This section provides tables that include the emissions standards, emissions limitations, and work practices applicable to each emissions unit located at this facility. The Permittee shall comply with all applicable emissions standards, emissions limitations and work practices included herein.

The tables also include testing, monitoring, record keeping and reporting requirements specific to each emissions unit. In addition to the requirements included here in **Section IV**, the Permittee is also subject to the general testing, monitoring, record keeping and reporting requirements included in **Section III – Plant Wide Conditions** of this permit.

Unless otherwise provided in the specific requirements for an emissions unit, the Permittee shall maintain at the facility for at least five (5) years, and shall make available to the Department upon request, all records that the Permittee is required under this section to establish. [Reference: **COMAR 26.11.03.06C(5)(g)**]

Table IV – 1	
1.0	<u>Emissions Unit Number(s): EU1 & EU2</u> EU1: CT11: Siemens Model SGT6-5000Fee natural gas-fired combustion turbine rated at 2,330 MMBtu/hr equipped with HRSG11: Heat recovery steam generator which includes Forney natural gas-fired duct burner rated at 443 MMBtu/hr. [033-2737-5-1578 & 5-1580] <i>Controls: Selective Catalyst Reduction and oxidation catalyst.</i> EU2: CT12: Siemens Model SGT6-5000Fee natural gas-fired combustion turbine rated at 2,330 MMBtu/hr equipped with HRSG12: Heat recovery steam generator which includes Forney natural gas-fired duct burner rated at 443 MMBtu/hr. [033-2737-5-1579 & 5-1581] <i>Controls: Selective Catalyst Reduction and oxidation catalyst</i>
1.1	<u>Applicable Standards/Limits:</u> A. <u>Control of Visible Emissions</u> COMAR 26.11.09.05A - Visible Emissions. (2) <u>Areas III and IV.</u> "In Areas III and IV, a person may not cause or permit the discharge of emissions from any fuel burning equipment, other than water in an uncombined form, which is visible to human observers except that, for the purpose of

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	demonstrating compliance using COM data, emissions that are visible to a human observer are those that are equal to or greater than 10 percent opacity.” (3) <u>Exceptions</u>. “Section A(1) and (2) of this regulation do not apply to emissions during load changing, soot blowing, startup, or adjustments or occasional cleaning of control equipment if: (a) The visible emissions are not greater than 40 percent opacity; and (b) The visible emissions do not occur for more than 6 consecutive minutes in any sixty minute period.” <u>B. Control of Particulate Matter</u> (1) COMAR 26.11.06.03B(2)(a) - <u>Particulate Matter from Confined Sources</u>. “A person may not cause or permit to be discharged into the outdoor atmosphere from any other installation, particulate matter in excess of 0.03 gr/SCFD (68.7 mg/dscm).” (2) PM (filterable) BACT: <u>8.8 lb/hr without duct firing</u> and <u>12.2 lb/hr with duct firing</u> at all times. (3-hour block average) PM₁₀ (filterable and condensable) BACT: <u>11.0 lb/hr without duct firing</u> and <u>15.0 lb/hr with duct firing</u> at all times. [Reference: CPCN 9297, Conditions B-IV-5 & B-IV-6 & Table B-1] <u>C. Control of Sulfur Oxides</u> The Permittee must not burn in the stationary CT any fuel which contains total potential sulfur emissions in excess of 26 ng/J (0.060 lb SO₂/MMBtu) heat input. [Reference: CPCN 9297, Table B-1 & 40 CFR §60.4330(a)(2)] See Cross State Air Pollutant Rule (CSAPR) in Table IV-1a and Acid Rain Permit attached as Appendix A. <u>D. Control of Nitrogen Oxides</u> (1) COMAR 26.11.09.08G. - <u>Requirements for Fuel-Burning Equipment with a Capacity Factor of 15 Percent or Less, and Combustion Turbines with a Capacity Factor Greater than 15 Percent</u>. “(2) A person who owns or operates a combustion turbine with a capacity factor greater than 15 percent shall meet an hourly average NO_x emission rate of not more than 42 ppm when burning gas or 65 ppm when burning fuel oil (dry volume at 15 percent oxygen) or meet applicable Prevention of Significant Deterioration limits, whichever is more restrictive. “
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Table IV – 1

(2) **40 CFR Part 60, Subpart KKKK - Standards of Performance for Stationary Combustion Turbines for which Construction, Modification or Reconstruction commenced after February 18, 2005.**

Emission Limits

§60.4315 - What pollutants are regulated by this subpart?

The pollutants regulated by this subpart are nitrogen oxide (NO_x) and sulfur dioxide (SO₂).

§60.4320 - What emission limits must I meet for nitrogen oxides (NO_x)?

You must meet the emission limits for NO_x specified in Table 1 to this subpart.

Table 1 to Subpart KKKK of Part 60—Nitrogen Oxide Emission Limits for New Stationary Combustion Turbines

Combustion turbine type	Combustion turbine heat input at peak load (HHV)	NO _x emission standard (30 day rolling average)
New, modified, or reconstructed turbine firing natural gas	> 850 MMBtu/h	15 ppm at 15 percent O ₂ or 54 ng/J of useful output (0.43 lb/MWh)

(3) **NO_x LAER** requirements and the **NO_x BACT** requirements listed in the CPCN 9297: NO_x emission limit of 2.0 ppmvd at 15% O₂ with and without duct firing, except during periods of startup and shutdown. (3-hour block average); NO_x During Startup/Shutdown: 245.2 lb/event (cold startup); 82.9 lb/event (warm startup); 71.4 lb/event (hot startup); 60 lb/event (shutdown).

[Reference: CPCN 9297, Conditions B-IV-5 & B-IV-6 & Table B-1]

E. Control of VOC

VOC LAER requirements listed in the CPCN 9297: VOC emission limit: 1.0 ppmvd at 15% O₂ without duct firing and 2.0 ppmvd at 15% O₂ with duct firing, except during periods of startup and shutdown. (3-hour block average); 164 lb/event (cold startup); 63 lb/event (warm startup); 52.6 lb/event (hot startup); 12 lb/event (shutdown).

[Reference: CPCN 9297, Conditions B-IV-6 & Table B-1]

See CAM Requirements in Table IV-1b.

F. Control of Ammonia

The Permittee shall limit emissions of ammonia resulting from un-reacted ammonia (ammonia slip) from each of the SCRs installed on the CTs/HTSGs as specified in Table B-1. Emission Limit (not to exceed) 5 ppmvd at 15% O₂. **[Reference: CPCN 9297, Condition B-IV-7 & Table B-1]**

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G. Control of CO₂

(1) **40 CFR Part 60 Subpart TTTT** for Greenhouse Gas Emissions for Electric Generating Units.

§60.5520 - What CO₂ emissions standard must I meet?

(a) For each affected EGU subject to this subpart, you must not discharge from the affected EGU any gases that contain CO₂ in excess of the applicable CO₂ emission standard specified in table 1 or 2 of this subpart, consistent with paragraphs (b), (c), and (d) of this section, as applicable.

(b) Except as specified in paragraphs (c) and (d) of this section, you must comply with the applicable gross energy output standard, and your operating permit must include monitoring, recordkeeping, and reporting methodologies based on the applicable gross energy output standard. For the remainder of this subpart (for sources that do not qualify under paragraphs (c) and (d) of this section), where the term “gross or net energy output” is used, the term that applies to you is “gross energy output.”

Table 2 of Subpart TTTT of Part 60—CO₂ Emission Standards for Affected Stationary Combustion Turbines That Commenced Construction After January 8, 2014 and Reconstruction After June 18, 2014 (Net Energy Output-Based Standards Applicable as Approved by the Administrator)

[Note: Numerical values of 1,000 or greater have a minimum of 3 significant figures and numerical values of less than 1,000 have a minimum of 2 significant figures]

Affected EGU	CO ₂ Emission standard
Newly constructed or reconstructed stationary combustion turbine that supplies more than its design efficiency or 50 percent, whichever is less, times its potential electric output as net-electric sales on both a 12-operating month and a 3-year rolling average basis and combusts more than 90% natural gas on a heat input basis on a 12-operating-month rolling average basis	450 kg of CO ₂ per MWh of gross energy output (1,000 lb CO ₂ /MWh); or 470 kilograms (kg) of CO ₂ per megawatt-hour (MWh) of net energy output (1,030 lb/MWh).

(2) **GHG (as CO₂) BACT** requirements listed in the CPCN 9297: 869 lb/CO₂/MW-hr with and without duct firing (gross). (12-month rolling average).

See CO₂ Budget Permit attached as Appendix B.

H. Control of CO

CO BACT requirements listed in the CPCN 9297: **CO emission limit: 2.0 ppmvd** at 15% O₂ with and without duct firing, except during periods of startup and shutdown; **CO During Startup/Shutdown: 1,064 lb/event** (cold

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Table IV – 1	
	startup); 311 lb/event (warm startup); 269 lb/event (hot startup); 60 lb/event (shutdown). [Reference: CPCN 9297, Conditions B-IV-5 & Table B-1] I. <u>Operational Limits</u> (1) The Permittee shall use only pipeline quality natural gas in the combustion turbines and duct burners. [Reference: CPCN Case 9297 Condition B-IV-1] (2) The Permittee shall install a fuel flow meter and continuously monitor the fuel flow for each CT/HRSG and duct burner. The total fuel usage per month shall be recorded. [Reference: CPCN Case 9297 Condition B-IV-10] J. <u>BACT Requirements</u> Heat Rate: Emission Limit (not to exceed) - 6,802 Btu/kWh (net)(LHV).
1.2	<u>Testing Requirements:</u> A. <u>Control of Visible Emissions</u> See Monitoring Requirements. B. <u>Control of Particulate Matter</u> (1) The Permittee shall conduct stack tests shall be conducted annually for PM, PM₁₀, PM_{2.5} ... After three continuous years of conducting annual stack tests, the Permittee may request the Department to reduce the frequency of the stack tests. [Reference: CPCN 9297, Condition B-IV-8] (2) The Permittee shall conduct annual performance test using EPA Method 5, 201A/202 or equivalent method approved by MDE-ARA. [Reference: CPCN 9297 Table B-I] C. <u>Control of Sulfur Oxides</u> The Permittee shall conduct stack tests shall be conducted annually for ... SO₂ (unless fuel sulfur content is determined through fuel sampling in lieu of stack testing in accordance with 40 CFR §60.4415 as noted in Table B-1)... After three continuous years of conducting annual stack tests, the Permittee may request the Department to reduce the frequency of the stack tests. [Reference: CPCN 9297, Condition B-IV-8] See Cross State Air Pollutant Rule (CSAPR) in Table IV-1a and Acid Rain Permit.

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D. <u>Control of Nitrogen Oxides</u> (1) COMAR: See Monitoring Requirements . (2) NSPS: The Permittee shall conduct annual performance test as required by 40 CFR §60.4400(a). [Reference: CPCN 9297 Table B-I] (3) NO_x LAER: The Permittee shall conduct annual performance test using EPA Method 7E or equivalent method approved by MDE-ARA. (3-hour block average). [Reference: CPCN 9297 Table B-I] E. <u>Control of VOC</u> The Permittee shall conduct annual performance test using Method 18/25A or equivalent method approved by MDE-ARA. [Reference: CPCN 9297 Table B-I] F. <u>Control of Ammonia</u> The Permittee shall conduct performance stack tests at least once every five years using EPA Method CTM-027 or equivalent method approved by MDE-ARA. [Reference: CPCN 9297 Table B-I] G. <u>Control of CO₂</u> (1) See Monitoring Requirements. (2) The Permittee shall conduct annual performance test for CO₂ using EPA Method 3A or equivalent method approved by MDE-ARA. [Reference: CPCN 9297 Table B-I] H. <u>Control of CO</u> The Permittee shall conduct annual performance test using EPA Method 10, or equivalent method approved by MDE-ARA. [Reference: CPCN 9297, Table B-1] I. <u>Operational Limits</u> (1) See Record Keeping Requirements. (2) See Monitoring Requirements. J. <u>BACT Requirements</u> The Permittee shall conduct annual thermal efficiency test in accordance with ASME PTC-46, or another methodology approved by MDE-ARA, and compare results to design thermal efficiency value. An exceedance of the heat rate limit is not considered a violation of this permit, but triggers a requirement for PSEG Keys to submit a maintenance plan to MDE-ARA which specifies the actions PSEG Keys plans to take in order to achieve the heat rate limit. The plan shall include a timeframe that the heat rate limit will
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	be met not to exceed 60 days unless agreed to by MDE-ARA. [Reference: CPCN 9297 Table B-I]
1.3	<u>Monitoring Requirements:</u> <u>A. Control of Visible Emissions</u> The Permittee shall conduct visible observations in accordance with EPA Reference Method 22 at least once each calendar quarter to verify that there are no visible emissions during operation. If visible emissions are observed, PSEG Keys shall inspect combustion control system, perform necessary adjustments and/or repairs within 48 hours, and document in writing the results of inspection, adjustments, and/or repair. After 48 hours, if the required adjustments and/or repairs have not eliminated the visible emissions, PSEG Keys shall perform Method 9 observations once daily for at least one hour until corrective actions have reduced the visible emissions to less than 20 percent opacity. [Reference: COMAR 26.11.02.02(H)] <u>B. Control of Particulate Matter</u> See Record Keeping Requirements. <u>C. Control of Sulfur Oxides</u> "You may elect not to monitor the total sulfur content of the fuel combusted in the turbine, if the fuel is demonstrated not to exceed potential sulfur emissions of 26 ng SO₂/J (0.060 lb SO₂/MMBtu) heat input for units located in continental areas.... You must use one of the following sources of information to make the required demonstration: (a) The fuel quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the fuel, specifying that the maximum total sulfur content for oil use in continental areas is 0.05 weight percent (500 ppmw) or less." [Reference: 40 CFR §60.4365(a)] <u>D. Control of Nitrogen Oxides</u> (1) COMAR & (2) NSPS: Emissions shall be continuously monitored via NO_x CEMS. [40 CFR §60.4340(a)-(b)]. [Reference: CPCN 9297, Condition B-IV-3] (3) NO_x LAER: Emissions shall be continuously monitored via NO_x CEMS. [Reference: 40 CFR §60.4340(a)-(b)]. PSEG Keys shall calculate monthly emissions (during startup/shutdown events) from the CTs/HRSGs, based on emissions measured using the CEMS to demonstrate compliance with the facility-wide emissions limit in Condition B-III-3.

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E. <u>Control of VOC</u> CO CEMS data shall be used as a surrogate for VOC emissions. A correlation shall be developed between CO and VOC emissions based on an initial stack test. The emission correlation shall be verified annually by stack test or a new correlation established. Monthly emissions during normal operation shall be calculated using the VOC emission rates and monthly fuel throughput rates to the CTs/HRSGs. The VOC emissions factors during startup and shutdown provided by the vendor and number and type of startup and shutdown events shall be used to calculate the monthly emissions during startup and shutdown events. The monthly emissions shall be used to demonstrate compliance with the facility-wide VOC emissions limit in Condition B-III-3. [Reference: CPCN 9297 Table B-I] F. <u>Control of Ammonia</u> See Reporting Requirements. G. <u>Control of CO₂</u> (1) §60.5535 - <u>How do I monitor and collect data to demonstrate compliance?</u> “(c) If your affected EGU exclusively combusts liquid fuel and/or gaseous fuel, as an alternative to complying with paragraph (b) of this section, you may determine the hourly CO₂ mass emissions according to paragraphs (c)(1) through (4) of this section. If you use non-uniform fuels as specified in §60.5520(d)(2), you may determine CO₂ mass emissions during the compliance period according to paragraph (c)(5) of this section. (2) For each measured hourly heat input rate, use Equation G-4 in appendix G to part 75 of this chapter to calculate the hourly CO₂ mass emission rate (tons/h). You may determine site-specific carbon-based F-factors (F_c) using Equation F-7b in section 3.3.6 of appendix F to part 75 of this chapter, and you may use these F_c values in the emissions calculations instead of using the default F_c values in the Equation G-4 nomenclature. (3) For each “valid operating hour” (as defined in §60.5540(a)(1), multiply the hourly tons/h CO₂ mass emission rate from paragraph (c)(2) of this section by the EGU or stack operating time in hours (as defined in §72.2 of this chapter), to convert it to tons of CO₂. Then, multiply the result by 909.1 to convert from tons of CO₂ to kg. Round off to the nearest two significant figures. (4) The hourly CO₂ tons/h values and EGU (or stack) operating times used to calculate CO₂ mass emissions are required to be recorded under §75.57(e) of this chapter and must be reported electronically under §75.64(a)(6) of this chapter. You must use these data to calculate the hourly	
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CO₂ mass emissions. (5) If you operate a combustion turbine firing non-uniform fuels, as an alternative to following paragraphs (c)(1) through (4) of this section, you may determine CO₂ emissions during the compliance period using one of the following methods: (i) Units firing fuel gas may determine the heat input during the compliance period following the procedure under §60.107a(d) and convert this heat input to CO₂ emissions using Equation G-4 in appendix G to Part 75 of this chapter. (ii) You may use the procedure for determining CO₂ emissions during the compliance period based on the use of the Tier 3 methodology under §98.33(a)(3) of this chapter. (d) Consistent with §60.5520, you must determine the basis of the emissions standard that applies to your affected source in accordance with either paragraph (d)(1) or (2) of this section, as applicable: (2) If you operate a source subject to an emissions standard established on a heat-input basis (e.g., lb CO₂/MMBtu) and your affected source uses non-uniform heating value fuels as delineated under §60.5520(d), you must determine the total heat input for each fuel fired during the compliance period in accordance with one of the following procedures: (i) Appendix D to part 75 of this chapter; (ii) The procedures for monitoring heat input under §60.107a(d); (iii) If you monitor CO₂ emissions in accordance with the Tier 3 methodology under §98.33(a)(3) of this chapter, you may convert your CO₂ emissions to heat input using the appropriate emission factor in table C-1 of part 98 of this chapter. If your fuel is not listed in table C-1, you must determine a fuel-specific carbon-based F-factor (F_c) in accordance with section 12.3.2 of EPA Method 19 of appendix A-7 to this part, and you must convert your CO₂ emissions to heat input using Equation G-4 in Appendix G to Part 75 of this chapter.” (2) Monitor CO₂ emissions from each CTs/HRSGs using Equation G-4 in Appendix G to Part 75 of this chapter. The total generation (MW) shall be monitored to calculate the emission rate of CO₂ (lb/MW-hr), determined each month by summing the CO₂ emissions for all hours in which power is being generated to the grid during the previous 12 months and dividing that value by the sum of the electrical energy output over that same period. [Reference: CPCN 9297 Table B-I] <u>H. Control of CO</u> Emissions shall be continuously monitored via CO CEMS. [COMAR 26.11.01.11]. PSEG Keys shall calculate monthly emissions from the
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	CTs/HRSGs based on emissions measured using the CEMS to demonstrate compliance with the facility-wide emissions limit in Condition B-III-3. [Reference: CPCN 9297, Condition B-IV-5 & Table B-1] I. <u>Operational Limits</u> (1) See Record Keeping Requirements. (2) The Permittee shall continuously monitor the fuel flow to each CT/HRSG and duct burner. [Reference: CPCN 9297 Condition B-IV-10] J. <u>BACT Requirements</u> See Testing Requirements.
1.4	<u>Record Keeping Requirements:</u> Note: All records must be maintained for a period of at least 5 years. [Reference: COMAR 26.11.03.06C(5)(g)] A. <u>Control of Visible Emissions</u> All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. [Reference: COMAR 26.11.01.05 and CPCN Case 9297 Condition B-I-7] B. <u>Control of Particulate Matter</u> All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. [Reference: CPCN 9297 Condition B-I-7] C. <u>Control of Sulfur Oxides</u> All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. [Reference: CPCN Case 9297 Condition B-I-7] D. <u>Control of Nitrogen Oxides</u> (1) The Permittee shall maintain annual fuel use records on site for not less than 3 years, and make these records available to the Department upon request. [Reference: COMAR 26.11.09.08K(3)] (2) & (3) See Reporting Requirements.

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E. Control of VOC

See Reporting Requirements.

F. Control of Ammonia

See Reporting Requirements.

G. Control of CO₂

(1) §60.5560 - What records must I maintain?

“(a) You must maintain records of the information you used to demonstrate compliance with this subpart as specified in §60.7(b) and (f).”

§60.5565 - In what form and how long must I keep my records?

“(a) Your records must be in a form suitable and readily available for expeditious review.

(b) You must maintain each record for 3 years after the date of conclusion of each compliance period.

(c) You must maintain each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §60.7. Records that are accessible from a central location by a computer or other means that instantly provide access at the site meet this requirement. You may maintain the records off site for the remaining year(s) as required by this subpart.”

(2) All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: CPCN 9297 Condition B-I-7]**

H. Control of CO

See Reporting Requirements.

I. Operational Limits

(1) All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: CPCN 9297 Condition B-I-7]**

(2) The Permittee shall keep records of summary of the monthly and consecutive 12-month total fuel use and hour of operation for each CT and duct burner. **[Reference: COMAR 26.11.03.06C].**

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	<u>J. BACT Requirements</u> All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. [Reference: CPCN 9297 Condition B-I-7]
1.5	<u>Reporting Requirements:</u> <u>A. Control of Visible Emissions</u> The Permittee shall report incidents of excess emissions in accordance with Section III Condition 4 “Report of Excess Emissions and Deviations” [Reference: COMAR 26.11.01.07 & COMAR 26.11.03.06C(7)] <u>B. Control of Particulate Matter</u> Final results of each compliance stack performance test shall be submitted to the Department within 60 days after completion of the test. [Reference: CPCN 9297 Condition B-IV-13] <u>C. Control of Sulfur Oxides</u> If the Permittee elects to demonstrate compliance with the SO₂ emission limit in 40 CFR §60.4330 using methods described in §60.4415(a) as described in CPCN Case 9297 Table B-1, the Permittee shall submit periodic representative fuel sampling records. [Reference: CPCN Case 9297 Condition B-IV-18] <u>D. Control of Nitrogen Oxides</u> (1) “When demonstration of compliance with the NO_x emission standards in this regulation is based on CEM data, quarterly emission reports shall be submitted to the Department on or before the thirtieth day of the month following the end of each calendar quarter.” [Reference: COMAR 26.11.09.08K(1)] (2) & (3) Final results of each compliance stack performance test shall be submitted to the Department within 60 days after completion of the test. [Reference: COMAR 26.11.01.05B and CPCN 9297 Condition B-IV-13] The Permittee shall submit electronic quarterly reports from the DHAS to the EPA Clean Air Markets Division System as specified in 40 CFR §75.64. [Reference: 40 CFR §75.64 and CPCN 9297 Condition B-IV-14]

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The Permittee shall submit the following CEMS reports to the Department for all CEMS required to be operated with the CTs: (a) CEMS Systems Downtime Reports as required by COMAR 26.11.01.11E(1); (b) Quarterly CEMS Summary Reports as required by COMAR 26.11.01.11E(2)(c). **[Reference: COMAR 26.11.01.11E and CPCN 9297 Condition B-IV-15]**

The Permittee shall submit reports of excess emissions and monitor downtime associated with the CTs/HRSGs in accordance with 40 CFR §60.7(c). Excess emissions as defined in 40 CFR §60.4380 (NO_x) and 40 CFR §60.4385 (SO₂) shall be reported for all periods of unit operation, including startup, shutdown, and malfunction. **[Reference: 40 CFR §60.4375 and CPCN 9297 Condition B-IV-16]**

E. Control of VOC

Final results of each compliance stack performance test shall be submitted to the Department within 60 days after completion of the test. **[Reference: CPCN 9297 Condition B-IV-13]**

F. Control of Ammonia

Final results of each compliance stack performance test shall be submitted to the Department within 60 days after completion of the test. **[Reference: COMAR 26.11.01.05B and CPCN 9297 Condition B-IV-13]**

G. Control of CO₂

(1) **§60.5555 - What reports must I submit and when?**

“(a) You must prepare and submit reports according to paragraphs (a) through (d) of this section, as applicable.

(1) For affected EGUs that are required by §60.5525 to conduct initial and on-going compliance determinations on a 12-operating-month rolling average basis, you must submit electronic quarterly reports as follows. After you have accumulated the first 12-operating months for the affected EGU, you must submit a report for the calendar quarter that includes the twelfth operating month no later than 30 days after the end of that quarter. Thereafter, you must submit a report for each subsequent calendar quarter, no later than 30 days after the end of the quarter.

(2) In each quarterly report you must include the following information, as applicable:

(i) Each rolling average CO₂ mass emissions rate for which the last (twelfth) operating month in a 12-operating-month compliance period falls within the calendar quarter. You must calculate each average CO₂ mass emissions rate for the compliance period according to the procedures in §60.5540. You must report the dates (month and year) of the first and twelfth operating

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	months in each compliance period for which you performed a CO₂ mass emissions rate calculation. If there are no compliance periods that end in the quarter, you must include a statement to that effect; (ii) If one or more compliance periods end in the quarter, you must identify each operating month in the calendar quarter where your EGU violated the applicable CO₂ emission standard; (iii) If one or more compliance periods end in the quarter and there are no violations for the affected EGU, you must include a statement indicating this in the report; (iv) The percentage of valid operating hours in each 12-operating-month compliance period described in paragraph (a)(1)(i) of this section (<i>i.e.</i>, the total number of valid operating hours (as defined in §60.5540(a)(1)) in that period divided by the total number of operating hours in that period, multiplied by 100 percent); (v) Consistent with §60.5520, the CO₂ emissions standard (as identified in table 1 or 2 of this part) with which your affected EGU must comply; and (vi) Consistent with §60.5520, an indication whether or not the hourly gross or net energy output ($P_{\text{gross/net}}$) values used in the compliance determinations are based solely upon gross electrical load. (3) In the final quarterly report of each calendar year, you must include the following: (i) Consistent with §60.5520, gross energy output or net energy output sold to an electric grid, as applicable to the units of your emission standard, over the four quarters of the calendar year; and (<i>January 30th of each year; include a hard copy to the MDE-ARA</i>) (ii) The potential electric output of the EGU. (b) You must submit all electronic reports required under paragraph (a) of this section using the Emissions Collection and Monitoring Plan System (ECMPS) Client Tool provided by the Clean Air Markets Division in the Office of Atmospheric Programs of EPA. (c)(1) For affected EGUs under this subpart that are also subject to the Acid Rain Program, you must meet all applicable reporting requirements and submit reports as required under subpart G of part 75 of this chapter. (2) For affected EGUs under this subpart that are not in the Acid Rain Program, you must also meet the reporting requirements and submit reports as required under subpart G of part 75 of this chapter, to the extent that those requirements and reports provide applicable data for the compliance demonstrations required under this subpart. (3)(i) For all newly-constructed affected EGUs under this subpart that are also subject to the Acid Rain Program, you must begin submitting the quarterly electronic emissions reports described in paragraph (c)(1) of this section in accordance with §75.64(a) of this chapter, <i>i.e.</i>, beginning with

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	data recorded on and after the earlier of: (A) The date of provisional certification, as defined in §75.20(a)(3) of this chapter; or (B) 180 days after the date on which the EGU commences commercial operation (as defined in §72.2 of this chapter). (ii) For newly-constructed affected EGUs under this subpart that are not subject to the Acid Rain Program, you must begin submitting the quarterly electronic reports described in paragraph (c)(2) of this section, beginning with data recorded on and after: (A) The date on which reporting is required to begin under §75.64(a) of this chapter, if that date occurs on or after October 23, 2015; or (B) October 23, 2015, if the date on which reporting would ordinarily be required to begin under §75.64(a) of this chapter has passed prior to October 23, 2015. (iii) For reconstructed or modified units, reporting of emissions data shall begin at the date on which the EGU becomes an affected unit under this subpart, provided that the ECMPS Client Tool is able to receive and process net energy output data on that date. Otherwise, emissions data reporting shall be on a gross energy output basis until the date that the Client Tool is first able to receive and process net energy output data. (4) If any required monitoring system has not been provisionally certified by the applicable date on which emissions data reporting is required to begin under paragraph (c)(3) of this section, the maximum (or in some cases, minimum) potential value for the parameter measured by the monitoring system shall be reported until the required certification testing is successfully completed, in accordance with §75.4(j) of this chapter, §75.37(b) of this chapter, or section 2.4 of appendix D to part 75 of this chapter (as applicable). Operating hours in which CO₂ mass emission rates are calculated using maximum potential values are not “valid operating hours” (as defined in §60.5540(a)(1)), and shall not be used in the compliance determinations under §60.5540. (d) For affected EGUs subject to the Acid Rain Program, the reports required under paragraphs (a) and (c)(1) of this section shall be submitted by: (1) The person appointed as the Designated Representative (DR) under §72.20 of this chapter; or (2) The person appointed as the Alternate Designated Representative (ADR) under §72.22 of this chapter; or (3) A person (or persons) authorized by the DR or ADR under §72.26 of this chapter to make the required submissions.”

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(2) Final results of each compliance stack performance test shall be submitted to the Department within 60 days after completion of the test. **[Reference: CPCN 9297 Condition B-IV-13]**

H. Control of CO

Final results of each compliance stack performance test shall be submitted to the Department within 60 days after completion of the test. **[Reference: CPCN 9297 Condition B-IV-13]**

The Permittee shall submit electronic quarterly reports from the DHAS to the EPA Clean Air Markets Division System as specified in 40 CFR §75.64. **[Reference: CPCN 9297 Condition B-IV-14]**

The Permittee shall submit the following CEMS reports to the Department for all CEMS required to be operated with the CTs: (a) CEMS Systems Downtime Reports as required by COMAR 26.11.01.11E(1); (b) Quarterly CEMS Summary Reports as required by COMAR 26.11.01.11E(2)(c). **[Reference: COMAR 26.11.01.11E and CPCN 9297 Condition B-IV-15]**

The Permittee shall submit reports of excess emissions and monitor downtime associated with the CTs/HRSGs in accordance with 40 CFR §60.7(c). Excess emissions as defined in 40 CFR §60.4380 (NO_x) and 40 CFR §60.4385 (SO₂) shall be reported for all periods of unit operation, including startup, shutdown, and malfunction. **[Reference: CPCN 9297 Condition B-IV-16]**

I. Operational Limits

(1) & (2) The Permittee shall submit a quarterly report to the Department to be postmarked by the 30th day of the month following the end of each calendar quarter that includes summary of the monthly and consecutive rolling 12-month total fuel use and hours of operation for each CT and duct burner. **[Reference: CPCN 9297 Condition B-III-4 & Condition B-IV-18]**

J. BACT Requirements

See Testing Requirements.

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Table IV – 1a: Cross State Air Pollution Rule (CSAPR)	
1a.0	<u>Emissions Unit Number: EU1 & EU2 Cont'd</u> EU1: CT11: Siemens Model SGT6-5000Fee natural gas-fired combustion turbine rated at 2,330 MMBtu/hr equipped with HRSG11: Heat recovery steam generator which includes Forney natural gas-fired duct burner rated at 443 MMBtu/hr. [033-2737-5-1578 & 5-1580] <i>Controls: Selective Catalyst Reduction and oxidation catalyst.</i> EU2: CT12: Siemens Model SGT6-5000Fee natural gas-fired combustion turbine rated at 2,330 MMBtu/hr equipped with HRSG12: Heat recovery steam generator which includes Forney natural gas-fired duct burner rated at 443 MMBtu/hr. [033-2737-5-1579 & 5-1581] <i>Controls: Selective Catalyst Reduction and oxidation catalyst</i>
1a.1	<u>Applicable Standards/Limits:</u> A. 40 CFR Part 97 Subpart AAAAA - CSAPR NO_x Annual Trading Program <u>CSAPR NO_x Annual Trading Program requirements (40 CFR 97.406)</u> (1) Designated representative requirements. The owners and operators shall comply with the requirement to have a designated representative, and may have an alternate designated representative, in accordance with 40 CFR 97.413 through 97.418. (2) Emissions monitoring, reporting, and recordkeeping requirements. (a) The owners and operators, and the designated representative, of each CSAPR NO_x Annual source and each CSAPR NO_x Annual unit at the source shall comply with the monitoring, reporting, and recordkeeping requirements of 40 CFR 97.430 through 97.435. §97.430 (general monitoring, including requirements for installation, certification, and data accounting, compliance deadlines, reporting data, prohibitions and long-term cold storage); §97.431 (initial monitoring system certification and recertification procedures); §97.432 (monitoring system out-of-control periods); §97.433 (notifications concerning monitoring), §97.434 (recordkeeping and reporting, including monitoring plans, certification applications, quarterly reports, and compliance certification), and §97.435 (petitions for alternatives to monitoring, recordkeeping, or reporting requirements) (b) The emissions data determined in accordance with 40 CFR 97.430 through 97.435 shall be used to calculate allocations of

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	CSAPR NO_x Annual allowances under 40 CFR 97.411(a)(2) and (b) and 97.412 and to determine compliance with the CSAPR NO_x Annual emissions limitation and assurance provisions under paragraph (c) of this section, provided that, for each monitoring location from which mass emissions are reported, the mass emissions amount used in calculating such allocations and determining such compliance shall be the mass emissions amount for the monitoring location determined in accordance with §§97.430 through 97.435 and rounded to the nearest ton, with any fraction of a ton less than 0.50 being deemed to be zero. (3) NO_x emissions requirements. (a) CSAPR NO_x Annual emissions limitation. (i) As of the allowance transfer deadline for a control period in a given year, the owners and operators of each CSAPR NO_x Annual source and each CSAPR NO_x Annual unit at the source shall hold, in the source's compliance account, CSAPR NO_x Annual allowances available for deduction for such control period under §97.424(a) in an amount not less than the tons of total NO_x emissions for such control period from all CSAPR NO_x Annual units at the source. (ii) If total NO_x emissions during a control period in a given year from the CSAPR NO_x Annual units at a CSAPR NO_x Annual source are in excess of the CSAPR NO_x Annual emissions limitation set forth in paragraph (c)(1)(i) of this section, then: (A) The owners and operators of the source and each CSAPR NO_x Annual unit at the source shall hold the CSAPR NO_x Annual allowances required for deduction under §97.424(d); and (B) The owners and operators of the source and each CSAPR NO_x Annual unit at the source shall pay any fine, penalty, or assessment or comply with any other remedy imposed, for the same violations, under the Clean Air Act, and each ton of such excess emissions and each day of such control period shall constitute a separate violation of this subpart and the Clean Air Act.. (b) CSAPR NO_x Annual assurance provisions. (i) If total NO_x emissions during a control period in a given year from all CSAPR NO_x Annual units at CSAPR NO_x Annual sources in a State (and Indian country within the borders of such State) exceed the State assurance level,

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	then the owners and operators of such sources and units in each group of one or more sources and units having a common designated representative for such control period, where the common designated representative's share of such NO_x emissions during such control period exceeds the common designated representative's assurance level for the State and such control period, shall hold (in the assurance account established for the owners and operators of such group) CSAPR NO_x Annual allowances available for deduction for such control period under §97.425(a) in an amount equal to two times the product (rounded to the nearest whole number), as determined by the Administrator in accordance with §97.425(b), of multiplying—(A) The quotient of the amount by which the common designated representative's share of such NO_x emissions exceeds the common designated representative's assurance level divided by the sum of the amounts, determined for all common designated representatives for such sources and units in the State (and Indian country within the borders of such State) for such control period, by which each common designated representative's share of such NO_x emissions exceeds the respective common designated representative's assurance level; and (B) The amount by which total NO_x emissions from all CSAPR NO_x Annual units at CSAPR NO_x Annual sources in the State (and Indian country within the borders of such State) for such control period exceed the State assurance level. (ii) The owners and operators shall hold the CSAPR NO_x Annual allowances required under paragraph (c)(2)(i) of this section, as of midnight of November 1 (if it is a business day), or midnight of the first business day thereafter (if November 1 is not a business day), immediately after the year of such control period. (iii) Total NO_x emissions from all CSAPR NO_x Annual units at CSAPR NO_x Annual sources in a State (and Indian country within the borders of such State) during a control period in a given year exceed the State assurance level if such total NO_x emissions exceed the sum, for such control period, of the State NO_x Annual trading budget under §97.410(a) and the State's variability limit under §97.410(b) (iv) It shall not be a violation of this subpart or of the Clean Air Act if total NO_x emissions from all CSAPR NO_x Annual units

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	at CSAPR NO_x Annual sources in a State (and Indian country within the borders of such State) during a control period exceed the State assurance level or if a common designated representative's share of total NO_x emissions from the CSAPR NO_x Annual units at CSAPR NO_x Annual sources in a State (and Indian country within the borders of such State) during a control period exceeds the common designated representative's assurance level.. (v) To the extent the owners and operators fail to hold CSAPR NO_x Annual allowances for a control period in a given year in accordance with paragraphs (c)(2)(i) through (iii) of this section' (A) The owners and operators shall pay any fine, penalty, or assessment or comply with any other remedy imposed under the Clean Air Act; and (B) Each CSAPR NO_x Annual allowance that the owners and operators fail to hold for such control period in accordance with paragraphs (c)(2)(i) through (iii) of this section and each day of such control period shall constitute a separate violation of this subpart and the Clean Air Act. (c) Compliance periods. (i) A CSAPR NO_x Annual unit shall be subject to the requirements under paragraph (c)(1) of this section for the control period starting on the later of January 1, 2015 or the deadline for meeting the unit's monitor certification requirements under §97.430(b) and for each control period thereafter. (ii) A CSAPR NO_x Annual unit shall be subject to the requirements under paragraph (c)(2) of this section for the control period starting on the later of January 1, 2017 or the deadline for meeting the unit's monitor certification requirements under §97.430(b) and for each control period thereafter.. (d) Vintage of CSAPR NO_x Annual allowances held for compliance. (i) A CSAPR NO_x Annual allowance held for compliance with the requirements under paragraph (c)(1)(i) of this section for a control period in a given year must be a CSAPR NO_x Annual allowance that was allocated or auctioned for such control period or a control period in a prior year. (ii) A CSAPR NO_x Annual allowance held for compliance with the requirements under paragraphs (c)(1)(ii)(A) and (2)(i)

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	through (iii) of this section for a control period in a given year must be a CSAPR NO_x Annual allowance that was allocated or auctioned for a control period in a prior year or the control period in the given year or in the immediately following year. (e) Allowance Management System requirements. Each CSAPR NO_x Annual allowance shall be held in, deducted from, or transferred into, out of, or between Allowance Management System accounts in accordance with 40 CFR part 97, subpart AAAAA. (f) Limited authorization. A CSAPR NO_x Annual allowance is a limited authorization to emit one ton of NO_x during the control period in one year. Such authorization is limited in its use and duration as follows: (i) Such authorization shall only be used in accordance with the CSAPR NO_x Annual Trading Program; and (ii) Notwithstanding any other provision of 40 CFR part 97, the Administrator has the authority to terminate or limit the use and duration of such authorization to the extent the Administrator determines is necessary or appropriate to implement any provision of the Clean Air Act. (g) Property right. A CSAPR NO_x Annual allowance does not constitute a property right. (4) Title V permit requirements. (a) No title V permit revision shall be required for any allocation, holding, deduction, or transfer of CSAPR NO_x Annual allowances in accordance with 40 CFR part 97, subpart AAAAA. (b) A description of whether a unit is required to monitor and report NO_x emissions using a continuous emission monitoring system (under subpart H of part 75 of this chapter), an excepted monitoring system (under appendices D and E to part 75 of this chapter), a low mass emissions excepted monitoring methodology (under §75.19 of this chapter), or an alternative monitoring system (under subpart E of part 75 of this chapter) in accordance with 40 CFR 97.430 through 97.435 may be added to, or changed in, a title V permit using minor permit modification procedures in accordance with §§70.7(e)(2) and 71.7(e)(1) of this chapter, provided that the requirements applicable to the described monitoring and reporting (as added or changed, respectively) are already incorporated in such permit. This paragraph explicitly provides that the addition of, or change to, a unit's description as described in the prior sentence is eligible for minor permit modification procedures in accordance with 40 CFR

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	70.7(e)(2)(i)(B) and 71.7(e)(1)(i)(B) of this chapter. (5) Additional recordkeeping and reporting requirements. (a) Unless otherwise provided, the owners and operators of each CSAPR NO_x Annual source and each CSAPR NO_x Annual unit at the source shall keep on site at the source each of the following documents (in hardcopy or electronic format) for a period of 5 years from the date the document is created. This period may be extended for cause, at any time before the end of 5 years, in writing by the Administrator. (i) The certificate of representation under §97.416 for the designated representative for the source and each CSAPR NO_x Annual unit at the source and all documents that demonstrate the truth of the statements in the certificate of representation; provided that the certificate and documents shall be retained on site at the source beyond such 5-year period until such certificate of representation and documents are superseded because of the submission of a new certificate of representation under §97.416 changing the designated representative.. (ii) All emissions monitoring information, in accordance with 40 CFR part 97, subpart AAAAA. (iii) Copies of all reports, compliance certifications, and other submissions and all records made or required under, or to demonstrate compliance with the requirements of, the CSAPR NO_x Annual Trading Program. (b) The designated representative of a CSAPR NO_x Annual source and each CSAPR NO_x Annual unit at the source shall make all submissions required under the CSAPR NO_x Annual Trading Program, except as provided in §97.418. This requirement does not change, create an exemption from, or otherwise affect the responsible official submission requirements under a title V operating permit program in parts 70 and 71 of this chapter. (6) Liability. (a) Any provision of the CSAPR NO_x Annual Trading Program that applies to a CSAPR NO_x Annual source or the designated representative of a CSAPR NO_x Annual source shall also apply to the owners and operators of such source and of the CSAPR NO_x Annual units at the source. (b) Any provision of the CSAPR NO_x Annual Trading Program that applies to a CSAPR NO_x Annual unit or the designated

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	representative of a CSAPR NO_x Annual unit shall also apply to the owners and operators of such unit. (7) Effect on other authorities. No provision of the CSAPR NO_x Annual Trading Program or exemption under §97.405 shall be construed as exempting or excluding the owners and operators, and the designated representative, of a CSAPR NO_x Annual source or CSAPR NO_x Annual unit from compliance with any other provision of the applicable, approved State implementation plan, a federally enforceable permit, or the Clean Air Act.. B. 40 CFR Part 97 Subpart BBBBBB - CSAPR NO_x Ozone Season Trading Program <u>CSAPR NO_x Ozone Season Trading Program Requirements (40 CFR 97.506)</u> (1) Designated representative requirements. The owners and operators shall comply with the requirement to have a designated representative, and may have an alternate designated representative, in accordance with 40 CFR 97.513 through 97.518. (2) Emissions monitoring, reporting, and recordkeeping requirements. (a) The owners and operators, and the designated representative, of each CSAPR NO_x Ozone Season Group 1 source and each CSAPR NO_x Ozone Season Group 1 unit at the source shall comply with the monitoring, reporting, and recordkeeping requirements of 40 CF R 97.530 through 97.535. §97.530 (general monitoring, recordkeeping and reporting requirements, including requirements for installation, certification, and data accounting; compliance deadlines; reporting data; prohibitions; and long-term cold storage), §97.531 (initial monitoring system certification and recertification procedures), §97.532 (monitoring system out-of-control periods), §97.533 (notifications concerning monitoring), §97.534 (recordkeeping and reporting, including monitoring plans, certification applications, quarterly reports, and compliance certification), and §97.535 (petitions for alternatives to monitoring, recordkeeping, or reporting requirements). (b) The emissions data determined in accordance with 40 CFR 97.530 through 97.535 shall be used to calculate allocations of CSAPR NO_x Ozone Season Group 1 allowances under §§97.511(a)(2) and (b) and 97.512 and to determine compliance

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	with the CSAPR NO_x Ozone Season Group 1 emissions limitation and assurance provisions under paragraph (c) of this section, provided that, for each monitoring location from which mass emissions are reported, the mass emissions amount used in calculating such allocations and determining such compliance shall be the mass emissions amount for the monitoring location determined in accordance with §§97.530 through 97.535 and rounded to the nearest ton, with any fraction of a ton less than 0.50 being deemed to be zero. (3) NO_x emissions requirements. (a) CSAPR NO_x Ozone Season Group 1 emissions limitation. (i) As of the allowance transfer deadline for a control period in a given year, the owners and operators of each CSAPR NO_x Ozone Season Group 1 source and each CSAPR NO_x Ozone Season Group 1 unit at the source shall hold, in the source's compliance account, CSAPR NO_x Ozone Season Group 1 allowances available for deduction for such control period under 40 CFR 97.524(a) in an amount not less than the tons of total NO_x emissions for such control period from all CSAPR NO_x Ozone Season Group 1 units at the source.. (ii) If total NO_x emissions during a control period in a given year from the CSAPR NO_x Ozone Season Group 1 units at a CSAPR NO_x Ozone Season Group 1 source are in excess of the CSAPR NO_x Ozone Season Group 1 emissions limitation set forth in paragraph (c)(1)(i) of this section, then:: (A) The owners and operators of the source and each CSAPR NO_x Ozone Season Group 1 unit at the source shall hold the CSAPR NO_x Ozone Season Group 1 allowances required for deduction under §97.524(d); and (B) The owners and operators of the source and each CSAPR NO_x Ozone Season Group 1 unit at the source shall pay any fine, penalty, or assessment or comply with any other remedy imposed, for the same violations, under the Clean Air Act, and each ton of such excess emissions and each day of such control period shall constitute a separate violation of this subpart and the Clean Air Act.. (b) CSAPR NO_x Ozone Season Group 1 assurance provisions. (i) If total NO_x emissions during a control period in a given year from all CSAPR NO_x Ozone Season Group 1 units at
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	CSAPR NO_x Ozone Season Group 1 sources in a State (and Indian country within the borders of such State) exceed the State assurance level, then the owners and operators of such sources and units in each group of one or more sources and units having a common designated representative for such control period, where the common designated representative's share of such NO_x emissions during such control period exceeds the common designated representative's assurance level for the State and such control period, shall hold (in the assurance account established for the owners and operators of such group) CSAPR NO_x Ozone Season Group 1 allowances available for deduction for such control period under 40 CFR 97.525(a) in an amount equal to two times the product (rounded to the nearest whole number), as determined by the Administrator in accordance with 40 CFR 97.525(b), of multiplying— (A) The quotient of the amount by which the common designated representative's share of such NO_x emissions exceeds the common designated representative's assurance level divided by the sum of the amounts, determined for all common designated representatives for such sources and units in the State (and Indian country within the borders of such State) for such control period, by which each common designated representative's share of such NO_x emissions exceeds the respective common designated representative's assurance level; and (B) The amount by which total NO_x emissions from all CSAPR NO_x Ozone Season Group 1 units at CSAPR NO_x Ozone Season Group 1 sources in the State (and Indian country within the borders of such State) for such control period exceed the State assurance level. (ii) The owners and operators shall hold the CSAPR NO_x Ozone Season Group 1 allowances required under paragraph (c)(2)(i) of this section, as of midnight of November 1 (if it is a business day), or midnight of the first business day thereafter (if November 1 is not a business day), immediately after the year of such control period.. (iii) Total NO_x emissions from all CSAPR NO_x Ozone Season Group 1 units at CSAPR NO_x Ozone Season Group 1 sources in a State (and Indian country within the borders of such State) during a control period in a given year exceed the State assurance level if such total NO_x emissions exceed the sum, for such control period, of the State NO_x Ozone

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	Season Group 1 trading budget under §97.510(a) and the State's variability limit under 40 CFR 97.510(b).. (iv) It shall not be a violation of this subpart or of the Clean Air Act if total NO_x emissions from all CSAPR NO_x Ozone Season Group 1 units at CSAPR NO_x Ozone Season Group 1 sources in a State (and Indian country within the borders of such State) during a control period exceed the State assurance level or if a common designated representative's share of total NO_x emissions from the CSAPR NO_x Ozone Season Group 1 units at CSAPR NO_x Ozone Season Group 1 sources in a State (and Indian country within the borders of such State) during a control period exceeds the common designated representative's assurance level. (v) To the extent the owners and operators fail to hold CSAPR NO_x Ozone Season Group 1 allowances for a control period in a given year in accordance with paragraphs (c)(2)(i) through (iii) of this section, (A) The owners and operators shall pay any fine, penalty, or assessment or comply with any other remedy imposed under the Clean Air Act; and (B) Each CSAPR NO_x Ozone Season Group 1 allowance that the owners and operators fail to hold for such control period in accordance with paragraphs (c)(2)(i) through (iii) of this section and each day of such control period shall constitute a separate violation of this subpart and the Clean Air Act. (c) Compliance periods. (i) A CSAPR NO_x Ozone Season Group 1 unit shall be subject to the requirements under paragraph (c)(1) of this section for the control period starting on the later of May 1, 2015 or the deadline for meeting the unit's monitor certification requirements under 40 CFR 97.530(b) and for each control period thereafter.. (ii) A CSAPR NO_x Ozone Season Group 1 unit shall be subject to the requirements under paragraph (c)(2) of this section for the control period starting on the later of May 1, 2017 or the deadline for meeting the unit's monitor certification requirements under §97.530(b) and for each control period thereafter. (d) Vintage of CSAPR NO_x Ozone Season Group 1 allowances held for compliance. (i) A CSAPR NO_x Ozone Season Group 1 allowance held for

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	compliance with the requirements under paragraph (c)(1)(i) of this section for a control period in a given year must be a CSAPR NO_x Ozone Season Group 1 allowance that was allocated or auctioned for such control period or a control period in a prior year.. (ii) A CSAPR NO_x Ozone Season Group 1 allowance held for compliance with the requirements under paragraphs (c)(1)(ii)(A) and (2)(i) through (iii) of this section for a control period in a given year must be a CSAPR NO_x Ozone Season Group 1 allowance that was allocated or auctioned for a control period in a prior year or the control period in the given year or in the immediately following year. (e) Allowance Management System requirements. Each CSAPR NO_x Ozone Season Group 1 allowance shall be held in, deducted from, or transferred into, out of, or between Allowance Management System accounts in accordance with 40 CFR part 97, subpart BBBBB. (f) Limited authorization. A CSAPR NO_x Ozone Season Group 1 allowance is a limited authorization to emit one ton of NO_x during the control period in one year. Such authorization is limited in its use and duration as follows: (i) Such authorization shall only be used in accordance with the CSAPR NO_x Ozone Season Group 1 Trading Program; and (ii) Notwithstanding any other provision of 40 CFR part 97, subpart BBBBB, the Administrator has the authority to terminate or limit the use and duration of such authorization to the extent the Administrator determines is necessary or appropriate to implement any provision of the Clean Air Act. (g) Property right. A CSAPR NO_x Ozone Season Group 1 allowance does not constitute a property right. (4) Title V permit requirements. (a) No title V permit revision shall be required for any allocation, holding, deduction, or transfer of CSAPR NO_x Ozone Season Group 1 allowances in accordance with 40 CFR part 97, subpart BBBBB. (b) A description of whether a unit is required to monitor and report NO_x emissions using a continuous emission monitoring system (under subpart H of part 75 of this chapter), an excepted monitoring system (under appendices D and E to part 75 of this chapter), a low mass emissions excepted monitoring methodology

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	(under 40 CFR 75.19 of this chapter), or an alternative monitoring system (under subpart E of part 75 of this chapter) in accordance with 40 CFR 97.530 through 97.535 may be added to, or changed in, a title V permit using minor permit modification procedures in accordance with 40 CFR 70.7(e)(2) and 71.7(e)(1) of this chapter, provided that the requirements applicable to the described monitoring and reporting (as added or changed, respectively) are already incorporated in such permit. This paragraph explicitly provides that the addition of, or change to, a unit's description as described in the prior sentence is eligible for minor permit modification procedures in accordance with 40 CFR 70.7(e)(2)(i)(B) and 71.7(e)(1)(i)(B) of this chapter. (5) Additional recordkeeping and reporting requirements. (a) Unless otherwise provided, the owners and operators of each CSAPR NO_x Ozone Season Group 1 source and each CSAPR NO_x Ozone Season Group 1 unit at the source shall keep on site at the source each of the following documents (in hardcopy or electronic format) for a period of 5 years from the date the document is created. This period may be extended for cause, at any time before the end of 5 years, in writing by the Administrator.. (i) The certificate of representation under 40 CFR 97.516 for the designated representative for the source and each CSAPR NO_x Ozone Season Group 1 unit at the source and all documents that demonstrate the truth of the statements in the certificate of representation; provided that the certificate and documents shall be retained on site at the source beyond such 5-year period until such certificate of representation and documents are superseded because of the submission of a new certificate of representation under §97.516 changing the designated representative. (ii) All emissions monitoring information, in accordance with 40 CFR part 97, subpart BBBBB. (iii) Copies of all reports, compliance certifications, and other submissions and all records made or required under, or to demonstrate compliance with the requirements of, the CSAPR NO_x Ozone Season Group 1 Trading Program. (b) The designated representative of a CSAPR NO_x Ozone Season Group 1 source and each CSAPR NO_x Ozone Season Group 1 unit at the source shall make all submissions required under the CSAPR NO_x Ozone Season Group 1 Trading Program, except as provided in 40 CFR 97.518. This requirement does not change,

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	create an exemption from, or otherwise affect the responsible official submission requirements under a title V operating permit program in parts 70 and 71 of this chapter. (6) Liability. (a) Any provision of the CSAPR NO_x Ozone Season Group 1 Trading Program that applies to a CSAPR NO_x Ozone Season Group 1 source or the designated representative of a CSAPR NO_x Ozone Season Group 1 source shall also apply to the owners and operators of such source and of the CSAPR NO_x Ozone Season Group 1 units at the source. (b) Any provision of the CSAPR NO_x Ozone Season Group 1 Trading Program that applies to a CSAPR NO_x Ozone Season Group 1 unit or the designated representative of a CSAPR NO_x Ozone Season Group 1 unit shall also apply to the owners and operators of such unit. (7) Effect on other authorities. No provision of the CSAPR NO_x Ozone Season Group 1 Trading Program or exemption under §97.505 shall be construed as exempting or excluding the owners and operators, and the designated representative, of a CSAPR NO_x Ozone Season Group 1 source or CSAPR NO_x Ozone Season Group 1 unit from compliance with any other provision of the applicable, approved State implementation plan, a federally enforceable permit, or the Clean Air Act.. C. 40 CFR Part 97 Subpart CCCCC- CSAPR SO₂ Group 1 Trading Program <u>CSAPR SO₂ Group 1 Trading Program requirements (40 CFR 97.606)</u> (1) Designated representative requirements. The owners and operators shall comply with the requirement to have a designated representative, and may have an alternate designated representative, in accordance with 40 CFR 97.613 through 97.618. (2) Emissions monitoring, reporting, and recordkeeping requirements. (a) The owners and operators, and the designated representative, of each CSAPR SO₂ Group 1 source and each CSAPR SO₂ Group 1 unit at the source shall comply with the monitoring, reporting, and recordkeeping requirements of 40 CFR 97.630 through 97.635. §97.630 (general monitoring, recordkeeping and reporting requirements, including requirements for installation, certification,

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	and data accounting; compliance deadlines, reporting data; prohibitions; and long-term cold storage), §97.631 (initial monitoring system certification and recertification procedures), §97.632 (monitoring system out-of-control periods), §97.633 (notifications concerning monitoring), §97.634 (recordkeeping and reporting, including monitoring plans, certification applications, quarterly reports, and compliance certification), and §97.635 (petitions for alternatives to monitoring, recordkeeping, or reporting requirements). (b) The emissions data determined in accordance with 40 CFR 97.630 through 97.635 shall be used to calculate allocations of CSAPR SO₂ Group 1 allowances under 40 CFR 97.611(a)(2) and (b) and 97.612 and to determine compliance with the CSAPR SO₂ Group 1 emissions limitation and assurance provisions under paragraph (c) of this section, provided that, for each monitoring location from which mass emissions are reported, the mass emissions amount used in calculating such allocations and determining such compliance shall be the mass emissions amount for the monitoring location determined in accordance with 40 CFR 97.630 through 97.635 and rounded to the nearest ton, with any fraction of a ton less than 0.50 being deemed to be zero. (3) SO₂ emissions requirements. (a) CSAPR SO₂ Group 1 emissions limitation. (i) As of the allowance transfer deadline for a control period in a given year, the owners and operators of each CSAPR SO₂ Group 1 source and each CSAPR SO₂ Group 1 unit at the source shall hold, in the source's compliance account, CSAPR SO₂ Group 1 allowances available for deduction for such control period under 40 CFR 97.624(a) in an amount not less than the tons of total SO₂ emissions for such control period from all CSAPR SO₂ Group 1 units at the source. (ii) If total SO₂ emissions during a control period in a given year from the CSAPR SO₂ Group 1 units at a CSAPR SO₂ Group 1 source are in excess of the CSAPR SO₂ Group 1 emissions limitation set forth in paragraph (c)(1)(i) of this section, then: (A) The owners and operators of the source and each CSAPR SO₂ Group 1 unit at the source shall hold the CSAPR SO₂ Group 1 allowances required for deduction under 40 CFR 97.624(d); and

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	(B) The owners and operators of the source and each CSAPR SO₂ Group 1 unit at the source shall pay any fine, penalty, or assessment or comply with any other remedy imposed, for the same violations, under the Clean Air Act, and each ton of such excess emissions and each day of such control period shall constitute a separate violation of 40 CFR part 97, subpart CCCCC and the Clean Air Act. (b) CSAPR SO₂ Group 1 assurance provisions. (i) If total SO₂ emissions during a control period in a given year from all CSAPR SO₂ Group 1 units at CSAPR SO₂ Group 1 sources in a State (and Indian country within the borders of such State) exceed the State assurance level, then the owners and operators of such sources and units in each group of one or more sources and units having a common designated representative for such control period, where the common designated representative's share of such SO₂ emissions during such control period exceeds the common designated representative's assurance level for the State and such control period, shall hold (in the assurance account established for the owners and operators of such group) CSAPR SO₂ Group 1 allowances available for deduction for such control period under 40 CFR 97.625(a) in an amount equal to two times the product (rounded to the nearest whole number), as determined by the Administrator in accordance with 40 CFR 97.625(b), of multiplying— (A) The quotient of the amount by which the common designated representative's share of such SO₂ emissions exceeds the common designated representative's assurance level divided by the sum of the amounts, determined for all common designated representatives for such sources and units in the State (and Indian country within the borders of such State) for such control period, by which each common designated representative's share of such SO₂ emissions exceeds the respective common designated representative's assurance level; and (B) The amount by which total SO₂ emissions from all CSAPR SO₂ Group 1 units at CSAPR SO₂ Group 1 sources in the State (and Indian country within the borders of such State) for such control period exceed the State assurance level. (ii) The owners and operators shall hold the CSAPR SO₂

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	Group 1 allowances required under paragraph (c)(2)(i) of this section, as of midnight of November 1 (if it is a business day), or midnight of the first business day thereafter (if November 1 is not a business day), immediately after the year of such control period. (iii) Total SO₂ emissions from all CSAPR SO₂ Group 1 units at CSAPR SO₂ Group 1 sources in a State (and Indian country within the borders of such State) during a control period in a given year exceed the State assurance level if such total SO₂ emissions exceed the sum, for such control period, of the State SO₂ Group 1 trading budget under §97.610(a) and the State's variability limit under §97.610(b). (iv) It shall not be a violation of 40 CFR part 97 subpart CCCCC or of the Clean Air Act if total SO₂ emissions from all CSAPR SO₂ Group 1 units at CSAPR SO₂ Group 1 sources in a State (and Indian country within the borders of such State) during a control period exceed the State assurance level or if a common designated representative's share of total SO₂ emissions from the CSAPR SO₂ Group 1 units at CSAPR SO₂ Group 1 sources in a State (and Indian country within the borders of such State) during a control period exceeds the common designated representative's assurance level.. (v) To the extent the owners and operators fail to hold CSAPR SO₂ Group 1 allowances for a control period in a given year in accordance with paragraphs (c)(2)(i) through (iii) of this section, (A) The owners and operators shall pay any fine, penalty, or assessment or comply with any other remedy imposed under the Clean Air Act; and (B) Each CSAPR SO₂ Group 1 allowance that the owners and operators fail to hold for such control period in accordance with paragraphs (c)(2)(i) through (iii) of this section and each day of such control period shall constitute a separate violation of 40 CFR part 97, subpart CCCCC and the Clean Air Act. (c) Compliance periods. (i) A CSAPR SO₂ Group 1 unit shall be subject to the requirements under paragraph (c)(1) of this section for the control period starting on the later of January 1, 2015 or the deadline for meeting the unit's monitor certification requirements under 40 CFR 97.630(b) and for each control period thereafter.

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	(ii) A CSAPR SO₂ Group 1 unit shall be subject to the requirements under paragraph (c)(2) of this section for the control period starting on the later of January 1, 2017 or the deadline for meeting the unit's monitor certification requirements under 40 CFR 97.630(b) and for each control period thereafter. (d) Vintage of CSAPR SO₂ Group 1 allowances held for compliance. (i) A CSAPR SO₂ Group 1 allowance held for compliance with the requirements under paragraph (c)(1)(i) of this section for a control period in a given year must be a CSAPR SO₂ Group 1 allowance that was allocated or auctioned for such control period or a control period in a prior year.. (ii) A CSAPR SO₂ Group 1 allowance held for compliance with the requirements under paragraphs (c)(1)(ii)(A) and (2)(i) through (iii) of this section for a control period in a given year must be a CSAPR SO₂ Group 1 allowance that was allocated or auctioned for a control period in a prior year or the control period in the given year or in the immediately following year. (e) Allowance Management System requirements. Each CSAPR SO₂ Group 1 allowance shall be held in, deducted from, or transferred into, out of, or between Allowance Management System accounts in accordance with 40 CFR part 97, subpart CCCCC. (f) Limited authorization. A CSAPR SO₂ Group 1 allowance is a limited authorization to emit one ton of SO₂ during the control period in one year. Such authorization is limited in its use and duration as follows: (i) Such authorization shall only be used in accordance with the CSAPR SO₂ Group 1 Trading Program; and (ii) Notwithstanding any other provision of 40 CFR part 97, subpart CCCCC, the Administrator has the authority to terminate or limit the use and duration of such authorization to the extent the Administrator determines is necessary or appropriate to implement any provision of the Clean Air Act. (g) Property right. A CSAPR SO₂ Group 1 allowance does not constitute a property right. (4) Title V permit requirements. (a) No title V permit revision shall be required for any allocation, holding, deduction, or transfer of CSAPR SO₂ Group 1 allowances in accordance with 40 CFR part 97, subpart CCCCC. (b) A description of whether a unit is required to monitor and report SO₂ emissions using a continuous emission monitoring system

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	(under subpart B of part 75 of this chapter), an excepted monitoring system (under appendices D and E to part 75 of this chapter), a low mass emissions excepted monitoring methodology (under 40 CFR 75.19 of this chapter), or an alternative monitoring system (under subpart E of part 75 of this chapter) in accordance with 40 CFR 97.630 through 97.635 may be added to, or changed in, a title V permit using minor permit modification procedures in accordance with 40 CFR 70.7(e)(2) and 71.7(e)(1) of this chapter, provided that the requirements applicable to the described monitoring and reporting (as added or changed, respectively) are already incorporated in such permit. This paragraph explicitly provides that the addition of, or change to, a unit's description as described in the prior sentence is eligible for minor permit modification procedures in accordance with 40 CFR 70.7(e)(2)(i)(B) and 71.7(e)(1)(i)(B) of this chapter. (5) Additional recordkeeping and reporting requirements. (a) Unless otherwise provided, the owners and operators of each CSAPR SO₂ Group 1 source and each CSAPR SO₂ Group 1 unit at the source shall keep on site at the source each of the following documents (in hardcopy or electronic format) for a period of 5 years from the date the document is created. This period may be extended for cause, at any time before the end of 5 years, in writing by the Administrator.. (i) The certificate of representation under 40 CFR 97.616 for the designated representative for the source and each CSAPR SO₂ Group 1 unit at the source and all documents that demonstrate the truth of the statements in the certificate of representation; provided that the certificate and documents shall be retained on site at the source beyond such 5-year period until such certificate of representation and documents are superseded because of the submission of a new certificate of representation under §97.616 changing the designated representative. (ii) All emissions monitoring information, in accordance with 40 CFR part 97, subpart CCCCC. (iii) Copies of all reports, compliance certifications, and other submissions and all records made or required under, or to demonstrate compliance with the requirements of, the CSAPR SO₂ Group 1 Trading Program. (b) The designated representative of a CSAPR SO₂ Group 1 source and each CSAPR SO₂ Group 1 unit at the source shall make all

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	submissions required under the CSAPR SO₂ Group 1 Trading Program, except as provided in 40 CFR 97.618. This requirement does not change, create an exemption from, or otherwise affect the responsible official submission requirements under a title V operating permit program in parts 70 and 71 of this chapter. (6) Liability. (a) Any provision of the CSAPR SO₂ Group 1 Trading Program that applies to a CSAPR SO₂ Group 1 source or the designated representative of a CSAPR SO₂ Group 1 source shall also apply to the owners and operators of such source and of the CSAPR SO₂ Group 1 units at the source. (b) Any provision of the CSAPR SO₂ Group 1 Trading Program that applies to a CSAPR SO₂ Group 1 unit or the designated representative of a CSAPR SO₂ Group 1 unit shall also apply to the owners and operators of such unit. (7) Effect on other authorities. No provision of the CSAPR SO₂ Group 1 Trading Program or exemption under 40 CFR 97.605 shall be construed as exempting or excluding the owners and operators, and the designated representative, of a CSAPR SO₂ Group 1 source or CSAPR SO₂ Group 1 unit from compliance with any other provision of the applicable, approved State implementation plan, a federally enforceable permit, or the Clean Air Act.
1a.2	<u>Testing Requirements:</u> A. <u>40 CFR Part 97 Subpart AAAAA- CSAPR NO_x Annual Trading Program</u> See Monitoring Requirements. B. <u>40 CFR Part 97 Subpart BBBBB- CSAPR NO_x Ozone Season Trading Program</u> See Monitoring Requirements. C. <u>40 CFR Part 97 Subpart CCCCC- CSAPR SO₂ Group 1 Trading Program</u> See Monitoring Requirements.

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1a.3	<u>Monitoring Requirements:</u> A. <u>40 CFR Part 97 Subpart AAAAA- CSAPR NO_x Annual Trading Program</u> The Permittee shall comply with the monitoring requirements found in §97.406, §97.430, and §97.434 for the NO_x Annual Trading Program. B. <u>40 CFR Part 97 Subpart BBBBB- CSAPR NO_x Ozone Season Trading Program</u> The Permittee shall comply with the monitoring requirements found in §97.506, §97.530, and §97.534 for the NO_x Ozone Season Trading Program. C. <u>40 CFR Part 97 Subpart CCCCC- CSAPR SO₂ Group 1 Trading Program</u> The Permittee shall comply with the monitoring requirements found in §97.606, §97.630, §97.631, §97.632, and §97.633.
1a.4	<u>Record Keeping Requirements:</u> A. <u>40 CFR Part 97 Subpart AAAAA- CSAPR NO_x Annual Trading Program</u> The Permittee shall comply with the recordkeeping requirements found in §97.406, §97.430, and §97.434 for the NO_x Annual Trading Program. B. <u>40 CFR Part 97 Subpart BBBBB- CSAPR NO_x Ozone Season Trading Program</u> The Permittee shall comply with the recordkeeping requirements found in §97.506, §97.530, and §97.534 for the NO_x Ozone Season Trading Program. C. <u>40 CFR Part 97 Subpart CCCCC- CSAPR SO₂ Group 1 Trading Program</u> The Permittee shall comply with the recordkeeping requirements found in §97.606, §97.630, and §97.634.
1a.5	<u>Reporting Requirements:</u> A. <u>40 CFR Part 97 Subpart AAAAA- CSAPR NO_x Annual Trading Program</u> The Permittee shall comply with the reporting requirements found in §97.406, §97.430, §97.433 and §97.434 for the NO_x Annual Trading Program.

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	B. 40 CFR Part 97 Subpart BBBB- CSAPR NO_x Ozone Season Trading Program The Permittee shall comply with the reporting requirements found in §97.506, §97.530, §97.533, and §97.534 for the NO_x Ozone Season Trading Program. C. 40 CFR Part 97 Subpart CCCCC- CSAPR SO₂ Group 1 Trading Program The Permittee shall comply with the reporting requirements found in §97.606, §97.630, §97.633 and §97.634.

Table IV-1b	
COMPLIANCE ASSURANCE MONITORING (CAM) Plan	
Emission Units: EU1 & EU2	
Applicable Requirement	VOC: Emission limit: <=1.0 ppmvd at 15% O ₂ without duct firing and <=2.0 ppmvd at 15% O ₂ with duct firing, except during periods of startup and shutdown.
I. Indicator	CO emission rate (ppmvd at 15% O ₂)
Measurement Approach	CO is measured and recorded using a certified CEMs
II. Indicator Range	CO emissions less than or equal to the CO emission limitation prescribed in the permit (i.e., <= 2.0 ppmvd @ 15% O ₂).
III. Performance Criteria: The CO CEMs meet the performance criteria for installation and operation as prescribed in the equipment protocol and Performance Specification Test protocol prepared in accordance with applicable EPA and MDE requirements.	
1. Data Representativeness	The indicator is based on the CO BACT emission level prescribed by the Department. CO data will be collected and validated in accordance with applicable EPA and MDE requirements.
2. Verification of Operational Status	CO CEMs data availability is in accordance with applicable EPA and MDE requirements.
3. AQ/QC Practices and Criteria	CO QA/QC procedures are consistent with the applicable EPA and MDE requirements.
4. Monitoring Frequency	CO is measured on a continuous basis with the exception of QA/QC periods, monitor malfunction periods and periods where the module is not combusting fuel.

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5. Data Collection Procedures	CO data is collected by a computerized Data Acquisition System meeting applicable EPA and MDE requirements.
6. Averaging Period	CO emission rate is a 3-hour block average pursuant to Table B-1 in the CPCN 9297.

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2.0	<u>Emissions Unit Number(s): EU3</u> EU3: Cleaver Brooks natural gas-fired auxiliary boiler rated at 87.1 MMBtu/hr. [033-2737-5-1582]
2.1	<u>Applicable Standards/Limits:</u> A. <u>Control of Visible Emissions</u> COMAR 26.11.09.05A - Visible Emissions. (2) <u>Areas III and IV.</u> "In Areas III and IV, a person may not cause or permit the discharge of emissions from any fuel burning equipment, other than water in an uncombined form, which is visible to human observers except that, for the purpose of demonstrating compliance using COM data, emissions that are visible to a human observer are those that are equal to or greater than 10 percent opacity." (3) <u>Exceptions.</u> "Section A(1) and (2) of this regulation do not apply to emissions during load changing, soot blowing, startup, or adjustments or occasional cleaning of control equipment if: (a) The visible emissions are not greater than 40 percent opacity; and (b) The visible emissions do not occur for more than 6 consecutive minutes in any sixty minute period." B. <u>Control of Particulate Matter</u> COMAR 26.11.06.03B(2)(a) - Particulate Matter from Confined Sources. "A person may not cause or permit to be discharged into the outdoor atmosphere from any other installation, particulate matter in excess of 0.03 gr/SCFD (68.7 mg/dscm)." C. <u>Control of Nitrogen Oxides</u> COMAR 26.11.09.08E. - Requirements for Fuel-Burning Equipment with a Rated Heat Input Capacity of 100 Million Btu Per Hour or Less. "A person

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who owns or operates fuel-burning equipment with a rated heat input capacity of 100 Million Btu per hour or less shall:

- (1) Submit to the Department an identification of each affected installation, the rated heat input capacity of each installation, and the type of fuel burned in each;
- (2) Perform a combustion analysis for each installation at least once each year and optimize combustion based on the analysis;
- (3) Maintain the results of the combustion analysis at the site for at least 2 years and make this data available to the Department and the EPA upon request;
- (4) Once every 3 years, require each operator of the installation to attend operator training programs on combustion optimization that are sponsored by the Department, the EPA, or equipment vendors; and
- (5) Prepare and maintain a record of training program attendance for each operator at the site, and make these records available to the Department upon request."

D. Operational Limit

- (1) The auxiliary boiler shall be fueled exclusively on pipeline quality natural gas at all times when operating. **[Reference: CPCN Case 9297 Condition B-V-3]**
- (2) The heat input to the auxiliary boiler shall not exceed 372,000 MMBtu in any 12-month rolling period. **[Reference: CPCN Case 9297 Condition B-V-4]**

E. BACT Requirements

Emissions from the auxiliary boiler shall meet the following BACT limits, through the use of efficient boiler design, exclusive use of pipeline quality natural gas, the use of ultra-low NO_x burners, and application of good combustion practices:

- (a) Emissions of NO_x shall not exceed 0.01 lbs/MMBtu on a 3-hr block average basis;
- (b) Emissions of CO shall not exceed 0.080 lbs/MMBtu on a 3-hr block average basis;
- (c) Emissions of PM shall not exceed 0.0075 lbs/MMBtu on a 3-hr block average basis;
- (d) Emissions of PM 10 shall not exceed 0.0075 lbs/MMBtu on a 3-hr block average basis;
- (e) Facility-wide GHG emissions shall not exceed 2,467,793 tons in any rolling 12-month period.

[Reference: CPCN Case 9297 Condition B-V-5]

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	F. <u>LAER Requirements</u> Emissions from the auxiliary boiler shall meet the following LAER limits, through the use of efficient boiler design, exclusive use of pipeline quality natural gas, the use of ultra-low NO_x burners, and application of good combustion practices: (a) NO_x emissions shall not exceed 0.01 lb/MMBtu on a 3-hr block average basis; and (b) VOC emissions shall not exceed 0.002 lb/MMBtu on a 3-hr block average basis. [Reference: CPCN Case 9297 Condition B-V-6]
2.2	<u>Testing Requirements:</u> A. <u>Control of Visible Emissions</u> See Monitoring Requirements. B. <u>Control of Particulate Matter</u> See Monitoring Requirements. C. <u>Control of Nitrogen Oxides</u> See Record Keeping Requirements. D. <u>Operational Limit</u> (1) See Record Keeping Requirements. (2) See Monitoring Requirements E. <u>BACT Requirements</u> See Monitoring Requirements. F. <u>LAER Requirements</u> See Monitoring Requirements.
2.3	<u>Monitoring Requirements:</u> A. <u>Control of Visible Emissions</u> The Permittee shall conduct visible emissions observation in accordance with EPA Reference Method 22 at least once each calendar quarter to verify that there are no visible emissions during operation. If the auxiliary boiler is not operated in a calendar quarter, the Permittee shall document this and no visible emission observation is required. If visible emissions are observed, the Permittee shall inspect the combustion control system, perform necessary adjustments and/or repairs within 48 hours, and

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document in writing the results of the inspection, adjustments and/or repairs. After 48 hours, if the required adjustments and/or repairs have not eliminated the visible emissions, the Permittee shall perform EPA Reference Method 9 observations once daily for at least one hour until corrective action have reduced the visible emissions to less than 20 percent opacity. **[Reference : CPCN 9297 Condition B-V-8]**

B. Control of Particulate Matter

Emissions of PM and PM₁₀ shall be calculated using fuel measurements and vendor guaranteed emission rates. **[Reference: CPCN 9297 Condition B-V-7(b)]**

C. Control of Nitrogen Oxides

See Record Keeping Requirements.

D. Operational Limit

- (1) See Record Keeping Requirements.
- (2) The Permittee shall install a fuel flow meter on the auxiliary boiler to continuously monitor the fuel flow. The fuel usage shall be recorded at least on a monthly basis. **[Reference: CPCN Case 9297 Condition B-V-9]**

E. BACT Requirements

Compliance with the BACT emission limits shall be demonstrated as follows:

Emissions of NO_x, VOC, CO, PM, and PM₁₀ shall be calculated using fuel measurements and vendor guaranteed emission rates.

To demonstrate compliance with BACT for GHG pollutants, the Permittee shall conduct an annual combustion analysis on the auxiliary boiler. The results of the combustion analysis shall be provided to MDE-ARA within 45 days of its completion.

Methane (CH₄) and nitrous oxide (N₂O) emissions from the auxiliary boiler shall be calculated in accordance with the methodology and emission factors noted in 40 CFR 98, Subpart C. On a monthly basis, fuel consumption, coupled with the appropriate emission factors and global warming potentials (25 for CH₄ and 298 for N₂O) shall be used to calculate the CH₄ and N₂O emissions on a CO₂e basis. These emission rates, summed with the monthly CO₂ emissions based on 40 CFR §98, Subpart C or other methods approved by MDE-ARA shall be used to calculate GHG

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	emissions from the auxiliary boiler on a CO_{2e} basis. [Reference: CPCN Case 9297 Condition B-V-7(b), (c) & (d)] F. <u>LAER Requirements</u> Compliance with the LAER emission limits shall be demonstrated as follows: Emissions of NO_x, and VOC, shall be calculated using fuel measurements and vendor guaranteed emission rates. [Reference: CPCN Case 9297 Condition B-V-7(b)]
2.4	<u>Record Keeping Requirements:</u> Note: All records must be maintained for a period of at least 5 years. [Reference: COMAR 26.11.03.06C(5)(g)] A. <u>Control of Visible Emissions</u> All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. [Reference: COMAR 26.11.01.05 and CPCN 9297 Condition B-I-7] B. <u>Control of Particulate Matter</u> All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. [Reference: COMAR 26.11.01.05 and CPCN 9297 Condition B-I-7] C. <u>Control of Nitrogen Oxides</u> The Permittee shall: (1) Maintain the results of the combustion analysis at the site for at least 2 years and make this data available to the MDE-ARA and the EPA upon request. (2) Prepare and maintain a record of training program attendance for each operator at the site, and make these records available to MDE-ARA upon request. [Reference: CPCN 9297 Condition B-V-14(b) & B-V-14(c)] D. <u>Operational Limit</u> (1) All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for

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	inspection by representatives of the Department. [Reference: CPCN 9297 Condition B-I-7] (2) The Permittee shall maintain records of natural gas fuel usage in the auxiliary boiler on a monthly basis. [Reference: 40 CFR §60.48c(g)(1)-(3) and CPCN Case 9297 Condition B-V-12] The Permittee shall maintain records of any maintenance performed on the auxiliary boiler for two years from the date of the record. [Reference: 40 CFR §60.48c(i) and CPCN Case 9297 Condition B-V-16] E. <u>BACT Requirements</u> All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. [Reference: CPCN 9297 Condition B-I-7] F. <u>LAER Requirements</u> All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. [Reference: CPCN 9297 Condition B-I-7]
2.5	<u>Reporting Requirements:</u> A. <u>Control of Visible Emissions</u> See Record Keeping Requirements. B. <u>Control of Particulate Matter</u> See Record Keeping Requirements C. <u>Control of Nitrogen Oxides</u> See Record Keeping Requirements. D. <u>Operational Limit</u> (1) The Permittee shall submit a quarterly report to the Department to be postmarked by the 30th day of the month following the end of each quarter. [Reference: CPCN 9297 Condition B-III-4] (2) The Permittee shall submit a quarterly report of the monthly fuel usage to the Department to be postmarked by the 30th day of the month following the end of each quarter. [Reference: CPCN 9297 Condition B-III-4(a)]

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	E. <u>BACT Requirements</u> The results of the combustion analysis shall be provided to MDE-ARA within 45 days of its completion. [Reference: CPCN 9297 Condition B-III-4 & B-V-7(c)] F. <u>LAER Requirements</u> See Record Keeping Requirements.

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3.0	<u>Emissions Unit Number(s): EU4 & EU5</u> EU4: MTU-Onsite Energy diesel-fired power block emergency generator rated at 1500 kW. [033-2737-9-1485] EU5: Cummins diesel-fired water pump engine rated at 260 brake horsepower. [033-2737-9-1484]
3.1	<u>Applicable Standards/Limits:</u> A. <u>Control of Visible Emissions</u> COMAR 26.11.09.05E - Stationary Internal Combustion Engine Powered Equipment. “(2) Emissions During Idle Mode. A person may not cause or permit the discharge of emissions from any engine, operating at idle, greater than 10 percent opacity. (3) Emissions During Operating Mode. A person may not cause or permit the discharge of emissions from any engine, operating at other than idle conditions, greater than 40 percent opacity. (4) Exceptions. (a) Section E(2) of this regulation does not apply for a period of 2 consecutive minutes after a period of idling of 15 consecutive minutes for the purpose of clearing the exhaust system. (b) Section E(2) of this regulation does not apply to emissions resulting directly from cold engine start-up and warm-up for the following maximum periods: (i) Engines that are idled continuously when not in service: 30 minutes; (ii) All other engines: 15 minutes. (c) Section E(2) and (3) of this regulation do not apply while maintenance, repair, or testing is being performed by qualified mechanics.”

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	<u>B. Control of Sulfur Oxides</u> COMAR 26.11.09.07A(2) - <u>Sulfur Content Limitations for Fuel.</u> “A person may not burn, sell, or make available for sale any fuel with a sulfur content by weight in excess of or which otherwise exceeds the following limitations: In Areas III and IV: (b) Distillate fuel oils, 0.3 percent.” <u>C. Control of Nitrogen Oxides</u> COMAR 26.11.09.08E - <u>Requirements for Fuel-Burning Equipment with a Rated Heat Input Capacity of 100 Million Btu Per Hour or Less.</u> “A person who owns or operates fuel-burning equipment with a rated heat input capacity of 100 Million Btu per hour or less shall: (1) Submit to the Department an identification of each affected installation, the rated heat input capacity of each installation, and the type of fuel burned in each; (2) Perform a combustion analysis for each installation at least once each year and optimize combustion based on the analysis; (3) Maintain the results of the combustion analysis at the site for at least 2 years and make this data available to the Department and the EPA upon request; (4) Once every 3 years, require each operator of the installation to attend operator training programs on combustion optimization that are sponsored by the Department, the EPA, or equipment vendors; and (5) Prepare and maintain a record of training program attendance for each operator at the site, and make these records available to the Department upon request.” <u>D. Operational Limit</u> The emergency diesel generator and the fire water pump engine shall be fired with diesel fuel only. . [Reference: CPCN Case 9297 Condition B-VI-5]
3.2	<u>Testing Requirements:</u> A. <u>Control of Visible Emissions</u> See Monitoring Requirements. B. <u>Control of Sulfur Oxides</u> See Monitoring Requirements. C. <u>Control of Nitrogen Oxides</u> See Record Keeping Requirements.

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	D. <u>Operational Limit</u> See Record Keeping Requirements.
3.3	<u>Monitoring Requirements:</u> A. <u>Control of Visible Emissions</u> The Permittee shall properly operate and maintain the engines in a manner to minimize visible emissions. [Reference: COMAR 26.11.03.06C] B. <u>Control of Sulfur Oxides</u> The Permittee shall obtain a certification from the fuel supplier indicating that the fuel oil complies with the limitation on sulfur content of the fuel oil. [Reference: COMAR 26.11.03.06C]. C. <u>Control of Nitrogen Oxides</u> See Record Keeping Requirements. D. <u>Operational Limit</u> See Record Keeping Requirements.
3.4	<u>Record Keeping Requirements:</u> <u>Note:</u> All records must be maintained for a period of at least 5 years. [Reference: COMAR 26.11.03.06C(5)(g)] A. <u>Control of Visible Emissions</u> The Permittee shall retain records of preventive maintenance on site for at least five years and make these records available to the Department upon request. [Reference: COMAR 26.11.03.06C] B. <u>Control of Sulfur Oxides</u> The Permittee shall retain fuel supplier certifications for each fuel delivery that documents the sulfur content of the ultra-low sulfur diesel (ULSD) is 15 ppm sulfur by weight or less. Fuel supplier certification shall include the following information: (1) The name of the oil supplier; (2) The sulfur content of the oil; (3) The method used to determine the sulfur content of the oil. ASTM D129-00, D2622-98, D4294-02, D1266-98, D5453-00, or D1552-01 may be used; and (4) A statement that the sampling was performed according to either the single tank composite sampling procedure of the all-levels sampling

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	procedure in ASTM D4057-88, “Standard Practice for Manual Sampling of Petroleum and Petroleum Products” and that no additions have been made to the supplier’s tank since sampling. [40 CFR 60.17]. [Reference: CPCN 9297 Condition B-VI-12] <u>Note</u>: The Permittee shall use fuel that meets specification approves by the Department. C. <u>Control of Nitrogen Oxides</u> The Permittee shall: (1) Maintain the results of the combustion analysis at the site for at least 2 years and make this data available to the MDE-ARA and the EPA upon request. (2) Prepare and maintain a record of training program attendance for each operator at the site, and make these records available to MDE-ARA upon request. [Reference: CPCN 9297 Condition B-V-13(b) & B-V-13(c)] D. <u>Operational Limit</u> All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. [Reference: CPCN 9297 Condition B-I-7]
3.5	<u>Reporting Requirements:</u> A. <u>Control of Visible Emissions</u> The Permittee shall report incidents of visible emissions in accordance with Permit Condition 4, Section III, Plant Wide Condition, “Report of Excess Emissions and Deviations” B. <u>Control of Sulfur Oxides</u> The Permittee shall report fuel supplier certification to the Department upon request. [Reference: COMAR 26.11.09.07C]. C. <u>Control of Nitrogen Oxides</u> The Permittee shall submit: (1) The results of combustion analysis to the department and the EPA upon request. [Reference: COMAR 26.11.09.08E(3)] (2) A record of training program attendance for each operator to the Department upon request. [Reference: COMAR 26.11.09.08E(5)].

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Table IV – 3	
	D. Operational Limit The Permittee shall submit a quarterly report to the Department to be postmarked by the 30th day of the month following the end of each quarter. [Reference: CPCN 9297 Condition B-III-4]

Table IV – 3a	
3a.0	<u>Emissions Unit Number(s): EU4 & EU5 Cont'd</u> EU4: MTU-Onsite Energy diesel-fired power block emergency generator rated at 1500 kW. [033-2737-9-1485] EU5: Cummins diesel-fired water pump engine rated at 260 brake horsepower. [033-2737-9-1484]
3a.1	<u>Applicable Standards/Limits:</u> A. NSPS Requirements For EU4 only (1500 kW) (1) The diesel-fired emergency generator shall be equipped with a non-resettable hour meter prior to start up of the engine. [Reference: 40 CFR §60.4209(a) & CPCN Case 9297 Condition B-VI-8(e)] (2) Exhaust emissions from the diesel fired emergency generator must not exceed: Non-methane hydrocarbons (NMHC) + NO_x: 6.4 grams per kilowatt hour (g/kW-hr) (4.8 g/hp-hr); CO: 3.5 g/kW-hr (2.6 g/hp-hr); and PM: 0.2 g/kW-hr (0.15 g/hp-hr). [Reference: 40 CFR §60.4205(b), 40 CFR §60.4202(a)(2), 40 CFR §89.112(a) and Table 1, CPCN Case 9297 Condition B-VI-3(a)] (3) Exhaust opacity from the emergency generator must not exceed: 20 percent during the acceleration mode; 15 percent during the lugging mode; and 50 percent during the peaks in either the acceleration or lugging modes. [Reference: 40 CFR §60.4205(b) 40 CFR §60.4202(a)(2), and 40 CFR §89.113(a)] (4) There is no time limit on the use of the emergency generator in emergency situations. [Reference: 40 CFR §60.4211(f)(1)]

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Table IV – 3a

	The Permittee may operate the emergency stationary ICE for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The Permittee 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 calendar year. [Reference: 40 CFR §60.4211(f)(2)(i)] <i>Note: Effective May 2, 2016, emergency generators are no longer allowed to participate for emergency demand response operation unless they meet the requirements of a non-emergency generator of the same model year. This engine does not meet the standards for a non-emergency generator, therefore, operation for emergency demand response or during periods of voltage deviation are not permitted.</i> For EU5 only (260 bhp) (1) The diesel fired fire water pump must meet the following emissions standards: NMHC + NO_x: 4.0 g/kW-hr (3.0 g/hp-hr); CO: 3.5 g/kW-hr (2.6 g/hp-hr) PM: 0.20 g/kW-hr (0.15 g/hp-hr). [Reference: 40 CFR §60.4205(c), 40 CFR Part 60, Subpart IIII, Table 4, and CPCN Case 9297 Condition B-VI-3(b)] (2) The fire water pump shall be equipped with a non-resettable hour meter prior to start up of the engine. [Reference: 40 CFR §60.4209(a) & CPCN Case 9297 Condition B-VI-8(e)] For EU4 & EU5 only The diesel fuel used in the emergency generator and the fire water pump must meet the following specifications: Sulfur content – 15 ppm maximum Cetane index or aromatic content as follows: A minimum cetane index of 40; or A maximum aromatic content of 35 volume percent. [Reference: 40 CFR §60.4207(b) and 40 CFR §80.510(b)] The diesel-fired emergency generator and the fire water pump shall be certified to the emissions standards in §60.4205(b), as applicable. The generator must be installed and configured according to the
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Table IV – 3a	
	manufacturer's specifications. [Reference: 40 CFR §60.4211(c)] B. <u>BACT Requirements</u> (1) The auxiliary diesel generator shall be designed to meet the following BACT emission limits through the exclusive use of ultra-low sulfur diesel (ULSD) fuel and good combustion practices: NO_x+NMHC, CO, and PM (filterable) emissions shall not exceed the applicable NSPS Subpart IIII emission limitations; PM₁₀ (filterable and condensable) emissions shall not exceed 0.18 g/hp-hour; and Facility-wide GHG emissions shall not exceed 2,467,793 tons in any rolling 12-month period. [Reference: CPCN Case 9297 Condition B-VI-6(a)] (2) The fire water pump engine shall be designed to meet the following BACT limits through the exclusive use of ULSD fuel and good combustion practices: NO_x+NMHC, CO, and PM (filterable) emissions shall not exceed the applicable NSPS Subpart IIII emission limitations; PM₁₀ (filterable and condensable) emissions shall not exceed 0.18 g/hp-hour; and Facility-wide GHG emissions shall not exceed 2,467,793 tons in any rolling 12-month period. [Reference: CPCN Case 9297 Condition B-VI-6(b)] C. <u>LAER Requirements</u> The emergency generator and fire water pump engine shall each be designed such that emissions shall not exceed the applicable limits in NSPS Subpart IIII for NO_x+NMHC through the use of ULSD fuel and good combustion practices at all times. [Reference: CPCN Case 9297 Condition B-VI-7]
3a.2	<u>Testing Requirements:</u> A. <u>NSPS Requirements</u> For EU4 only (1) See Record Keeping Requirements. (2) The stationary CI internal combustion engine must comply with the emission standards specified in §60.4205(b) as applicable. The engine must be installed and configured according to the manufacturer's emission-related specifications. [Reference: 40 CFR §60.4211(c)] (3) Opacity levels are to be measured and calculated as set forth in 40 CFR part 86, subpart I. [Reference: 40 CFR §89. 113(b)] (4) See Record Keeping Requirements.

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	For EU5 only (1) See Monitoring Requirements. (2) See Record Keeping Requirements. For EU4 & EU5 only See Monitoring Requirements. B. <u>BACT Requirements</u> See Monitoring Requirements. C. <u>LAER Requirements</u> See Monitoring Requirements.
3a.3	<u>Monitoring Requirements:</u> A. <u>NSPS Requirements</u> For EU4 only (1) See Record Keeping Requirements. (2) Emissions of NO_x +NMHC, CO PM and PM₁₀ shall be calculated using vendor guaranteed emission rates and used to calculate 12-month rolling emissions. [Reference: CPCN Case 9297 Condition B-VI-9(a)] (3) See Testing Requirements. (4) See Record Keeping Requirements. For EU5 only (1) Emissions of NO_x +NMHC, CO PM and PM₁₀ shall be calculated using vendor guaranteed emission rates and used to calculate 12-month rolling emissions. [Reference: CPCN Case 9297 Condition B-VI-9(a)] (2) See Record Keeping Requirements. For EU4 & EU5 only The Permittee must operate and maintain the diesel fired emergency generator and the diesel fired fire water pump according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer. The Permittee may only change those settings that are permitted by the manufacturer. The Permittee must meet the requirements of 40 CFR Part 89, as applicable. [Reference: 40 CFR §60.4211(a)] B. <u>BACT Requirements</u> The Permittee shall calculate PM₁₀ emissions using vendor guaranteed

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	emission rates. [Reference: CPCN Case 9297 Condition B-VI-9(a)] Methane (CH₄) and nitrous oxide (N₂O) emissions from the auxiliary generator and fire water pump engine shall be calculated in accordance with the methodology and emissions factors noted in 40 CFR 98, Subpart C. On a monthly basis, fuel consumption, coupled with the appropriate emission factors and global warming potentials (25 for CH₄ and 298 for N₂O) shall be used to calculate the CH₄ and N₂O emissions on a CO₂e basis. These emission rates, summed with the monthly CO₂ emissions based on 40 CFR 98, Subpart C or other methods approve by MDE-ARA shall be used to establish GHG emissions from the auxiliary generator and fire water pump engine on a CO₂e basis. [Reference: CPCN Case 9297 Condition B-VI-9(b)] <u>C. LAER Requirements</u> The Permittee shall operate and maintain the engines in accordance to the manufacturers' written instructions and procedures approved by the engines manufacturer, over the entire life of the engine. [Reference: 40 CFR §60.4206]
3a.4	<u>Record Keeping Requirements:</u> <u>Note:</u> All records must be maintained for a period of at least 5 years. [Reference: COMAR 26.11.03.06C(5)(g)] <u>A. NSPS Requirements</u> For EU4 only (1), (2) & (4) All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. [Reference: CPCN 9297 Condition B-I-7] (3) See Testing Requirements. For EU5 only (1) & (2) All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. [Reference: CPCN 9297 Condition B-I-7] For EU4 & EU5 only The Permittee shall provide fuel supplier certifications for each fuel delivery that documents the sulfur content of the ultra low sulfur diesel

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	(ULSD) is 15 ppm sulfur by weight or less. Fuel supplier certification shall include the following information: (a) The name of the fuel oil supplier; (b) The sulfur content of the fuel oil; (c) The method used to determine the sulfur content of the fuel oil. ASTM D129-00, D2622-98, D4294-02, D1266-98, D5453-00, or D1552-01 may be used; and (d) A statement that the sampling was performed according to either the single tank composite sampling procedures or the all-levels sampling procedure in ASTM D4057-88, “Standard Practice for Manual Sampling of Petroleum Products” and that no additions have been made to the supplier’s tank since sampling. [Reference: 40 CFR §60.17 and CPCN Case 9297 Condition B-VI-12] Note: The Permittee shall use fuel that meets specification approved by the Department. B. <u>BACT Requirements</u> All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. [Reference: CPCN 9297 Condition B-I-7] C. <u>LAER Requirements</u> All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. [Reference: CPCN 9297 Condition B-I-7]
3a.5	<u>Reporting Requirements:</u> A. <u>NSPS Requirements</u> For EU4 only (1) & (4) The Permittee shall submit a quarterly report of the monthly fuel usage and hours of operation of emergency generator to the Department to be postmarked by the 30th day of the month following the end of each quarter. [Reference: CPCN 9297 Condition B-III-4(d)] (2) The Permittee shall submit a quarterly report to the Department to be postmarked by the 30th day of the month following the end of each quarter. [Reference: CPCN 9297 Condition B-III-4] (3) See Testing Requirements.

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	For EU5 only (1) & (2) The Permittee shall submit a quarterly report to the Department to be postmarked by the 30th day of the month following the end of each quarter. [Reference: CPCN 9297 Condition B-III-4] For EU4 & EU5 only See Record Keeping Requirements. B. <u>BACT Requirements</u> The Permittee shall submit a quarterly report to the Department to be postmarked by the 30th day of the month following the end of each quarter. [Reference: CPCN 9297 Condition B-III-4] C. <u>LAER Requirements</u> The Permittee shall submit a quarterly report to the Department to be postmarked by the 30th day of the month following the end of each quarter. [Reference: CPCN 9297 Condition B-III-4]

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Table IV – 4	
4.0	<u>Emissions Unit Number(s): EU6, EU7, EU8, & EU9</u> EU6: Natural gas pipeline components, including valves, flanges, pump seals, pressure relief valves, and six (6) catalytic heaters – all within the facility boundary. EU7: Circuit breakers containing sulfur hexafluoride (SF6). EU8: Two (2) fuel oil storage tanks: 900 gallons (emergency generator) and 350 gallons (fire pump). EU9: On-site paved and unpaved roads.
4.1	<u>Applicable Standards/Limits:</u> A. <u>BACT Requirements: EU6</u> Greenhouse Gas (GHG) Best Available Control Technology (BACT) for the natural gas pipeline components associated with the pipeline shall be the implementation of an Audio, Visual, and Olfactory (AVO) Program on file at power plant site for review upon request by the agency. In accordance with the AVO program Plan, the AVO inspections shall be documented, leaks identified from the AVO assessment shall be repaired within five days of discovery, repairs documented, and associated repair records maintained. [Reference: CPCN Case 9297 Condition B-VII-1] B. <u>Control of GHG Emissions: EU6</u> The GHG emissions from the natural gas pipeline components shall be limited to meet the facility-wide GHG emissions limit listed in CPCN Case 9297 Condition B-III-3. The emissions from the natural gas pipeline components shall be calculated as follows: (a) The GHG emissions from the natural gas pipeline components shall be based on EPA AP-42 emission factors, methodology described in 40 CFR Part §98 Subpart W, or other MDE-approved emission factors; (b) The total GHG emissions from the natural gas pipeline components shall be presented on a CO_{2e} basis. [Reference: CPCN Case 9297 Condition B-VII-2] C. <u>BACT Requirements: EU7</u> GHG BACT for the circuit breakers shall be installation of circuit breakers that are designed to meet ANSI C37.013 or equivalent to detect and minimize SF6 leaks. Leaks detected shall be repaired within five days of

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	discovery; repairs documented, and associated repair records maintained. [Reference: CPCN Case 9297 Condition B-VIII-1] D. <u>Control of GHG Emissions: EU7</u> The GHG emissions from the circuit breakers shall be limited to meet the facility-wide GHG emissions limit listed in CPCN Case 9297 Condition B-III-3. The emissions from the circuit breakers shall be calculated as follows: (a) SF6 emissions from the circuit breakers shall be calculated using a manufacturer provided leak rate, the methodology in 40 CFR §98, Subpart DD, and assuming 8,760 hours per year of operation; (b) The total GHG emissions from the circuit breakers shall be presented on a CO_{2e} basis. [Reference: CPCN Case 9297 Condition B-VIII-2] E. <u>Control of VOC: EU8</u> Lowest Achievable Emission Rate (LAER): The VOC emissions from the storage tanks (combined) shall not exceed 0.1 tons in any 12-month rolling period, through periodic maintenance on the tanks to minimize fugitive emissions. [Reference: CPCN Case 9297 Condition B-IX-2] F. <u>Control of PM and PM₁₀ Emissions: EU9</u> Best Available Control Technology (BACT): The Permittee shall minimize PM and PM₁₀ emissions from onsite roadways by taking reasonable precautions to prevent particulate matter from becoming airborne by sweeping or water application dust control, as needed. [Reference: COMAR 26.11.06.03D and CPCN Case 9297 Condition B-X-1]
4.2	<u>Testing Requirements:</u> A. <u>BACT Requirements: EU6</u> See Record Keeping Requirements. B. <u>Control of GHG Emissions: EU6</u> See Record Keeping Requirements. C. <u>BACT Requirements: EU7</u> See Record Keeping Requirements. D. <u>Control of GHG Emissions: EU7</u> See Record Keeping Requirements. E. <u>Control of VOC: EU8</u>

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Table IV – 4	
	See Record Keeping Requirements. F. <u>Control of PM and PM₁₀ Emissions: EU9</u> See Monitoring Requirements.
4.3	<u>Monitoring Requirements:</u> A. <u>BACT Requirements: EU6</u> See Record Keeping Requirements. B. <u>Control of GHG Emissions: EU6</u> See Record Keeping Requirements. C. <u>BACT Requirements: EU7</u> See Record Keeping Requirements. D. <u>Control of GHG Emissions: EU7</u> See Record Keeping Requirements. E. <u>Control of VOC: EU8</u> See Record Keeping Requirements. F. <u>Control of PM and PM₁₀ Emissions: EU9</u> The Permittee shall prepare and maintain a plan that contains an explanation of the reasonable precautions or best management practices (BMP) Plan that will be used to prevent particulate matter from becoming airborne. The Permittee shall update the BMP Plan, as required by the initial Part 70 permit for this facility when a revision is needed to ensure that reasonable precautions will be used to prevent particulate matter from this equipment from becoming airborne and that adequate inspection will be conducted and documented. The BMP shall include provisions for routine inspections of emission sources and controls, corrective measures, and recordkeeping for such. [Reference: COMAR 26.11.03.06C.]
4.4	<u>Record Keeping Requirements:</u> Note: All records must be maintained for a period of at least 5 years. [Reference: COMAR 26.11.03.06C(5)(g)]

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Table IV – 4

A. BACT Requirements: EU6

The Permittee shall maintain all records of monitoring and repair associated with the natural gas pipeline components at the facility in accordance with the AVO Program Plan for at least five years after the completion of the calendar year in which they were collected. This data shall be readily available for inspection by the Department. **[Reference: CPCN Case 9297 Condition B-VII-3]**

B. Control of GHG Emissions: EU6

All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: CPCN 9297 Condition B-I-7]**

C. BACT Requirements: EU7

The Permittee shall maintain all records of monitoring and repair associated with the circuit breakers at the Facility for at least five years after the completion of the calendar year in which they were collected. This data shall be readily available for inspection by the Department. **[Reference: CPCN Case 9297 Condition B-VIII-3]**

D. Control of GHG Emissions: EU7

All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. **[Reference: CPCN 9297 Condition B-I-7]**

E. Control of VOC: EU8

The Permittee shall maintain records of periodic maintenance performed on the tanks to minimize fugitive emissions for at least five years after the completion of the calendar year in which they were collected. This data shall be readily available for inspection by the Department. **[Reference: CPCN Case 9297 Condition B-IX-3]**

F. Control of PM and PM₁₀ Emissions: EU9

The Permittee shall maintain the written reasonable precautions (BMP) at the facility and make it available to the Department upon request. **[Reference: COMAR 26.11.03.06C]**

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Table IV – 4	
4.5	<u>Reporting Requirements:</u> A. <u>BACT Requirements: EU6</u> This data shall be readily available for inspection by the Department. [Reference: CPCN Case 9297 Condition B-VII-3] B. <u>Control of GHG Emissions: EU6</u> See Record Keeping Requirements. C. <u>BACT Requirements: EU7</u> This data shall be readily available for inspection by the Department. [Reference: CPCN Case 9297 Condition B-VIII-3] D. <u>Control of GHG Emissions: EU7</u> See Record Keeping Requirements. E. <u>Control of VOC: EU8</u> This data shall be readily available for inspection by the Department. [Reference: CPCN Case 9297 Condition B-IX-3] F. <u>Control of PM and PM₁₀ Emissions: EU9</u> The Permittee shall report the results of the inspections and provide a copy of the current BMP plan upon request by the Department. [Reference: COMAR 26.11.03.06C]

Table IV – 5	
5.0	<u>Emissions Unit Number(s): Facility-wide/Plant-wide</u> Facility-wide/Plant-wide
5.1	<u>Applicable Standards/Limits:</u> <u>Operational Limits</u> (1) Plant-wide emissions, including emissions during periods of startup and shutdown, shall be limited to the following in any consecutive 12-month rolling period:

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Table IV – 5		
	Pollutant	Emission Limit (tons per year)
	Particulate Matter (PM) – Filterable	77.2
	Particulate Matter (PM ₁₀) – Filterable and Condensable	94.4
	Nitrogen Oxides (NO _x)	156.0
	Carbon Monoxide (CO)	203.4
	Volatile Organic Compounds (VOCs)	56.2
	Greenhouse Gas (GHG) as Carbon Dioxide Equivalent (CO _{2e})	2,467,793
[Reference: CPCN Case 9297 Condition B-III-3]		
(2) Facility-wide emissions of Particulate Matter less than 2.5 microns (PM _{2.5}) (Filterable and Condensable) shall not exceed 100 tons per 12-month rolling period. [Reference: CPCN Case 9297 Condition B-III-1(k)]		
5.2	<u>Testing Requirements:</u>	
	<u>Operational Limits</u> (1) See Record Keeping Requirements. (2) See Monitoring Requirements.	
5.3	<u>Monitoring Requirements:</u>	
	<u>Operational Limits</u> (1) See Record Keeping Requirements (2) <u>For CTs/HRSGs and Duct Burners:</u> The Permittee shall monitor the fuel usage in million standard cubic feet (MMSCF) continuously and record the heat input (MMBtu) per month to the CTs and duct burners. [Reference: CPCN Case 9297 Condition B-III-8(a)(ii)] <u>For Aux Boiler:</u> PM _{2.5} emissions from the auxiliary boiler shall be calculated based on the monthly heat input (MMBtu/month) to the auxiliary boiler and an emission factor of 0.0075 lb/MMBtu) or any lower emission factor established by performance tests. [Reference: CPCN Case 9297 Condition B-III-8(b)] <u>Emergency generator and fire pump engine:</u> PM _{2.5} emissions from the auxiliary generators and the firewater pump engine shall be calculated based on the monthly hours of operation and an emission factor provided by vendor which the engine is designed to meet. In the absence of an emission factor provided by the vendor, PM _{2.5} emissions shall be calculated based on the monthly hours of operation and the	

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	appropriate AP-42 or other MDE-approved emission factor for PM _{2.5} . [Reference: CPCN Case 9297 Condition B-III-8(c)]
5.4	<u>Record Keeping Requirements:</u> <u>Note:</u> All records must be maintained for a period of at least 5 years. [Reference: COMAR 26.11.03.06C(5)(g)] <u>Operational Limits</u> All records and logs required by the CPCN shall be maintained at the facility for at least five (5) years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of the Department. [Reference: CPCN 9297 Condition B-I-7]
5.5	<u>Reporting Requirements:</u> <u>Operational Limits</u> The Permittee shall submit quarterly reports to MDE-ARA to be postmarked by the 30th day of the month following the end of each calendar quarter that includes the following information: summarizes the monthly and consecutive rolling 12-month total emissions (in tons per month and tons per year) of PM, PM₁₀, NO_x, CO, VOC, and GHG (as CO₂e) separately for each emission unit and total emissions of those pollutants for all the facility's sources. [Reference: CPCN 9297 Condition B-III-4(e)] The Permittee shall certify the actual emissions of regulated air pollutants from all installations at the facility. Certification shall be on a form obtained from MDE-ARA and shall be submitted to MDE-ARA not later than April 1 of the year following the year for which the certification is required. All emission certification submitted pursuant to this section and which contains all information required by COMAR 26.11.01.05-1 for NO_x and VOC, satisfies the requirements of COMAR 26.11.01.05-1. [COMAR 26.11.02.19D]. [Reference: CPCN 9297 Condition B-III-2(d)]

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SECTION V INSIGNIFICANT ACTIVITIES

This section provides a list of insignificant emissions units that were reported in the Title V permit application. The applicable Clean Air Act requirements, if any, are listed below the insignificant activity.

- (1) No. 5 Fuel burning equipment using gaseous fuels or no. 1 or no. 2 fuel oil, and having a heat input less than 1,000,000 Btu (1.06 gigajoules) per hour;

[For Areas III and IV]

The affected fuel burning units are subject to the following requirements:

COMAR 26.11.09.05A(2). “In Areas III and IV, a person may not cause or permit the discharge of emissions from any fuel burning equipment, other than water in an uncombined form, which is visible to human observers except that, for the purpose of demonstrating compliance using COM data, emissions that are visible to a human observer are those that are equal to or greater than 10 percent opacity.”

COMAR 26.11.09.05A(3) Exceptions. “Section A(1) and (2) of this regulation do not apply to emissions during load changing, soot blowing, startup, or adjustments or occasional cleaning of control equipment if:

- (a) The visible emissions are not greater than 40 percent opacity; and
- (b) The visible emissions do not occur for more than 6 consecutive minutes in any sixty-minute period.”

[For Distillate Fuel Oil]

COMAR 26.11.09.07A(2)(b), which establishes that the Permittee may not burn, sell, or make available for sale any distillate fuel with a sulfur content by weight in excess of 0.3 percent.

- (2) ✓ Space heaters utilizing direct heat transfer and used solely for comfort heat;

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- (3) ✓ Equipment for drilling, carving, cutting, routing, turning, sawing, planning, spindle sanding, or disc sanding of wood or wood products;
- (4) Containers, reservoirs, or tanks used exclusively for:
- (a) No. 26 Storage of lubricating oils;
Includes an average of five (5) storage totes of lubricating oils used to fill the twenty-one (21) dedicated lube oil tanks/containers.
- (b) No. 1 Storage of Numbers 1, 2, 4, 5, and 6 fuel oil and aviation jet engine fuel;
- (5) ✓ Laboratory fume hoods and vents;

**PSEG KEYS ENERGY CENTER
10322 NORTH KEYS ROAD
BRANDYWINE, MARYLAND 20613
PART 70 OPERATING PERMIT NO. 24-033-2737
DRAFT 2019**

SECTION VI STATE-ONLY ENFORCEABLE CONDITIONS

The Permittee is subject to the following State-only enforceable requirements:

1. Applicable Regulations:

COMAR 26.11.06.08 - Nuisance.

"An installation or premises may not be operated or maintained in such a manner that a nuisance or air pollution is created. Nothing in this regulation relating to the control of emissions may in any manner be construed as authorizing or permitting the creation of, or maintenance of, nuisance or air pollution."

COMAR 26.11.06.09 - Odors.

"A person may not cause or permit the discharge into the atmosphere of gases, vapors, or odors beyond the property line in such a manner that a nuisance or air pollution is created."

CO₂ Budget Permit

The Permittee shall comply with the requirements of the CO₂ Budget Permit issued for Keys Energy Center. Note: A CO₂ Budget Permit will be issued in conjunction with this Part 70 permit and is attached to the Part 70 permit as Appendix B.

2. Record Keeping and Reporting:

The Permittee shall submit to the Department, by April 1 of each year during the term of this permit, a written certification of the results of an analysis of emissions of toxic air pollutants from the Permittee's facility during the previous calendar year. The analysis shall include either:

- (a) a statement that previously submitted compliance demonstrations for emissions of toxic air pollutants remain valid; or
- (b) a revised compliance demonstration, developed in accordance with requirements included under COMAR 26.11.15 & 16, that accounts for changes in operations, analytical methods, emissions determinations, or other factors that have invalidated previous demonstrations.

Maryland Department of the Environment
Air and Radiation Administration

CO₂ BUDGET TRADING PROGRAM PERMIT

Plant Name: Keys Energy Center	
Affected Trading Units: 11 (EU1) & 12 (EU2)	
Owner: PSEG Keys Energy Center LLC	ORIS Code 60302
Effective Date From: XXXXX, 2020 To: October 31, 2024	

Contents:

1. Statement of Basis
2. Table of Affected Units
3. Standard Requirements.
4. The permit application forms submitted for this source.

1. Statement of Basis

Statutory and Regulatory Authorities: In accordance with Environmental Article §2-401, Annotated Code of Maryland, the Maryland Department of the Environment, Air and Radiation Administration issues this permit pursuant to COMAR 26.09.01 thru COMAR 26.09.04.

Initial Permit Approval

George S. Aburn, Jr., Director
Air and Radiation Administration

Date of Issue

Keys Energy Center
PSEG Keys Energy Center LLC

CO₂ Budget and Trading Permit

2. Affected Units

Unit ID #	ARA ID #	Unit Description
11	5-1578	Siemens Model SGT6-5000Fee natural gas-fired combustion turbine rated at 2,330 MMBtu/hr equipped with heat recovery generator rated at 443 MMBtu/hr
12	5-1579	Siemens Model SGT6-5000Fee natural gas-fired combustion turbine rated at 2,330 MMBtu/hr equipped with heat recovery generator rated at 443 MMBtu/hr

3. Standard Requirements:

A. Selection and Responsibilities of CO₂ Budget Source Compliance Account Authorized Account Representatives.

- (1) Each CO₂ budget source shall have a CO₂ authorized account representative and an alternate CO₂ authorized account representative. (COMAR 26.09.01.04B)
- (2) Upon receipt of a complete account certificate of representation:
 - (a) The CO₂ authorized account representative and alternate CO₂ authorized account representative shall represent and, by representations, actions, inactions, or submissions, legally bind each owner or operator of the CO₂ budget source represented and each CO₂ budget unit at the source in all matters pertaining to this subtitle, notwithstanding any agreement between the CO₂ authorized account representative, alternate CO₂ authorized account representative, and the owners or operators; and
 - (b) The owners or operators shall be bound by any decision or order issued to the CO₂ authorized account representative or alternate CO₂ authorized account representative by the Department or a court regarding the CO₂ budget source or unit. (COMAR 26.09.01.04E (1) & (2))
- (3) A CO₂ budget permit may not be issued or a compliance account established for a CO₂ budget source until the Department has received a complete account certificate of representation for a CO₂ authorized account representative and alternate CO₂ authorized account representative of the source and the CO₂ budget units at the source. (COMAR 26.09.01.04F)
- (4) Each submission shall be signed and certified by the CO₂ authorized account representative or alternate CO₂ authorized account representative on behalf of each CO₂ budget source and shall include the following statement by the CO₂ authorized account representative or alternate CO₂ authorized account representative: "I am authorized to make the submission on behalf of the owners or operators of the CO₂ budget sources or CO₂ budget units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements

and information submitted in the document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment."
(COMAR 26.09.01.04G)

B. Distribution Of CO₂ Allowances And Compliance

- (1) Unless otherwise specified in this chapter, a CO₂ budget source shall demonstrate compliance with its CO₂ budget emissions limitation by holding one CO₂ allowance in its compliance account for every ton of CO₂ that it emits in a control period, by the allowance transfer deadline for that control period. (COMAR 26.09.02.03I(1))
- (2) As of the CO₂ allowance transfer deadline for an interim control period, the owners and operators of each CO₂ budget source and each CO₂ budget unit at the source shall hold, in the source's compliance account for deduction under §I of this regulation, CO₂ allowances for no less than 50 percent of the total CO₂ emissions for the interim control period from all CO₂ budget units at the source. (COMAR 26.09.02.03I(2))
- (3) Allowances Available for Compliance Deduction. The following CO₂ allowances may be deducted from a compliance account for purposes of complying with a budget source's CO₂ budget emissions limitation for a control period or an interim control period:
 - (a) CO₂ allowances that are not CO₂ offset allowances and are identified as allowances falling within a prior control period, the same control period, or the same interim control period for which the allowances are deducted;
 - (b) CO₂ allowances that are held or transferred into the CO₂ budget source's compliance account as of the CO₂ allowance transfer deadline for that control period or for the interim control period contained within that control period;
 - (c) CO₂ offset allowances that are available to be deducted for compliance during a control period or an interim control period where the quantity of allowances is limited to:
 - (i) 3.3 percent of the CO₂ budget source's CO₂ emissions for that control period; or
 - (ii) 3.3 percent of the CO₂ budget source's CO₂ emissions for an interim control period multiplied by 0.50.(COMAR 26.09.02.03I(3)(a)-(c))
- (4) Deduction of CO₂ allowances:
 - (a) The Department shall deduct allowances from the CO₂ budget source's compliance account until:
 - (i) The number of CO₂ allowances deducted equals 50 percent of the total CO₂ emissions for an interim control period; or

- (ii) The number of CO₂ allowances deducted equals the total CO₂ emissions for the control period.
- (b) No deduction shall be made for CO₂ emissions attributable to the burning of eligible biomass. (COMAR 26.09.02.03I(4)(a) & (b))
- (5) The identification of available CO₂ allowances for compliance deduction by serial number or by default is as follows:
 - (a) The CO₂ authorized account representative for a source's compliance account may request that specific CO₂ allowances, identified by serial number for a control period or interim control period, be deducted; and
 - (b) In the absence of an identification or in the case of a partial identification of available CO₂ allowances by serial number, the Department shall deduct CO₂ allowances for a control period or interim control period in the following descending order:
 - (i) For the first control period, all CO₂ allowances purchased by direct sale from the Department during years 2009, 2010, and 2011 resulting from the occurrence of the \$7 auction clearing price;
 - (ii) All CO₂ allowances for a control period allocated to a CO₂ budget unit from the Long Term Contract Set-aside Account or the Clean Generation Set-aside Account;
 - (iii) Subject to the relevant compliance deduction limitations identified in §I(3)(c) of this regulation, any CO₂ offset allowances transferred and recorded in the compliance account, in chronological order; and
 - (iv) Any CO₂ allowances, other than those identified in §I(5)(b)(i)—(iii) of this regulation, that are available for deduction in the order they were recorded. (COMAR 26.09.02.03I(5)(a)-(b))
- (6) Deductions for Excess Emissions.
 - (a) If a CO₂ budget source has excess emissions, the Department shall deduct, from the CO₂ budget source's compliance account, CO₂ allowances from allocation years that occur after the control period or interim control period in which the excess emissions or excess interim emissions occurred, equal to three times the excess emissions.
 - (b) If a source's compliance account holds insufficient CO₂ allowances to cover the excess emissions, the source shall immediately transfer sufficient allowances into its compliance account.
 - (c) CO₂ offset allowances may not be deducted to account for the source's excess emissions.
 - (d) No CO₂ allowance deduction shall relieve the owners or operators of the CO₂ budget units at the source of liability for any fine, penalty, assessment or obligation to comply with any other

remedy, for the same violation, as ordered under applicable State law.
(COMAR 26.09.02.03I(6)(a)-(d))

(7) Guidelines.

(a) The following guidelines apply in assessing fines, penalties, or other obligations:

- (i) For purposes of determining the number of days of violation, if a CO₂ budget unit has excess emissions for a control period or interim control period, each day in the control period or interim control period, as applicable, constitutes a separate day of violation unless the owners or operators of the unit can demonstrate to the satisfaction of the Department that a lesser number of days should be considered; and
- (ii) The Department shall consider the amount of excess emissions in determining the severity of the violation.

(b) Each ton of excess interim emissions is a separate violation.
(COMAR 26.09.02.03I(7)(a)-(b))

(8) If the CO₂ budget source's compliance account no longer exists, the CO₂ allowances shall be deposited in a general account selected by the owner or operator of the CO₂ budget source.
(COMAR 26.09.02.03I(8))

(9) Adjustments and Errors.

- (a) The Department may review and conduct independent audits concerning any submission under this subtitle and make appropriate adjustments to the information, if necessary.
- (b) The Department may correct any error in any account and, within 10 business days of making any correction, notify the CO₂ authorized account representative for the account.
(COMAR 26.09.02.03I(9)(a)-(b))

C. Applicability and Administration

- (1) The requirements of this permit apply to the owner or operator of a CO₂ budget unit. When this permit establishes a requirement such as the submittal of a permit application, a report, a request for allowances or transfer of allowances, or general information, these actions shall be achieved through the authorized account representative on behalf of the owner or operator of the affected CO₂ budget source or unit.
(COMAR 26.09.02.02A)
- (2) The requirements of this subtitle are effective on January 1, 2009 or, for new CO₂ budget units, on the day on which the unit commences operation.
(COMAR 26.09.02.02C).
- (3) The provisions of this permit do not exempt or otherwise relieve the owners or operators of a CO₂ budget source from achieving compliance with any other provision of applicable State and federal laws and regulations.
(COMAR 26.09.02.02D).

- (4) Unless otherwise stated under this subtitle, any time period scheduled to begin:
- (a) On the occurrence of an act or event, begins on the day the act or event occurs; and
 - (b) Before the occurrence of an act or event, is computed so that the period ends the day before the act or event occurs.
(COMAR 26.09.02.02E)
- (5) Unless otherwise stated, if the final day of any time period for performing an act required by this subtitle falls on a weekend or on a State or federal holiday, the time period is extended until or to the next business day.
(COMAR 26.09.02.02F)

D. Permit Requirements

- (1) The account representative or designate alternate account representative) of each affected unit at a source, (every fossil fuel fired unit with a nameplate capacity of 25 MW or greater) for that source shall comply with the following:
- (a) The CO₂ authorized account representative for the source shall submit an initial CO₂ budget permit application by October 1, 2008, or 12 months before the date on which the CO₂ budget source, or a new unit at the source, commences operation.
(COMAR 26.09.02.04A(2));
 - (b) The CO₂ budget permit application shall include the following in a format prescribed by the Department: 1) the identification of the CO₂ budget source; 2) plant name and the ORIS (Office of Regulatory Information Systems) or facility code assigned to the source by the Energy Information Administration of the U. S. Department of Energy, if applicable; 3) each CO₂ budget unit at the source; and 4) other information required by the Department.
(COMAR 26.09.02.04A(3))
 - (c) A CO₂ authorized account representative for the source shall submit a complete application for the renewal of an existing CO₂ budget permit on forms provided by the Department not later than 90 days before the expiration of the current CO₂ budget permit and in accordance with this regulation.
(COMAR 26.09.02.04E)
- (2) Each CO₂ budget source shall apply for and have in effect a CO₂ budget permit that contains all applicable requirements.
(COMAR 26.09.02.04A(1)).
- (3) The CO₂ budget permit issued by the Department shall be separate but attached to the budget source's Part 70 permit.
(COMAR 26.09.02.04B)
- (4) A CO₂ budget permit expires 5 years from the date of issuance by the Department, unless an earlier expiration date is specified in the permit.
(COMAR 26.09.02.04D)

E. Monitoring, Initial Certification and Recertification Requirements

- (1) For each control period in which a CO₂ budget source is subject to the CO₂ budget emissions limitation, the CO₂ authorized account representative of the source shall submit a compliance certification report by the March 1 following the relevant control period. A compliance certification report is not required as part of the compliance obligation during an interim control period.
(COMAR 26.09.02.05A(1))
- (2) The CO₂ authorized account representative shall include in the compliance certification report the following:
 - (a) Identification of the source and each CO₂ budget unit at the source;
 - (b) At the CO₂ authorized account representative's option, the serial numbers of the CO₂ allowances that are to be deducted from the source's compliance account for the control period, including the serial numbers of any CO₂ offset allowances that are to be deducted subject to applicable limitations; and
 - (c) The compliance certification required by §A(3) of COMAR 26.09.02.05.
(COMAR 26.09.02.05A(2))
- (3) In the compliance certification report, the CO₂ authorized account representative shall certify whether the source and each CO₂ budget unit at the source for which the compliance certification is submitted was operated during the control period in compliance with the requirements of this subtitle, including:
 - (a) Whether each CO₂ budget unit at the source was operated in compliance with the CO₂ budget emissions limitation;
 - (b) Whether the monitoring plan applicable to each unit at the source: (i) has been maintained to reflect the actual operation and monitoring of the unit; and (ii) contains all information necessary to track CO₂ emissions from the unit;
 - (c) Whether all CO₂ emissions from each unit at the source were monitored or accounted for through the missing data procedures and reported in the quarterly monitoring reports, including: (i) whether all conditional data was reported in the quarterly reports; or (ii) if conditional data were reported, whether the status of all conditional data has been resolved and all necessary quarterly report resubmissions have been made;
 - (d) Whether the basis for certification or for using an excepted monitoring method or approved alternative monitoring method has changed; and
 - (e) If a change is required to be reported, include: (i) the nature and reasons for the change; (ii) when the change occurred; and (iii) how the unit's compliance status was determined after the change, including the method used to determine emissions when a change mandated the need for monitor recertification.
(COMAR 26.09.02.05A (3) (a)-(e))

(4) The Department, at its discretion, may review and conduct independent audits of any compliance certification or other submission required by this permit.
(COMAR 26.09.02.05B(1))

(5) The Department may deduct CO₂ allowances from, or transfer CO₂ allowances to, a compliance account to correct errors in the account or to accurately reflect CO₂ emissions, based on the information in the compliance certification or other submissions.
(COMAR 26.09.02.05B(2))

(6) The owner or operator of a CO₂ budget unit shall:

- (a) Install monitoring systems to monitor CO₂ concentration, stack gas flow rate, oxygen concentration, heat input, and fuel flow rate;
- (b) Install all monitoring systems in accordance with 40 CFR Part 75, except for equation G-1 in Appendix G (see below); and

$$W_{CO_2} = \frac{(MW_C + MW_{O_2}) \times W_C}{2,000 MW_C} \text{ (Eq. G-1)}$$

Where:

W_{CO₂}=CO₂ emitted from combustion, tons/day.

MW_C=Molecular weight of carbon (12.0).

MW_{O₂}=Molecular weight of oxygen (32.0)

W_C= Carbon burned, lb/day, determined using fuel sampling and analysis and fuel feed rates.

(c) Record, report, and verify the data from the monitoring systems.
(COMAR 26.09.02.10A(1)(a)-(c))

(7) Install and certify the monitoring system on or before the following dates:

- (a) For a CO₂ budget unit that commences commercial operation before July 1, 2008, the owner or operator shall comply on or before January 1, 2009; and
- (b) For a CO₂ budget unit that commences commercial operation or constructs a new stack or flue on or after July 1, 2008, the owner or operator shall comply by January 1, 2009, or 90 operating days after the date on which the unit commences commercial operation.
(COMAR 26.09.02.10A(1)(d))

(8) The owner or operator of a CO₂ budget unit that does not meet the applicable compliance date shall, in accordance with the provisions in 40 CFR §75.31(b)(2) or (c)(3), or §2.4 of Appendix D, determine, record, and report maximum potential or, as appropriate, minimum potential for the following:

- (a) CO₂ concentration;
- (b) CO₂ emissions rate;

- (c) Stack gas moisture content;
 - (d) Fuel flow rate; and
 - (e) Any other parameter required to determine CO₂ mass emissions.
(COMAR 26.09.02.10A(2)(a)-(e))
- (9) The owner or operator of a CO₂ budget unit that does not meet the applicable compliance date for any monitoring system shall determine, record, and report substitute data using the applicable missing data procedures in 40 CFR Part 75 Subpart D, or Appendix D, instead of the maximum potential values or, as appropriate, minimum potential values for a parameter, if the owner or operator demonstrates that there is continuity between the data streams for that parameter before and after the construction or installation.
(COMAR 26.09.02.10A(3))
- (10) An owner or operator of a CO₂ budget unit or a non-CO₂ budget unit monitored under 40 CFR §75.72 (b) (2) (ii) may not:
- (a) Use any alternative monitoring system, alternative reference method, or any other alternative for the required continuous emissions monitoring system without having obtained prior written approval from the Department;
 - (b) Operate the unit so as to discharge, or allow to be discharged, CO₂ emissions to the atmosphere without accounting for all emissions in accordance with the applicable provisions of this chapter and 40 CFR Part 75;
 - (c) Disrupt the operation of the CEMS, any portion of the CEMS, or any other approved emissions monitoring method, and thereby avoid monitoring and recording CO₂ mass emissions discharged into the atmosphere, except for periods of recertification or periods when calibration, quality assurance testing, or maintenance is performed; or
 - (d) Permanently discontinue use of the approved CEMS unless the owner or operator monitors emissions with a system approved in accordance with this chapter and 40 CFR Part 75.
(COMAR 26.09.02.10A(4)(a)-(d))
- (11) For purposes of this subtitle only, the owner or operator of a CO₂ budget unit is exempt from demonstrating compliance with the initial certification requirements of 40 CFR §75.20 for a monitoring system if the following conditions are met:
- (a) The monitoring system has been previously certified in accordance with 40 CFR §75.20; and
 - (b) The applicable quality assurance and quality-control requirements of 40 CFR §75.21 and Appendix B and Appendix D of 40 CFR Part 75 are fully met for the certified monitoring system.
(COMAR 26.09.02.10B(1)(a)-(b))
- (12) The recertification provisions of this regulation apply to a monitoring system exempt from the initial certification requirements of this regulation.

(COMAR 26.09.02.10B(2))

- (13) If the Department has previously approved a petition under 40 CFR §75.72(b)(2)(ii) or 40 CFR §75.16(b)(2)(ii)(B) pursuant to 40 CFR §75.13 for apportioning the CO₂ emissions rate measured in a common stack or a petition under 40 CFR §75.66 for an alternative requirement in 40 CFR Part 75, the CO₂ authorized account representative shall resubmit the petition to the Department to determine whether the approval applies under this chapter.

(COMAR 26.09.02.10B(3))

- (14) The owner or operator of a CO₂ budget unit shall comply with the initial certification and recertification procedures for a CEMS and an excepted monitoring system under 40 CFR Part 75, Appendix D.

(COMAR 26.09.02.10B(4))

- (15) The owner or operator of a unit that qualifies to use the low mass emissions excepted monitoring methodology in 40 CFR §75.19 or that qualifies to use an alternative monitoring system under 40 CFR Part 75, Subpart E, shall comply with this regulation.

(COMAR 26.09.02.10 B(5))

- (16) When the owner or operator replaces, modifies, or changes a CEMS that the Department determines significantly affects the ability of the system to accurately measure or record CO₂ mass emissions or to meet the quality assurance and quality control requirements of 40 CFR §75.21 or Appendix B, the owner or operator shall recertify the monitoring system according to 40 CFR §75.20(b).

(COMAR 26.09.02.10C(1))

- (17) When the owner or operator replaces, modifies, or changes the flue gas handling system or the unit's operation in a manner that the Department determines has significantly changed the flow or concentration profile, the owner or operator shall recertify the CEMS according to 40 CFR §75.20(b).

(COMAR 26.09.02.10C(2))

- (18) Approval Process for Initial Certifications and Recertification. The procedures in 40 CFR §75.20(b)(5) and (g)(7) apply for recertification. The CO₂ authorized account representative shall submit to the Department:

(a) A written notice of the dates of certification; and

(b) A recertification application for each monitoring system, including the information specified in 40 CFR §75.63.

(COMAR 26.09.02.10C(3)(a)-(b))

- (19) Provisional certification data for a monitor shall be:

(a) Determined in accordance with 40 CFR §75.20(a)(3);

(b) A provisionally certified monitor may be used for a period not to exceed 120 days after receipt of the complete certification application for the monitoring system or component; and

- (c) Data measured and recorded by the provisionally certified monitoring system or component is considered valid quality assured data, retroactive to the date and time of provisional certification, if the Department does not issue a notice of disapproval within 120 days of receipt of the complete certification application.
(COMAR 26.09.02.10C(4)(a)-(c))
- (20) The Department shall issue a written notice of approval or disapproval of the certification application to the owner or operator within 120 days of receipt of the complete certification application.
(COMAR 26.09.02.10D(1))
- (21) If the Department does not issue the notice within the 120-day period, each monitoring system that meets the applicable performance requirements of 40 CFR Part 75 and is included in the certification application shall be deemed certified for use.
(COMAR 26.09.02.10D(2))
- (22) If the certification application is complete and shows that each monitoring system meets the applicable performance requirements of 40 CFR Part 75, the Department shall issue a written notice of approval of the certification application within 120 days of receipt.
(COMAR 26.09.02.10D(3))
- (23) If the certification application is not complete, the Department shall issue a written notice of incompleteness that sets a reasonable date by which the CO₂ authorized account representative is to submit the additional information required to complete the certification application.
(COMAR 26.09.02.10D(4))
- (24) If the CO₂ authorized account representative does not comply with the notice of incompleteness by the specified date, the Department may issue a notice of disapproval.
(COMAR 26.09.02.10D(5))
- (25) If the Department issues a notice of disapproval of a certification application or a notice of disapproval of certification status, the owner or operator shall substitute the following values for each disapproved monitoring system, for each hour of unit operation during the period of invalid data beginning with the date and hour of provisional certification and continuing until the time, date, and hour specified under 40 CFR §75.20(a)(5)(i) or 75.20(g)(7):
- (a) For units using or intending to monitor for CO₂ mass emissions using heat input or for units using the low mass emissions excepted methodology under 40 CFR §75.19, the maximum potential hourly heat input of the unit; or
 - (b) For units intending to monitor for CO₂ mass emissions using a CO₂ pollutant concentration monitor and a flow monitor, the maximum potential concentration of CO₂ and the maximum potential flow rate of the unit under 40 CFR Part 75, Appendix A, §2.1.
(COMAR 26.09.02.10 D(6)(a)-(b))
- (26) The CO₂ authorized account representative shall submit a notification of certification retest dates and a new certification application. The owner or operator shall repeat all certification tests or other

requirements that were failed by the monitoring system, as indicated in the Department's notice of disapproval, not later than 30 operating days after the date of issuance of the notice of disapproval.
(COMAR 26.09.02.10D(7))

(27) The owner or operator of a unit qualified to use the low mass emissions excepted methodology under 40 CFR §75.19 shall meet the applicable certification and recertification requirements of 40 CFR §§75.19(a) (2) and 75.20(h).
(COMAR 26.09.02.10E(1))

(28) If the owner or operator of this unit elects to certify a fuel flow meter system for heat input determinations, the owner or operator shall also meet the certification and recertification requirements in 40 CFR §75.20(g).
(COMAR 26.09.02.10E(2))

(29) Certification and Recertification Procedures for Alternative Monitoring Systems. For each unit for which the owner or operator intends to use an alternative monitoring system approved by the Department, 40 CFR Part 75, Subpart E, shall be used to comply with the applicable notification and application procedures of 40 CFR §75.20(f).
(COMAR 26.09.02.10F)

(30) When any monitoring system fails to meet the quality assurance and quality control requirements or data validation requirements of 40 CFR Part 75, data shall be substituted using the applicable procedures in 40 CFR Part 75, Subpart D, Appendix D.
(COMAR 26.09.02.10G(1))

(31) Audit Decertification.

(a) Whenever both an audit of a monitoring system and a review of the initial certification or recertification application reveal that any monitoring system should not have been certified or recertified because it did not meet a particular performance specification or the applicable provisions of 40 CFR Part 75, both at the time of the initial certification or recertification application submission and at the time of the audit, the Department shall issue a notice of disapproval of the certification status of the monitoring system.

(b) By issuing the notice of disapproval, the certification status of the monitoring system is prospectively revoked.
(COMAR 26.09.02.10G(2))

(32) The data measured and recorded by the monitoring system may not be considered valid quality-assured data from the date of issuance of the notification of the revoked certification status.
(COMAR 26.09.02.10G(3))

F. Record Keeping and Reporting Requirements

(1) The CO₂ authorized account representative shall comply with all record-keeping and reporting requirements in COMAR 26.09.02.10 and the applicable record-keeping and reporting requirements under 40 CFR §75.73.
(COMAR 26.09.02.11A)

- (2) The CO₂ authorized account representative shall submit quarterly reports as described below in this section.
(COMAR 26.09.02.11B(1))
- (3) The report shall contain the CO₂ mass emissions data for the CO₂ budget unit in an electronic format, unless otherwise required by the Department, for each calendar quarter beginning with:
 - (a) The calendar quarter covering January 1, 2009 — March 31, 2009, for a unit that commences commercial operation before July 1, 2008; or
 - (b) For a unit commencing commercial operation on or after July 1, 2008, the calendar quarter corresponding to the earlier of the: (i) date of provisional certification; or (ii) applicable deadline for initial certification.
(COMAR 26.09.02.11B(2)(a)-(b))
 - (c) If the quarter is the third or fourth quarter of 2008, reporting shall commence in the quarter covering January 1, 2009 through March 31, 2009.
(COMAR 26.09.02.11B(3))
- (4) The CO₂ authorized account representative shall submit each quarterly report within 30 days following the end of the calendar quarter covered by the report and in accordance with 40 CFR Part 75, Subpart H, §75.64 and 40 CFR Part 75, Subpart G except for the opacity, NO_x and SO₂ provisions.
(COMAR 26.09.02.11B(4))
- (5) The CO₂ authorized account representative shall submit a compliance certification in support of each quarterly report. The certification shall state that:
 - (a) The monitoring data submitted were recorded in accordance with the applicable requirements of this chapter and 40 CFR Part 75, including the quality assurance procedures and specifications;
 - (b) For a unit with add-on CO₂ emissions controls and for all hours where data are substituted in accordance with 40 CFR §75.34(a)(1), the add-on emissions controls were operating within the range of parameters listed in the quality assurance and quality control program under 40 CFR Part 75, Appendix B, and the substitute values do not systematically underestimate CO₂ emissions; and
 - (c) The CO₂ concentration values substituted for missing data under 40 CFR Part 75, Subpart D, do not systematically underestimate CO₂ emissions.
(COMAR 26.09.02.11B(5)(a)-(c))
- (6) The CO₂ authorized account representative of a CO₂ budget unit may submit a petition to the Department under 40 CFR §75.66 requesting approval to apply an alternative to any requirement of this chapter.
(COMAR 26.09.02.11C)
- (7) The CO₂ authorized account representative or alternate CO₂ authorized account representative of a

CO₂ budget unit that burns eligible biomass as a compliance mechanism under this chapter shall report the following information for each calendar quarter:

- (a) For each shipment of solid eligible biomass fuel fired at the CO₂ budget unit:
 - (i) Total eligible biomass fuel input, on an as-fired basis, in pounds; and
 - (ii) The moisture content, on an as-fired basis, as a fraction of weight;
 - (b) For each distinct type of gaseous eligible biomass fuel fired at the CO₂ budget unit:
 - (i) The density of the biogas, on an as-fired basis, in pounds per standard cubic foot; and
 - (ii) The moisture content of the biogas, as a fraction by total weight;
 - (c) For each distinct type of eligible biomass fuel fired at the CO₂ budget unit:
 - (i) The dry basis carbon content of the fuel type, as a fraction by dry weight;
 - (ii) The dry basis higher heating value, in MMBtu per dry pound;
 - (iii) The total dry basis eligible biomass fuel input, in pounds;
 - (iv) The total eligible biomass fuel heat input; and
 - (v) Chemical analysis, including heat value and carbon content;
 - (d) The total amount of CO₂ emitted from the CO₂ budget unit due to firing eligible biomass fuel, in tons, calculated as in §D(2)(b) of this regulation;
 - (e) The total heat input to the CO₂ budget unit due to firing eligible biomass fuel, in MMBtu, calculated below; and
 - (f) Description and documentation of monitoring technology and fuel sampling methodology employed, including sampling frequency.
(COMAR 26.09.02.11 D(1)(a)-(f))
- (8) An owner or operator of a CO₂ budget unit shall calculate and submit on a quarterly basis the total dry weight for each distinct type of eligible biomass fired by the CO₂ budget unit during the reporting quarter:

- (a) For solid eligible biomass fuel, determined as follows:

$$F_j = \sum_{i=1}^m (1 - M_i) x F_i$$

where:

- (i) F_j = Total eligible biomass dry basis fuel input (pounds) for fuel type j;
- (ii) F_i = Eligible biomass as fired fuel input (pounds) for fired shipment i;

- (iii) M_i = Moisture content (fraction) for fired shipment i;
- (iv) i = fired fuel shipment;
- (v) j = fuel type; and
- (vi) m = number of shipments.

(b) For gaseous eligible biomass fuel, as determined as follows:

$$F_j = D_j x V_j x (1 - M_j)$$

where:

- (i) F_j = Total eligible biomass dry basis fuel input (pounds) for fuel type j;
 - (ii) D_j = Density of biogas (pounds/scf) for fuel type j;
 - (iii) V_j = Total volume (scf) for fuel type j;
 - (iv) M_j = Moisture content (fraction) for fuel type j; and
 - (v) j = fuel type
- (COMAR 26.09.02.11D(2)(a)-(b))

(9) The amount of CO₂ emissions that is produced from the firing of eligible biomass for any full calendar quarter, during which either no fuel other than eligible biomass is combusted or during which fuels other than eligible biomass are combusted, is determined as follows:

$$CO_2 tons = \sum_{j=1}^n F_j x C_j x O_j \left(\frac{44 \left(\frac{g}{mol CO_2} \right)}{12 \left(\frac{g}{mol C} \right)} \right) (0.0005)$$

where:

- (a) CO₂ tons = CO₂ emissions due to firing of eligible biomass for the reporting quarter;
- (b) F_j = Total eligible biomass dry basis fuel input (pounds) for fuel type j, as calculated in §D(2)(a) of this regulation;
- (c) C_j = Carbon fraction (dry basis) for fuel type j;
- (d) O_j = Oxidation factor for eligible biomass fuel type j, derived for solid fuels based on the ash content of the eligible biomass fired and the carbon content of this ash or for gaseous eligible biomass fuels, a default oxidation factor of 0.995 may be used;

$$(e) \frac{44 \left(\frac{g}{mol CO_2} \right)}{12 \left(\frac{g}{mol C} \right)}$$

= The number of tons of carbon dioxide that are created when one ton of carbon is combusted;

- (f) 0.0005 = The number of short tons which is equal to one pound;
- (g) j = Fuel type; and

(h) n = number of distinct fuel types.
(COMAR 26.09.02.11D(3))

(10) Heat input due to firing of eligible biomass for each quarter shall be determined as follows:

(a) For each distinct fuel type:

$$H_j = F_j \times HHV_j$$

where:

- (i) H_j = Heat input (MMBtu) for fuel type j;
- (ii) F_j = Total eligible biomass dry basis fuel input (pounds) for fuel type j;
- (iii) HHV_j = Higher heating value (MMBtu/pound), dry basis, for fuel type j, as determined through chemical analysis;
- (iv) j = Fuel type.

(b) For all fuel types:

$$HeatInputMMBtu = \sum_{j=1}^n H_j$$

where:

- (i) H_j = Heat input (MMBtu) for fuel type j;
- (ii) j = fuel type; and
- (iii) n = number of distinct fuel types.

Fuel sampling methods and fuel sampling technology shall be consistent with the New York State Renewable Portfolio Standard Biomass Guidebook, September 2011.
(COMAR 26.09.02.11D(4)& D(5))

(11) A CO₂ budget unit shall submit to the Department the megawatt-hour value and a statement certifying that the megawatt-hour of electrical output reported reflects the total actual electrical output for all CO₂ budget units at the facility used by the independent system operator (ISO) to determine settlement resources of energy market participants.
(COMAR 26.09.02.11E(1))

(12) A CO₂ budget unit shall report gross hourly megawatts to the Department in the same electronic data report (EDR) for gross output as submitted to the EPA Administrator, for the operating time in the hour, added for all hours in a year.
(COMAR 26.09.02.11E(2))

(13) A CO₂ budget unit shall submit the net electrical output to the Department in accordance with this regulation. A CO₂ budget source whose electrical output is not used in the independent system operator (ISO) energy market settlement determinations shall propose a method for quantification of net electrical output.
(COMAR 26.09.02.11E(3))

(14) Report of net Steam Output.

- (a) CO₂ budget sources selling steam shall use billing meters to determine net steam output or an alternative method to measure net steam output approved by the Department.
 - (b) If data for steam output is not available, the CO₂ budget source may report heat input, substituting useful steam output for steam output.
(COMAR 26.09.02.11E(4)(a)-(b))
- (15) Each CO₂ budget source shall submit an output monitoring plan with a description and diagram that include the following:
- (a) If the CO₂ budget unit monitors net electric output, the diagram shall contain all CO₂ budget units and all generators served by each CO₂ budget unit and the relationship between CO₂ budget units and generators;
 - (b) If a generator served by a CO₂ budget unit is also served by a nonaffected unit, the nonaffected unit and its relationship to each generator shall be indicated on the diagram;
 - (c) The diagram shall indicate where the net electric output is measured and include all electrical inputs and outputs to and from the plant;
 - (d) If net electric output is determined using a billing meter, the diagram shall show each billing meter used to determine net sales of electricity and show that all electricity measured at the point of sale is generated by the CO₂ budget units;
 - (e) If the CO₂ budget unit monitors net thermal output, the diagram shall indicate all steam or hot water coming into the net steam system, including steam from CO₂ budget units and nonaffected units, and all exit points of steam or hot water from the net steam system;
 - (f) Each input and output stream shall have an estimated temperature, pressure and phase indicator, and an enthalpy in Btu per pound;
 - (g) The diagram of the net steam system shall identify all useful loads, house loads, parasitic loads, any other steam loads, and all boiler feedwater returns;
 - (h) The diagram shall represent all energy losses in the system as either usable or unusable losses;
 - (i) The diagram shall indicate all flow meters, temperature or pressure sensors, or other equipment used to calculate gross thermal output; and
 - (j) If a sales agreement is used to determine net thermal output, the diagram shall show the monitoring equipment used to determine the sales of steam.
(COMAR 26.09.02.11F(2)(a)-(j))
- (16) The description of the output monitoring system shall include:
- (a) A written description of the output system and the equations used to calculate output, and, for net thermal output systems, descriptions and justifications of each useful load;

- (b) A detailed description of all quality assurance and quality control activities that will be performed to maintain the output system; and
- (c) Documentation supporting any output value to be used as a missing data value if there are periods of invalid output data.
- (d) The missing data output value shall be either zero or an output value that is likely to be lower than a measured value and approved as part of the required monitoring plan.
(COMAR 26.09.02.11F(3)(a)-(b))
- (17) A certification statement shall be submitted by the CO₂ authorized account representative stating that either:
 - (a) The output monitoring system consists entirely of billing meters; or
 - (b) The output monitoring system meets one of the accuracy requirements for nonbilling meters.
(COMAR 26.09.02.11G(1)(a)-(b))
- (18) The billing meter shall record the electric or thermal output. Any electric or thermal output values reported shall be the same as the values used in billing for the output.
(COMAR 26.09.02.11G(2))
- (19) For nonbilling meters, either the output monitoring system shall meet an accuracy of within 10 percent of the reference value, or each component monitor for the output system shall meet an accuracy of within 3 percent of the full scale value, whichever is less stringent.
(COMAR 26.09.02.11G(3))
- (20) The system approach to accuracy shall include:
 - (a) A determination of how the system accuracy of 10 percent is achieved using the individual components in the system; and
 - (b) Data loggers and any wattmeters used to calculate the final net electric output data or any flowmeters for steam or condensate, temperature measurement devices, absolute pressure measurement devices, and differential pressure devices used for measuring thermal energy.
(COMAR 26.09.02.11G(4) (a)-(b))
- (21) If, upon testing a piece of output measurement equipment, it is determined that the output readings are not accurate to within 3 percent of the full scale value, then the equipment shall be repaired or replaced to meet that requirement.
(COMAR 26.09.02.11G(5))
- (22) Data is invalid until the output measurement equipment passes an accuracy test or is replaced with another piece of equipment that passes the accuracy test.
(COMAR 26.09.02.11G(6))
- (23) Ongoing quality assurance and quality control activities shall be performed in order to maintain the

output system.

(COMAR 26.09.02.11H(1))

- (24) If billing meters are used to determine output, quality assurance and quality control activities are not required beyond what are already performed.

(COMAR 26.09.02.11H(2))

- (25) Certain types of equipment such as potential transformers, current transformers, nozzle and venture type meters, and the primary element of an orifice plate only require an initial certification of calibration and do not require periodic recalibration unless the equipment is physically changed.

- (a) Pressure and temperature transmitters accompanying an orifice plate will require periodic retesting.
- (b) For other types of equipment, the meter accuracy shall be recalibrated or verified at least once every 2 years, unless a consensus standard allows for less frequent calibrations or accuracy tests.
- (c) For nonbilling meters, either the output monitoring system shall meet an accuracy of within 10 percent of the reference value, or each component monitor for the output system shall meet an accuracy of within 3 percent of the full scale value, whichever is less stringent.
- (d) If, upon testing a piece of output measurement equipment, it is determined that the output readings are not accurate to within 3 percent of the full scale value, then the equipment shall be repaired or replaced to meet that requirement.
(COMAR 26.09.02.11 H(3)(a)-(e))

- (26) Out-of-Control Periods.

- (a) If, upon testing a piece of output measurement equipment, it is determined that the output readings are not accurate to the certification value, data is invalid until the output measurement equipment passes an accuracy test or is replaced with another piece of equipment that passes the accuracy test.
- (b) All invalid data shall be replaced by either zero or an output value that is likely to be lower than a measured value and that is approved as part of the required monitoring plan.
(COMAR 26.09.02.11 H(4)(a)-(b))

- (27) The CO₂ authorized account representative shall submit annual output reports, as follows:

- (a) Data shall be sent both electronically and in hardcopy by March 1 for the immediately preceding calendar year; and
(COMAR 26.09.02.11I 1))

- (28) The annual report shall include unit level megawatt hours, all useful steam output, and a certification statement from the CO₂ authorized account representative stating the following, "I am authorized to make this submission on behalf of the owners and operators of the CO₂ budget sources or CO₂ budget units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this

document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.”
(COMAR 26.09.02.11I(2))

G. CO₂ Emission Offset Projects

- (1) In order to qualify for the award of CO₂ offset allowances, the following offset projects shall satisfy all applicable requirements identified in COMAR 26.09.03 and initially commence on or after December 20, 2005:
- (a) Landfill methane capture and destruction;
 - (b) Reduction in emissions of sulfur hexafluoride (SF₆);
 - (c) Sequestration of carbon due to afforestation;
 - (d) Reduction or avoidance of CO₂ emissions from natural gas, oil, or propane end-use combustion due to end-use energy efficiency; and
 - (e) Avoided methane emissions from agricultural manure management operations.
(COMAR 26.09.03.02A(1)-(5))

4. Permit Application (See Attachment)

Maryland Department of the Environment
Air and Radiation Administration

PHASE II ACID RAIN PERMIT

Plant Name: Keys Energy Center	
Affected Units: 11 (EU1) & 12 (EU2)	
Owner: PSEG Keys Energy Center LLC.	ORIS Code 60302
Effective Date From: XXXXX 1, 2020 To: October 31, 2024	

Contents:

1. Statement of Basis
2. SO₂ and NO_x Permit Requirements for Each Affected Unit.
3. Comments, Notes, and Justifications Regarding Permit Decisions; Changes Made to Permit Application Forms During the Review Process; Any Additional Requirements or Conditions.
4. The permit application forms submitted for this source. The owners and operators of the source must comply with the standard requirements and special provisions set forth in the application

1. Statement of Basis

Statutory and Regulatory Authorities: In accordance with Environmental Article§2-401, Annotated Code of Maryland and Titles IV and V of the Clean Air Act, the Maryland Department of the Environment, Air and Radiation Administration issues this permit pursuant to COMAR 26.11.02 and COMAR 26.11.03.

Renewal Permit Approval

Date of Issuance:_____

George S. Aburn, Jr., Director
Air and Radiation Administration

Phase II Renewal Acid Rain Permit: Keys Energy Center

2. SO₂ and NO_x Requirements for Each Affected Unit

Sulfur Dioxide Requirements

Units No. 11 (EU1) & 12 (EU2)

SO_x Requirements

SO _x Allowances	PSEG Keys Energy Center LLC will hold allowances for Units 11 (EU1) & 12 (EU2) in accordance with 40 CFR 72.9(c)(1).
----------------------------	--

- (1) The owners and operators of each source and each affected unit at the source shall:
 - (i) Hold allowances, as of the allowance transfer deadline, in the source's compliance account (after deductions under 40 CFR 73.34(c)), not less than the total annual emissions of sulfur dioxide for the previous calendar year from the affected units at the source; and
 - (ii) Comply with the applicable Acid Rain emissions limitations for sulfur dioxide.
- (2) Each ton of sulfur dioxide emitted in excess of the Acid Rain emissions limitations for sulfur dioxide shall constitute a separate violation of the Act.
- (3) An affected unit shall be subject to the requirements under paragraph (1) of the sulfur dioxide requirements as follows:
 - (i) Starting January 1, 2000, an affected unit under 40 CFR 72.6(a)(2); or
 - (ii) Starting on the later of January 1, 2000 or the deadline for monitor certification under 40 CFR part 75, an affected unit under 40 CFR 72.6(a)(3).
- (4) Allowances shall be held in, deducted from, or transferred among Allowance Tracking System accounts in accordance with the Acid Rain Program.
- (5) An allowance shall not be deducted in order to comply with the requirements under paragraph (1) of the sulfur dioxide requirements prior to the calendar year for which the allowance was allocated.
- (6) An allowance allocated by the Administrator under the Acid Rain Program is a limited authorization to emit sulfur dioxide in accordance with the Acid Rain Program. No provision of the Acid Rain Program, the Acid Rain permit application, the Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8 and no provision of law shall be construed to limit the authority of the United States to terminate or limit such authorization.
- (7) An allowance allocated by the Administrator under the Acid Rain Program does not constitute a property right.

Phase II Renewal Acid Rain Permit: Keys Energy Center

Nitrogen Oxides Requirements

Units No. 11 (EU1) & 12 (EU2)

NO _x Requirements	
NO _x Limit	None

3. Comments, notes, and justifications regarding decisions; and changes made to the permit application forms during the review process:

The allowances allocated by the United States Environmental Protection Agency (US EPA) to the unit are listed in Table 2 of 40 CFR Part 73. However, the number of allowances actually held by an affected source's account may differ from the number allocated by the US EPA.

Initial Permit Approval

_____ Date of Issuance: _____

George S. Aburn, Jr., Director
Air and Radiation Administration



Via Next-Day Mail

May 7, 2019

Mr. Christopher Mentzer
Air Quality Permits Program/Air and Radiation Administration
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, MD 21230-1718

**Re: PSEG Keys Energy Center LLC
Keys Energy Center
(Permit No. 033-2737; Maryland CPCN Case No. 9297, Oct. 11, 2017)
Application for Initial Part 70 Operating Permit**

Dear Mr. Mentzer:

On December 1, 2018, the Maryland Department of the Environment ("MDE" or "Department") issued an Initial State Permit To Operate ("PTO") (Permit No. 033-2737) for PSEG Keys Energy Center LLC ("PSEG Keys") to operate a 755 MW, two-on-one (2x1) combined-cycle, natural gas fired electric generating plant in Prince George's County, Maryland.

In accordance with COMAR 26.11.03.02A and PTO Condition Part B(2)(I), PSEG Keys is submitting the enclosed two paper copies of an application for the initial Part 70 Operating Permit for the Keys Energy Center. We understand that no application fees are required by the Department.

A compact disc containing the complete application and backup emission calculations is provided in Attachment I of each copy.

The application was prepared in accordance with the Department's instructions and guidance, and includes all of the information listed in the Application Completeness Checklist. Therefore, given that the application is timely, and provides all of the required information, PSEG Keys respectfully requests that the Department issue an application shield as allowed under COMAR 26.11.03.01D.

Except for the removal of several obsolete PTO conditions listed in the Section 3C forms (mainly initial notification requirements), we are not requesting any changes to the PTO.

We understand that, when the Part 70 operating permit is issued by MDE, the Part 70 permit will also constitute a State PTO. The current KEC PTO will be superseded by the issuance of the Part 70 operating permit.

I will be the point of contact if you have questions or require additional information. My contact information is (908) 412-3034 or Douglas.Gordon@pseg.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Doug Gordon".

Douglas Gordon
Air Permitting Program Manager
PSEG Fossil LLC
Environmental Health & Safety

Enclosures

cc: Ms. Liz Cary
Mr. Douglas Gordon
Mr. Gary Napp (AKRF)

**Application for
Initial Part 70 Operating Permit**

**PSEG Keys Energy Center
Permit To Operate No. 033-2737**

Prepared for

Maryland Department of the Environment
Air and Radiation Administration
1800 Washington Boulevard, Suite 720
Baltimore, MD 21230

May 8, 2019

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Introduction

On December 1, 2018, the Maryland Department of the Environment (“MDE” or “Department”) issued the initial Permit to Operate (“PTO”) No. 033-2737 to PSEG Keys Energy Center LLC (“PSEG”) for the PSEG Keys Energy Center (“KEC”) located near Brandywine, Maryland in Prince George’s County. The PTO expires November 30, 2023. The KEC will continue to operate under the PTO until a Part 70 Operating Permit (“Part 70 Permit”) is issued by the MDE.

Pursuant to COMAR 26.11.03.01, this document is PSEG’s application for an initial Part 70 Permit (sometimes referred to as a “Title V permit”) for the KEC.

The application is timely, and provides all of the information listed in the Department’s Application Completeness Checklist¹, therefore PSEG respectfully requests that the Department issue an application shield as allowed under COMAR 26.11.03.01D.

The majority of this application consists of the following attachments:

- Attachment A - Application Forms
- Attachment B - Flow Diagram
- Attachment C - Facility Plot Plan
- Attachment D - 2018 Emissions Certification Report
- Attachment E - Check-Off List of Emission Units and Activities Exempt from the Part 70 Permit Application
- Attachment F - Compliance Assurance Monitoring (CAM) Plan
- Attachment G - Backup Emissions Calculations
- Attachment H - Acid Rain Application
- Attachment I - Compact Disc Containing Electronic Copy of the Application

PSEG understands that, when the Part 70 permit is issued by MDE, the Part 70 permit will also constitute a State PTO. The KEC PTO will be superseded by the issuance of the Part 70 permit.

The remainder of this document provides additional information relevant to the application and select attachments. Some attachments are self-explanatory and do not require additional detail or explanation.

Emission Units and Emission Points

MDE requires that the Part 70 permit applicant assign a specific number to each emissions unit and each emissions point.

On October 31, 2014, the Maryland Public Service Commission (PSC) issued a Certificate of Public Convenience and Necessity (“CPCN”) for the KEC. Subsequently PSEG acquired the project, and on October 11, 2017 the PSC approved amendments to the KEC CPCN to reflect several minor design changes. Any references to the KEC CPCN in this application are to the text of the October 11, 2017 version of the CPCN.

The CPCN served as the air quality construction permit for the KEC.²

¹ Checklist.pdf available at:
https://mde.maryland.gov/programs/Permits/AirManagementPermits/Pages/part70_applications.aspx

² CPCN Condition B-I-2.

PSEG has assigned emission unit numbers to the emission sources at the KEC. However, the CPCN is the KEC permit to construct so its conditions are referenced throughout this application. Therefore, the emission unit designations used for the CPCN are also important and are referenced in certain portions of the application.

Table 1 provides the emission unit and emission point designations for the KEC along with the designations used in the CPCN.

For completion of the Section 3B forms, where emission units at a facility are subject to the same applicable emissions standard and/or operational limitations and will use the same methodology of compliance demonstration, MDE allows the applicant to choose to group the emission unit numbers. This is the case for the two CTG/duct burner emission units, namely, EU-1 and EU-2. They are grouped on the Section 3B forms.

Additional Information

This section of the application provides additional relevant details and expands on some of the information provided in the nine (9) application attachments.

Changes to PTO Conditions

PSEG is not requesting any changes to the conditions in the PTO, except for the deletion of obsolete PTO conditions that are no longer relevant – mainly conditions relating to initial notifications. The requested deletions are listed in the Section 3C forms.

General Aspects/Clarifications Relating to the CPCN

1. Note that there is an inconsistency in the CPCN relating to demonstrating initial compliance with the NO_x and CO emission limits. CPCN Condition B-IV-8 states that initial and continuous compliance with the emission limits specified in the CPCN for NO_x and CO shall be demonstrated by installing and operating certified CEMS. Table B-1 of the CPCN (which is repeated in the KEC PTO) states that PSEG must conduct initial and annual performance tests for NO_x and CO. PSEG did conduct initial performance tests for NO_x and CO in October 2018, however, we wish to clarify that future/continuous compliance will be based on the CEMS – consistent with CPCN Condition B-IV-8. If this interpretation is not correct, please include clarifying language in the Part 70 permit.
2. Condition B-IV-9 of the CPCN states that, unless otherwise approved by MDE-ARMA, PSEG must install on each CT/HRSG a CO₂ CEMS as specified under 40 CFR §75.10(3) to measure CO₂ emissions, which are to be monitored and recorded hourly utilizing a data acquisition and handling system (DAHS) installed, calibrated, and maintained in accordance with 40 CFR §75.10(3). In 2017, MDE approved PSEG's request to monitor hourly CO₂ emissions from the KEC using certified fuel flow meters and 40 CFR Part 75, Appendix G, Equation G-4 as allowed by 40 CFR §75.10(3)(ii).³ PSEG wishes to document that we are currently using Equation G-4 to determine CO₂ emissions from the KEC HRSG stacks.

³ Letter from Ralph Hall (MDE) to David Hinchey (PSEG Fossil Environmental Affairs) dated February 3, 2017.

Application Forms – Attachment A

Please note the following related to the application forms provided as Attachment A:

3. The KEC began commercial operation in 2018. Actual facility-wide emissions (Section 2 form) and the actual emissions from the emission units (Section 3A forms) are those listed in the 2018 Emissions Certification Report that is provided as Attachment D of the application.
4. The Department approved the use of a spreadsheet table in lieu of completing individual Section 3B forms.⁴ The spreadsheet table appears after a Section 3B form as pages 3B-2 through 3B-8.
5. In the Section 3B portion of the forms, PSEG did not list applicable individual Acid Rain and 40 CFR Part 97 Cross-State Air Pollution Rule (“CSAPR”) requirements. We assume that the Department has developed “template” conditions for other combined-cycle projects in Maryland, and that these template conditions will be used to draft the KEC Part 70 permit.
6. As mentioned above, the KEC CPCN served as the permit to construct the facility. Therefore the Section 3C form references the CPCN condition numbers.
7. PSEG is not requesting any alternative operating scenarios. Therefore the Section 3D and Section 3E forms are not applicable.
8. The KEC is not a major source of hazardous air pollutants (“HAPs”). As prescribed in the application instructions, the Section 5 Summary Sheet of Potential Emissions is being used by PSEG in order to claim an exemption based on an emissions level cutoff, that is, we are documenting KEC potential HAPs emissions to show that the facility-wide emissions are below the Part 63 MACT “major source” thresholds. Pursuant to the definitions at 40 CFR §63.2, a major source is any stationary source located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any HAP or 25 tons per year or more of any combination of HAPs. The backup emission calculations in Attachment G, which are summarized in the Section 5 form, document that the KEC is not a major source of HAPs. The emission calculation spreadsheet listed in Attachment G has been included in the Attachment I compact disc.
9. PSEG assumes that only the major federally enforceable requirements that are not applicable to the KEC need be listed in the Section 6 forms. Requirements that are obviously not applicable have not been included in the Section 6 forms.
10. The Section 7 form is not applicable because all emission units at the KEC are complying with all applicable requirements.
11. The State-only enforceable requirements listed in the “Section 1” forms are those identified in the PTO and the CPCN. The Maryland CO₂ Budget Trading Program is one of the State-only requirements.

⁴ Email from Schuyler Fearins (MDE) to Gary Napp (AKRF, Inc.) dated February 12, 2019.

12. Similar to Item 5 above, PSEG did not list applicable individual Maryland CO₂ Budget Trading Program requirements. This is because KEC has already submitted a CO₂ Budget permit application to the Department, and the Department will attach the final permit to the KEC Part 70 permit when it is issued.

Compliance Assurance Monitoring (CAM) Plan – Attachment F

13. The pollutant-specific emission units (“PSEUs”) for the KEC are each of two natural gas-fired combustion turbines and associated duct burners and two heat recovery steam generators (“HRSGS”) designated by PSEG as EU-1 and EU-2. Each of the two emission units meets all of the CAM applicability criteria for VOC emissions and are therefore subject to the CAM requirements for VOC.

For VOC, there are no VOC CEMs, and the units are not subject to a VOC NSPS standard so those aspects cannot be used to exempt EU-1 and EU-2 from VOC CAM requirements.

PSEG determined if the VOC pre-control potential to emit (“PTE”) is less than the major source level of 25 tons/year [as prescribed at COMAR 26.11.02.01(C)(1)(c)(i)]. The lowest per-stack controlled HRSG emission rates for VOC are for normal operations and are 21.7 tons/year. Using the 35% VOC control efficiency listed in the Section 4 form, the uncontrolled emission rate is estimated to be 33.4 tpy (21.7/65%). This value is > 25 tpy so VOC CAM applies to the CT/DB oxidation catalyst systems.

Attachment F is PSEG’s proposed CAM plan for VOC emissions from EU-1 and EU-2.

14. A CAM plan is not required for NO_x and CO emissions from EU-1 and EU-2 because each of those pollutants are measured by a CEMS and are exempt from CAM per 40 CFR 64.2(b).
15. A CAM plan is not required for CO or VOC for the auxiliary boiler oxidation catalyst system because the auxiliary boiler’s potential pre-control emissions are less than the major source levels for each of these pollutants as follows:
 - a) CO: Condition B-V-4 of the CPCN limits the aux boiler to 372,000 MMBtu in any 12-month rolling period, and Condition B-V-5(b) limits the CO emission to 0.080 lb/MMBtu, so the controlled CO PTE from the aux boiler is 14.88 tpy. Using the 50% CO control efficiency listed in the Section 4 forms, the uncontrolled CO PTE is 30 tpy, well below the CO major source threshold of 100 tpy.
 - b) VOC: Likewise, Condition B-V-4 of the CPCN limits the aux boiler to 372,000 MMBtu in any 12-month rolling period, and Condition B-V-6(b) limits the VOC emission to 0.002 lb/MMBtu, so the controlled VOC PTE from the aux boiler is 0.37 tpy. Using the 34% VOC control efficiency listed in the Section 4 forms, the uncontrolled VOC PTE is 0.56 tpy, well below the VOC major source threshold of 25 tpy.

Acid Rain Application – Attachment H

16. Per the Department's guidance⁵, an application for the initial Acid Rain permit for the KEC is being submitted with this application as Attachment H.

⁵ Email from David Mummert (MDE) to Gary Napp (AKRF, Inc.) dated April 13, 2016.

Table 1
Emission unit and Emission Point Designations
PSEG Keys Energy Center

Emission Unit No.	Emission Unit Description	CPCN Designation	Emission Point No.
EU-1	CT11/HRSG11	CT1	PT-1
EU-2	CT12/HRSG12	CT2	PT-2
EU-3	Auxiliary Boiler	AUXB1	PT-3
EU-4	Power Block Emergency Diesel Generator	EG1	PT-4
EU-5	Diesel Fire Pump Engine	FP1	PT-5
EU-6	Natural Gas Pipeline Components	FUG1	FUG-1
EU-7	Circuit Breakers	CB1	FUG-2
EU-8	Fuel Oil Storage Tanks *	T1, T3	FUG-3
EU-9	On-Site Paved and Unpaved Roads	R-1	FUG-4

* - T1 is the 900 gallon fuel oil tank associated with the emergency generator, and T3 is the 350 gallon fuel oil tank associated with the fire pump engine.

ATTACHMENT A

APPLICATION FORMS

MARYLAND DEPARTMENT OF THE ENVIRONMENT

1800 Washington Boulevard Baltimore MD 21230
(410) 537-3000 1-800-633-6101 <http://www.mde.state.md.us>

PART 70 PERMIT INITIAL APPLICATION
AIR AND RADIATION MANAGEMENT ADMINISTRATION

Facilities required to obtain a Part 70 permit under COMAR 26.11.03.01 must complete and return this form. Applications are incomplete unless all applicable information required by COMAR 26.11.03.03 is supplied. Failure to supply additional information required by the Department to enable it to act on the application may result in loss of the application shield and denial of this application.

Owner and Operator:

Name of Owner or Operator: PSEG Keys Energy Center LLC		
Street Address: 10322 North Keys Road		
City: Brandywine	State: MD	Zip Code: 20613
Telephone Number 301-782-2516	Fax Number None	

Facility Information:

Name of Facility: PSEG Keys Energy Center LLC		
Street Address: 10322 North Keys Road		
City: Brandywine	State: MD	Zip Code: 20613
Plant Manager: William S. Clancy	Telephone Number: 518-598-6722	Fax Number: None
24-Hour Emergency Telephone Number for Air Pollution Matters: 301-782-2516		
E-mail Address: william.clancy@pseg.com		

List, on a separate page, the names and telephone numbers of other facility owners and persons with titles.



SECTION 1. CERTIFICATION STATEMENTS

1. Compliance Status with Applicable Enhanced Monitoring and Compliance Certification Requirements

The emissions units identified in this application are in compliance with applicable enhanced monitoring and compliance certification requirements.

2. Certification of Current Compliance with All Applicable Federally Enforceable Requirements

Except for the requirements identified in Section 7 of this application, for which compliance is not achieved, I hereby certify, based on information and belief formed after reasonable inquiry, that the facility is currently in compliance with all applicable federally enforceable requirements and agree that the facility will continue to comply with those requirements during the permit term.

You must complete a Section 7 form for each non-complying emissions unit.

3. Statement of Compliance with Respect to All New Applicable Requirements Effective During the Permit Term

I hereby state, based on information and belief formed after reasonable inquiry, that the facility agrees to meet, in a timely manner, all applicable federally enforceable requirements that become effective during the permit term, unless a more detailed schedule is expressly required by the applicable requirement.

4. Risk Management Plan Compliance

I hereby certify that, based on information and belief formed after reasonable inquiry, that a Risk Management Plan as required under 112(r) of the Clean Air Act:

☐ has been submitted;

☐ will be submitted at a future date; or

☒ does not need to be submitted.



5. Statement of Truth, Accuracy, and Completeness

"I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision and in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person(s) who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

RESPONSIBLE OFFICIAL:

X

William S. Clancy

2-MAY-19

SIGNATURE

DATE

William S. Clancy

PRINTED NAME

Plant Manager

TITLE



SECTION 2. FACILITY DESCRIPTION SUMMARY

1. Major Activities of Facility

Briefly describe the major activities, including the applicable SIC Code(s) and end product(s).

The PSEG Keys Energy Center is a 755 MW, two-on-one combined-cycle, natural gas fired combustion turbine electric generating facility (SIC Code 4911; NAICS Code 221112). The main sources of emissions are two Siemens Model SGT6-5000Fee combustion turbines (CTs), each rated at 2,330 MMBtu/hr. The CTs fire natural gas only. Each CT exhausts to its own heat recover steam generator (HRSG) which includes a Forney natural gas-fired duct burner rated at 443 MMBtu/hr. Emissions from the CTs and duct burners are controlled by an SCR and an oxidation catalyst system. Steam from the HRSGs is routed to a single steam turbine generator. Ancillary equipment includes a natural gas-fired Cleaver Brooks auxiliary boiler rated at 87.1 MMBtu/hr, a diesel-fired emergency generator rated at 1,500 kilowatts, a Cummins diesel-fired fire water pump engine rated at 260 brake horsepower, and several sources of fugitive emissions.

2. Facility-Wide Emissions

- A. This facility is required to obtain a Part 70 Operating Permit because it is:
Check appropriate box:

Actual Major
☒ Potential Major
Solid Waste Incineration Unit Requiring Permit Under § 129(e) of CAA
Other Reason: _____

- B. List the actual facility-wide emissions below: (Ref: 2018 Emissions Certification Report)

PM10 45.1 NOx 65.0 VOC 9.9 SOx 5.0 CO 48.7
HAPs 2.7

3. Include With the Application:

- A. Flow Diagrams showing all emissions units, emission points, and control devices; **SEE ATTACHMENT B**
- B. Plot plan of the entire facility; **SEE ATTACHMENT C**
- C. Emissions Certification Report (copy of the most recent submitted to the Department) **SEE ATTACHMENT D**



SECTION 3A. EMISSIONS UNIT DESCRIPTIONS

1. Emissions Unit No.: EU-1 1a. Date of installation (month/year): CT11 01/2018; HRSG11 12/2017	2. MDE Registration No.:(if applicable) 033-2737-5-1578 CT11 033-2737-5-1580 HRSG11												
3. Detailed description of the emissions unit, including all emission point(s) and the assigned number(s): EU-1 is comprised of the following: - Siemens Model SGT6-5000Fee combustion turbine rated at 2,330 MMBtu/hr fired by natural gas only [Designations: CT11 (Facility); CT1 (CPCN)] - Forney natural gas-fired duct burner rated at 443 MMBtu/hr Registration # for above two emission sources is 033-2737-5-1578 One (1) heat recovery steam generator (HRSG) [Designation: HRSG11 (Facility); HRSG1 (CPCN)] Registration # 033-2737-5-1580 Emissions from the combustion turbine and duct burner are controlled by selective catalytic reduction (SCR) and an oxidation catalyst system. Emissions exhaust through an HRSG stack (Emission Point No. PT-1)													
4. Federally Enforceable Limit on the Operating Schedule for this Emissions Unit: N/A General Reference: _____ Continuous Processes: _____ hours/day _____ days/year Batch Processes: _____ hours/batch _____ batches/day _____ days/year													
5. Fuel Consumption: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;">Type(s) of Fuel</th> <th style="text-align: left; width: 30%;">% Sulfur</th> <th style="text-align: left; width: 30%;">Annual Usage (specify units)</th> </tr> </thead> <tbody> <tr> <td>1. Natural Gas</td> <td></td> <td></td> </tr> <tr> <td>2. _____</td> <td></td> <td></td> </tr> <tr> <td>3. _____</td> <td></td> <td></td> </tr> </tbody> </table>		Type(s) of Fuel	% Sulfur	Annual Usage (specify units)	1. Natural Gas			2. _____			3. _____		
Type(s) of Fuel	% Sulfur	Annual Usage (specify units)											
1. Natural Gas													
2. _____													
3. _____													
6. Emissions in Tons: A. Actual Major: _____ Potential Major: X (note: before control device) B. Actual Emissions: NO_x 26.9 SO_x 2.4 VOC 4.8 PM10 20.4 HAPs 1.3 (Ref: 2018 Emissions Certification Report)													



SECTION 3A. EMISSIONS UNIT DESCRIPTIONS

1. Emissions Unit No.: EU-2 1a. Date of installation (month/year): CT12 01/2018; HRSG12 12/2017	2. MDE Registration No.:(if applicable) 033-2737-5-1579 CT12 033-2737-5-1581 HRSG12												
3. Detailed description of the emissions unit, including all emission point(s) and the assigned number(s): EU-2 is comprised of the following: - Siemens Model SGT6-5000Fee combustion turbine rated at 2,330 MMBtu/hr fired by natural gas only [Designations: CT12 (Facility); CT2 (CPCN)] - Forney natural gas-fired duct burner rated at 443 MMBtu/hr Registration # for above two emission sources is 033-2737-5-1579 One (1) heat recovery steam generator (HRSG) [Designation: HRSG12 (Facility); HRSG2 (CPCN)] Registration # 033-2737-5-1581 Emissions from the combustion turbine and duct burner are controlled by selective catalytic reduction (SCR) and an oxidation catalyst system. Emissions exhaust through an HRSG stack (Emission Point No. PT-2)													
4. Federally Enforceable Limit on the Operating Schedule for this Emissions Unit: N/A General Reference: _____ Continuous Processes: _____ hours/day _____ days/year Batch Processes: _____ hours/batch _____ batches/day _____ days/year													
5. Fuel Consumption: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;">Type(s) of Fuel</th> <th style="text-align: left; width: 30%;">% Sulfur</th> <th style="text-align: left; width: 30%;">Annual Usage (specify units)</th> </tr> </thead> <tbody> <tr> <td>1. Natural Gas</td> <td></td> <td></td> </tr> <tr> <td>2. _____</td> <td></td> <td></td> </tr> <tr> <td>3. _____</td> <td></td> <td></td> </tr> </tbody> </table>		Type(s) of Fuel	% Sulfur	Annual Usage (specify units)	1. Natural Gas			2. _____			3. _____		
Type(s) of Fuel	% Sulfur	Annual Usage (specify units)											
1. Natural Gas													
2. _____													
3. _____													
6. Emissions in Tons: A. Actual Major: _____ Potential Major: X (note: before control device) B. Actual Emissions: NOx 38.0 SOx 2.6 VOC 4.9 PM10 17.9 HAPs 1.4 (Ref: 2018 Emissions Certification Report)													



SECTION 3A. EMISSIONS UNIT DESCRIPTIONS

1. Emissions Unit No.: EU-3 1a. Date of installation (month/year): 01/2018	2. MDE Registration No.:(if applicable) 033-2737-5-1582												
3. Detailed description of the emissions unit, including all emission point(s) and the assigned number(s): Cleaver Brooks, natural gas-fired auxiliary boiler rate at 87.1 MMBtu/hr CPCN designation is AUXB1 The boiler exhausts through Emission Point No. PT-3													
4. Federally Enforceable Limit on the Operating Schedule for this Emissions Unit: N/A General Reference: _____ Continuous Processes: _____ hours/day _____ days/year Batch Processes: _____ hours/batch _____ batches/day _____ days/year													
5. Fuel Consumption: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Type(s) of Fuel</th> <th style="text-align: left;">% Sulfur</th> <th style="text-align: left;">Annual Usage (specify units)</th> </tr> </thead> <tbody> <tr> <td>1. Natural Gas</td> <td></td> <td>Limited to 372,000 MMBtu</td> </tr> <tr> <td>2. _____</td> <td></td> <td>in any 12-month rolling period</td> </tr> <tr> <td>3. _____</td> <td></td> <td></td> </tr> </tbody> </table>		Type(s) of Fuel	% Sulfur	Annual Usage (specify units)	1. Natural Gas		Limited to 372,000 MMBtu	2. _____		in any 12-month rolling period	3. _____		
Type(s) of Fuel	% Sulfur	Annual Usage (specify units)											
1. Natural Gas		Limited to 372,000 MMBtu											
2. _____		in any 12-month rolling period											
3. _____													
6. Emissions in Tons: A. Actual Major: _____ Potential Major: X (note: before control device) B. Actual Emissions: NO_x 0.035 SO_x 0.002 VOC 0.007 PM10 0.053 HAPs 0.007 (Ref: 2018 Emissions Certification Report)													



SECTION 3A. EMISSIONS UNIT DESCRIPTIONS

1. Emissions Unit No.: EU-4 1a. Date of installation (month/year): 11/2017	2. MDE Registration No.:(if applicable) 033-2737-9-1485												
3. Detailed description of the emissions unit, including all emission point(s) and the assigned number(s): MTU-Onsite Energy diesel-fired power block emergency generator rated at 1,500 kilowatts CPCN designation is EG1 The generator exhausts through Emission Point No. PT-4													
4. Federally Enforceable Limit on the Operating Schedule for this Emissions Unit: N/A General Reference:_____ Continuous Processes: _____ hours/day _____ days/year Batch Processes: _____ hours/batch _____ batches/day _____ days/year													
5. Fuel Consumption: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;">Type(s) of Fuel</th> <th style="text-align: left; width: 30%;">% Sulfur</th> <th style="text-align: left; width: 30%;">Annual Usage (specify units)</th> </tr> </thead> <tbody> <tr> <td>1. Ultra-Low Sulfur Diesel</td> <td>0.0015%</td> <td>_____</td> </tr> <tr> <td>2. _____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>3. _____</td> <td>_____</td> <td>_____</td> </tr> </tbody> </table>		Type(s) of Fuel	% Sulfur	Annual Usage (specify units)	1. Ultra-Low Sulfur Diesel	0.0015%	_____	2. _____	_____	_____	3. _____	_____	_____
Type(s) of Fuel	% Sulfur	Annual Usage (specify units)											
1. Ultra-Low Sulfur Diesel	0.0015%	_____											
2. _____	_____	_____											
3. _____	_____	_____											
6. Emissions in Tons: A. Actual Major: _____ Potential Major: _____ (note: before control device) B. Actual Emissions: NOx 0.061 SOx 0.000 VOC 0.007 PM10 0.002 HAPs 0.000 (Ref: 2018 Emissions Certification Report)													



SECTION 3A. EMISSIONS UNIT DESCRIPTIONS

1. Emissions Unit No.: EU-5 1a. Date of installation (month/year): 10/2017	2. MDE Registration No.:(if applicable) 033-2737-9-1484												
3. Detailed description of the emissions unit, including all emission point(s) and the assigned number(s): Cummins diesel-fired fire water pump engine rated at 260 brake horsepower. CPCN designation is FP1 The engine exhausts through Emission Point No. PT-5													
4. Federally Enforceable Limit on the Operating Schedule for this Emissions Unit: General Reference: _____ Continuous Processes: _____ hours/day _____ days/year Batch Processes: _____ hours/batch _____ batches/day _____ days/year													
5. Fuel Consumption: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;">Type(s) of Fuel</th> <th style="text-align: left; width: 20%;">% Sulfur</th> <th style="text-align: left; width: 40%;">Annual Usage (specify units)</th> </tr> </thead> <tbody> <tr> <td>1. Ultra-Low Sulfur Diesel</td> <td>0.0015%</td> <td>_____</td> </tr> <tr> <td>2. _____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>3. _____</td> <td>_____</td> <td>_____</td> </tr> </tbody> </table>		Type(s) of Fuel	% Sulfur	Annual Usage (specify units)	1. Ultra-Low Sulfur Diesel	0.0015%	_____	2. _____	_____	_____	3. _____	_____	_____
Type(s) of Fuel	% Sulfur	Annual Usage (specify units)											
1. Ultra-Low Sulfur Diesel	0.0015%	_____											
2. _____	_____	_____											
3. _____	_____	_____											
6. Emissions in Tons: A. Actual Major: _____ Potential Major: _____ (note: before control device) B. Actual Emissions: NOx 0.006 SOx 0.000 VOC 0.000 PM10 0.001 HAPs 0.000 (Ref: 2018 Emissions Certification Report)													



SECTION 3A. EMISSIONS UNIT DESCRIPTIONS

1. Emissions Unit No.: EU-6 1a. Date of installation (month/year): 09/2017	2. MDE Registration No.:(if applicable) N/A												
3. Detailed description of the emissions unit, including all emission point(s) and the assigned number(s): Natural gas pipeline components, including valves, connectors, flanges, pump seals, pressure relief valves, and six (6) catalytic heaters - all within the facility boundary. CPCN designation is FUG1 Fugitive emissions from this source are from Emission Point No. FUG-1													
4. Federally Enforceable Limit on the Operating Schedule for this Emissions Unit: General Reference: _____ Continuous Processes: _____ hours/day _____ days/year Batch Processes: _____ hours/batch _____ batches/day _____ days/year													
5. Fuel Consumption: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Type(s) of Fuel</th> <th style="text-align: left;">% Sulfur</th> <th style="text-align: left;">Annual Usage (specify units)</th> </tr> </thead> <tbody> <tr> <td>1. _____</td> <td></td> <td></td> </tr> <tr> <td>2. _____</td> <td></td> <td></td> </tr> <tr> <td>3. _____</td> <td></td> <td></td> </tr> </tbody> </table>		Type(s) of Fuel	% Sulfur	Annual Usage (specify units)	1. _____			2. _____			3. _____		
Type(s) of Fuel	% Sulfur	Annual Usage (specify units)											
1. _____													
2. _____													
3. _____													
6. Emissions in Tons: A. Actual Major: _____ Potential Major: _____ (note: before control device) B. Actual Emissions: NO_x _____ SO_x _____ VOC _____ PM₁₀ _____ HAPs _____ (Ref: 2018 Emissions Certification Report)													



SECTION 3A. EMISSIONS UNIT DESCRIPTIONS

1. Emissions Unit No.: EU-7 1a. Date of installation (month/year): 10/2017	2. MDE Registration No.:(if applicable) N/A												
3. Detailed description of the emissions unit, including all emission point(s) and the assigned number(s): Circuit breakers containing sulfur hexafluoride (SF6) CPCN designation is CB1 Fugitive emissions from this source are from Emission Point No. FUG-2													
4. Federally Enforceable Limit on the Operating Schedule for this Emissions Unit: General Reference:_____ Continuous Processes: _____ hours/day _____ days/year Batch Processes: _____ hours/batch _____ batches/day _____ days/year													
5. Fuel Consumption: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;">Type(s) of Fuel</th> <th style="text-align: left; width: 30%;">% Sulfur</th> <th style="text-align: left; width: 30%;">Annual Usage (specify units)</th> </tr> </thead> <tbody> <tr> <td>1. _____</td> <td></td> <td></td> </tr> <tr> <td>2. _____</td> <td></td> <td></td> </tr> <tr> <td>3. _____</td> <td></td> <td></td> </tr> </tbody> </table>		Type(s) of Fuel	% Sulfur	Annual Usage (specify units)	1. _____			2. _____			3. _____		
Type(s) of Fuel	% Sulfur	Annual Usage (specify units)											
1. _____													
2. _____													
3. _____													
6. Emissions in Tons: A. Actual Major: _____ Potential Major: _____ (note: before control device) B. Actual Emissions: NO_x _____ SO_x _____ VOC _____ PM₁₀ _____ HAPs _____ (Ref: 2018 Emissions Certification Report)													



SECTION 3A. EMISSIONS UNIT DESCRIPTIONS

1. Emissions Unit No.: EU-8 1a. Date of installation (month/year): 10/2017 & 11/2017	2. MDE Registration No.:(if applicable) N/A												
3. Detailed description of the emissions unit, including all emission point(s) and the assigned number(s): Two fuel oil storage tanks. CPCN T1 - 900 gallon fuel oil tank associated with the power block emergency generator (EU-4; CPCN EG1) CPCN T3 - 350 gallon fuel oil tank associated with the fire water pump engine (EU-5; CPCN FP1) Fugitive emissions from this source are from Emission Point No. FUG-3													
4. Federally Enforceable Limit on the Operating Schedule for this Emissions Unit: General Reference: _____ Continuous Processes: _____ hours/day _____ days/year Batch Processes: _____ hours/batch _____ batches/day _____ days/year													
5. Fuel Consumption: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;">Type(s) of Fuel</th> <th style="text-align: left; width: 30%;">% Sulfur</th> <th style="text-align: left; width: 30%;">Annual Usage (specify units)</th> </tr> </thead> <tbody> <tr> <td>1. _____</td> <td></td> <td></td> </tr> <tr> <td>2. _____</td> <td></td> <td></td> </tr> <tr> <td>3. _____</td> <td></td> <td></td> </tr> </tbody> </table>		Type(s) of Fuel	% Sulfur	Annual Usage (specify units)	1. _____			2. _____			3. _____		
Type(s) of Fuel	% Sulfur	Annual Usage (specify units)											
1. _____													
2. _____													
3. _____													
6. Emissions in Tons: A. Actual Major: _____ Potential Major: _____ (note: before control device) B. Actual Emissions: NO_x _____ SO_x _____ VOC 0.1 _____ PM₁₀ _____ HAPs _____ (Ref: 2018 Emissions Certification Report)													



SECTION 3A. EMISSIONS UNIT DESCRIPTIONS

1. Emissions Unit No.: EU-9 1a. Date of installation (month/year): N/A	2. MDE Registration No.:(if applicable) N/A												
3. Detailed description of the emissions unit, including all emission point(s) and the assigned number(s): On-site paved and unpaved roads. CPCN designation R-1 Fugitive emissions from this source are from Emission Point No. FUG-4													
4. Federally Enforceable Limit on the Operating Schedule for this Emissions Unit: General Reference:_____ Continuous Processes: _____ hours/day _____ days/year Batch Processes: _____ hours/batch _____ batches/day _____ days/year													
5. Fuel Consumption: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Type(s) of Fuel</th> <th style="text-align: left;">% Sulfur</th> <th style="text-align: left;">Annual Usage (specify units)</th> </tr> </thead> <tbody> <tr> <td>1. _____</td> <td></td> <td></td> </tr> <tr> <td>2. _____</td> <td></td> <td></td> </tr> <tr> <td>3. _____</td> <td></td> <td></td> </tr> </tbody> </table>		Type(s) of Fuel	% Sulfur	Annual Usage (specify units)	1. _____			2. _____			3. _____		
Type(s) of Fuel	% Sulfur	Annual Usage (specify units)											
1. _____													
2. _____													
3. _____													
6. Emissions in Tons: A. Actual Major: _____ Potential Major: _____ (note: before control device) B. Actual Emissions: NO_x _____ SO_x _____ VOC _____ PM₁₀ 6.68 HAPs _____ (Ref: 2018 Emissions Certification Report)													



**SECTION 3B. CITATION TO AND DESCRIPTION OF APPLICABLE
FEDERALLY ENFORCEABLE REQUIREMENTS**

Emissions Unit No.: _____ **General Reference:** _____

Briefly describe the Emission Standard/Limit or Operational Limitation:

[Please see the following table.](#)

Compliance Demonstration:

Methods used to demonstrate compliance:

Monitoring: Reference _____ Describe: _____

Testing: Reference _____ Describe: _____

Record Keeping: Reference _____ Describe: _____

Reporting: Reference _____ Describe: _____

Frequency of submittal of the compliance demonstration: _____

Check appropriate reports required to be submitted:

- ☐ Quarterly Monitoring Report: _____
- ☐ Annual Compliance Certification: _____
- ☐ Semi-Annual Monitoring Report: _____



Replacement for Title V Application Section 3B Form
Citation to and Description of Applicable Federally Enforceable Requirements

PSEG Keys Energy Center

Item No.	PTO Page (of 52)	PTO Condition	CPCN Page	Emission Unit	Pollutant	General Ref.	Oper. Limit	Description	Monitoring Ref.	Monitoring Description	Testing Ref.	Testing Description	Recordkeeping Ref.	Recordkeeping Description	Reporting Ref.	Reporting Description	Freq. of Compliance Demonstration	Qtr. Monitor.	Annual Compli. Cert.	Semi-Ann. Monitor.
1	4	Part B(1)(a) Part C1(9)	N/A	EU-1 & EU-2	CO2	NSPS Subpart TTTT 40 CFR 60.5520(a) 40 CFR 60.5520(b) Table 2		450 kg CO2/MWh of gross energy output	40 CFR 60.5535(c) 40 CFR 60.5535(d)	-Calculate hourly CO2 mass emissions in kg - Operate watt meters to continuously measure/record hourly gross electric output	See Monitoring Ref.	See Monitoring Desc.	40 CFR 60.5560 40 CFR 60.5565	- Maintain records as specified in §60.7(b) and (f). - Must follow applicable recordkeeping requirements and maintain records as required under Part 75 Subpart F - Keep records for 3 years after the date of conclusion of each compliance period.	40 CFR 60.5555(a)-(d)	Quarterly reporting using EPA Emissions Collection and Monitoring Plan System (ECMPS) Client Tool, and submit reports as required under Part 75 Subpart G	Quarterly	X	X	X
2	4	Part B(1)(c)-(d) Part C1(14) Part D1(8)	10	EU-1 & EU-2	NOx & SO2	CPCN 9297, B-IV-4 Acid Rain		All applicable terms, provisions, emissions standards, testing, monitoring, recordkeeping, and reporting requirements of 40 CFR Part 72 and 75.	---	---	---	---	---	---	---	---	Quarterly	X	X	X
3	5	Part B(1)(e) Part C1(15)	6	EU-1 & EU-2	NOx & SO2	CPCN 9297, B-III-1(j) CSAPR		All applicable terms, provisions, emissions standards, testing, monitoring, record keeping, and reporting requirements included in CSAPR NOx and SO2 Trading Programs promulgated under 40 CFR Part 97, Subparts AAAAA for TR NOx Annual Trading Program, BBBBB for TR NOx Ozone Season Trading Program, and CCCCC for TR SO2 Group 1 Trading Program.	---	---	---	---	---	---	---	---	Quarterly	X	X	X
4	11	Part B(2)(n)	5	EU-1 & EU-2	PM	CPCN 9297, B-III-1(d)		no particulate matter discharge in excess of 0.03 gr/SCFD (68.7 mg/dscm)	See Testing Ref.	See Testing Desc.	CPCN 9297, B-IV-8	PM testing initially and annually	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	Stack tests: CPCN 9297, B-IV-13	Final results within 60 days of test completion.	Per stack test		X	
5	11	Part B(2)(n)	5	EU-3	PM	CPCN 9297, B-III-1(d)		no particulate matter discharge in excess of 0.03 gr/SCFD (68.7 mg/dscm)	CPCN 9297, B-V-7(b)	Calculate PM emissions using fuel measurements and vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-2(d)	Annual emissions certification.			X	
6	12	Part B(2)(t)	11	EU-1 & EU-2	NH3	CPCN 9297, B-IV-7 CPCN 9297, Table B-1		5 ppmvd @ 15% O2	See Testing Ref.	See Testing Desc.	CPCN 9297, B-IV-8 CPCN 9297, Table B-1	Initial and once/5 years stack tests	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-IV-13	Final results within 60 days of test completion.	Per event.		X	
7	12	Part B(2)(t) Part C1(10) Part C1(13)	11	EU-1 & EU-2	NOx Normal Ops.	CPCN 9297, B-IV-5 (BACT) CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		2 ppmvd @ 15% O2	CPCN 9297, Table B-1	NOx CEMs		Initial and annual stack tests (conflicts with CPCN B-IV-8 that states initial and continuous compliance with NOx and CO emission limits demonstrated by CEMS.)	See Reporting Ref.	See Reporting Desc.	CEMs: CPCN 9297, B-IV-14, 15, 16 Stack tests: CPCN 9297, B-IV-13	Electronic quarterly to CAMD; Downtime, excess emissions, and quarterly CEMs summary Final results within 60 days of test completion.	Quarterly (CEMs)	X	X	X
8	12	Part B(2)(t) Part C1(10) Part C1(13)	11	EU-1 & EU-2	NOx Cold Startup	CPCN 9297, B-IV-5 (BACT) CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		245.2 lb/event	CPCN 9297, Table B-1	NOx CEMs	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	See Testing Ref.	Quarterly report.	Quarterly	X	X	X
9	12	Part B(2)(t) Part C1(10) Part C1(13)	11	EU-1 & EU-2	NOx Warm Startup	CPCN 9297, B-IV-5 (BACT) CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		82.9 lb/event	CPCN 9297, Table B-1	NOx CEMs	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	See Testing Ref.	Quarterly report.	Quarterly	X	X	X
10	12	Part B(2)(t) Part C1(10) Part C1(13)	11	EU-1 & EU-2	NOx Hot Startup	CPCN 9297, B-IV-5 (BACT) CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		71.4 lb/event	CPCN 9297, Table B-1	NOx CEMs	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	See Testing Ref.	Quarterly report.	Quarterly	X	X	X
11	12	Part B(2)(t) Part C1(10) Part C1(13)	11	EU-1 & EU-2	NOx Shutdown	CPCN 9297, B-IV-5 (BACT) CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		60 lb/event	CPCN 9297, Table B-1	NOx CEMs	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	See Testing Ref.	Quarterly report.	Quarterly	X	X	X
12	12	Part B(2)(u) Part B(2)(t)	9	EU-1 & EU-2	Opacity	CPCN 9297, B-IV-2(b) Table B-1		No visible emissions equal to or greater than 10 percent opacity. (Note: This is PTO condition B(2)(u), which is more stringent than the CPCN Table B-1 opacity limit of 20%.]	CPCN 9297, Table B-1	Visible observations per EPA Reference Method 22 at least once each calendar quarter.	CPCN 9297, Table B-1	Initial Method 9 for 1 hour within 180 days of initial startup	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
13	12	Part B(2)(t) Part C1(10)	26	EU-1 & EU-2	CO Normal Ops.	CPCN 9297, B-IV-5 (BACT) CPCN 9297, Table B-1		2.0 ppmvd at 15% O ₂	CPCN 9297, Table B-1	CO CEMs	CPCN 9297, Table B-1	Initial and annual stack tests (conflicts with CPCN B-IV-8 that states initial and continuous compliance with NOx and CO emission limits demonstrated by CEMS.)	See Reporting Ref.	See Reporting Desc.	CEMs: CPCN 9297, B-IV-14, 15, 16 Stack tests: CPCN 9297, B-IV-13	Electronic quarterly to CAMD; Downtime, excess emissions, and quarterly CEMs summary Final results within 60 days of test completion.	Quarterly (CEMs)	X	X	X
14	12	Part B(2)(t) Part C1(10)	26	EU-1 & EU-2	CO cold startup	CPCN 9297, B-IV-5 (BACT) CPCN 9297, Table B-1		1,064 lb/event	CPCN 9297, Table B-1	CO CEMs	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	See Testing Ref.	Quarterly report.	Quarterly	X	X	X
15	12	Part B(2)(t) Part C1(10)	26	EU-1 & EU-2	CO warm startup	CPCN 9297, B-IV-5 (BACT) CPCN 9297, Table B-1		311 lb/event	CPCN 9297, Table B-1	CO CEMs	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	See Testing Ref.	Quarterly report.	Quarterly	X	X	X

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16	12	Part B(2)(t) Part C1(10)	26	EU-1 & EU-2	CO hot startup	CPCN 9297, B-IV-5 (BACT) CPCN 9297, Table B-1		269 lb/event	CPCN 9297, Table B-1	CO CEMs	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	See Testing Ref.	Quarterly report.	Quarterly	X	X	X
17	12	Part B(2)(t) Part C1(10)	26	EU-1 & EU-2	CO shutdown	CPCN 9297, B-IV-5 (BACT) CPCN 9297, Table B-1		60 lb/event	CPCN 9297, Table B-1	CO CEMs	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	See Testing Ref.	Quarterly report.	Quarterly	X	X	X
18	12	Part B(2)(t) Part C1(10)	27	EU-1 & EU-2	GHG (as CO ₂)	CPCN 9297, B-IV-5 (BACT) CPCN 9297, Table B-1		869 lb CO ₂ /MW-hr (gross)	CPCN 9297, Table B-1	Monitor CO2 emissions using a certified CO2 CEMS. The total generation (MW) shall be monitored to calculate the emission rate of CO2 (lb/MW-hr), determined each month.	CPCN 9297, Table B-1	Initial and annual performance test for CO2	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	See Monitoring Ref.	See Monitoring Desc.	12-month rolling		X	
19	12	Part B(2)(t) Part C1(10)	11	EU-1 & EU-2	PM (filterable) without duct firing	CPCN 9297, B-IV-5 (BACT) CPCN 9297, Table B-1		8.8 lb/hr	See Testing Ref.	See Testing Desc.	CPCN 9297, Table B-1	Initial and annually	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-IV-13	Final results within 60 days of test completion.	Per event.		X	
20	12	Part B(2)(t) Part C1(10)	11	EU-1 & EU-2	PM (filterable) with duct firing	CPCN 9297, B-IV-5 (BACT) CPCN 9297, Table B-1		12.2 lb/hr	See Testing Ref.	See Testing Desc.	CPCN 9297, Table B-1	Initial and annually	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-IV-13	Final results within 60 days of test completion.	Per event.		X	
21	12	Part B(2)(t) Part C1(10)	11	EU-1 & EU-2	PM10 (filt + cond) without duct firing	CPCN 9297, B-IV-5 (BACT) CPCN 9297, Table B-1		11.0 lb/hr	See Testing Ref.	See Testing Desc.	CPCN 9297, Table B-1	Initial and annually	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-IV-13	Final results within 60 days of test completion.	Per event.		X	
22	12	Part B(2)(t) Part C1(10)	11	EU-1 & EU-2	PM10 (filt + cond) with duct firing	CPCN 9297, B-IV-5 (BACT) CPCN 9297, Table B-1		15.0 lb/hr	See Testing Ref.	See Testing Desc.	CPCN 9297, Table B-1	Initial and annually	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-IV-13	Final results within 60 days of test completion.	Per event.		X	
23	12	Part B(2)(t) Part C1(13)	11	EU-1 & EU-2	VOC without duct firing normal ops.	CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		1.0 ppmvd at 15% O ₂	CPCN 9297, Table B-1	CO CEMS data shall be used as a surrogate for VOC emissions. A correlation shall be developed between CO and VOC emissions based on an initial stack test. The emission correlation shall be verified annually by stack test or a new correlation established.	CPCN 9297, B-IV-8 CPCN 9297, Table B-1	Initial and annually	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-IV-13	Final results within 60 days of test completion.	Per event.		X	
24	12	Part B(2)(t) Part C1(13)	11	EU-1 & EU-2	VOC with duct firing normal ops.	CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		2.0 ppmvd at 15% O ₂	See Testing Ref.	CO CEMS data shall be used as a surrogate for VOC emissions. A correlation shall be developed between CO and VOC emissions based on an initial stack test. The emission correlation shall be verified annually by stack test or a new correlation established.	CPCN 9297, Table B-1	Initial and annually	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-IV-13	Final results within 60 days of test completion.	Per event.		X	
25	12	Part B(2)(t) Part C1(13)	11	EU-1 & EU-2	VOC cold startup	CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		164 lb/event	CPCN 9297, B-1	Vendor-provided VOC emissions factors during cold startup applied to number of cold startups used to calculate monthly VOC emissions, to demonstrate compliance with the facility-wide VOC emissions limit in Condition B-III-3.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
26	12	Part B(2)(t) Part C1(13)	11	EU-1 & EU-2	VOC warm startup	CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		63 lb/event	CPCN 9297, B-1	Vendor-provided VOC emissions factors during warm startup applied to number of warm startups used to calculate monthly VOC emissions, to demonstrate compliance with the facility-wide VOC emissions limit in Condition B-III-3.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
27	12	Part B(2)(t) Part C1(13)	11	EU-1 & EU-2	VOC hot startup	CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		52.6 lb/event	CPCN 9297, B-1	Vendor-provided VOC emissions factors during hot startup applied to number of hot startups used to calculate monthly VOC emissions, to demonstrate compliance with the facility-wide VOC emissions limit in Condition B-III-3.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	

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28	12	Part B(2)(t) Part C1(13)	11	EU-1 & EU-2	VOC shutdown	CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		12 lb/event	CPCN 9297, B-1	Vendor-provided VOC emissions factors during shutdown applied to number of shutdowns used to calculate monthly VOC emissions, to demonstrate compliance with the facility-wide VOC emissions limit in Condition B-III-3.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
29	13	Part B(2)(w)	10	EU-1 & EU-2	NOx Normal Ops.	CPCN 9297, B-IV-2(c) COMAR 26.11.09.08G(2) CPCN 9297, Table B-1		42 ppmvd @ 15% O2 (or PSD BACT, whichever more restrictive) Normal Ops.	COMAR 26.11.09.08B(2)	NOx CEMs	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-IV-17 COMAR 26.11.09.08K(3)	Records on site for at least 3 years	COMAR 26.11.09.08K(1)	Quarterly reporting.	Quarterly	X	X	X
30	13	Part B(2)(y)	14	EU-3	Opacity	CPCN 9297, B-V-1(c)		No visible emissions equal to or greater than 10 percent opacity. (Note: This is PTO condition B(2)(v), which is more stringent than the CPCN Table B-1 opacity limit of 20%.]	CPCN 9297, B-V-8	Visible observations per EPA Reference Method 22 at least once each calendar quarter	CPCN 9297, B-V-8	Initial Method 9 within 180 days of startup of the boiler	CPCN 9297, B-I-8	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
31	14	Part B(2)(z)(2) Part D2(2)(c)	14	EU-3	N/A	CPCN 9297, B-V-1(a)(i)	X	Annual combustion analysis	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-V-14(b)	Maintain the results of the combustion analysis at the site for at least two years and make this data available to MDE-ARMA and the EPA upon request	See Recordkeeping Ref.	See Recordkeeping Desc.	Annual		X	
32	14	Part B(2)(z)(4)	14	EU-3	N/A	CPCN 9297, B-V-1(a)(ii)	X	Train operators at least once every three years on combustion optimization	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-V-14(c)	Prepare and maintain a record of training program attendance for each operator at the site, and make these records available to MDE-ARMA upon request.	See Recordkeeping Ref.	See Recordkeeping Desc.	Every 3 years		X	
33	14	Part B(2)(z)(2)	18	EU-4 & EU-5	N/A	CPCN 9297, B-VI-1(e)	X	Annual combustion analysis	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-VI-13(b)	Results of the combustion analysis at the site for at least two years and make this data available to MDE-ARMA and the EPA upon request;	See Recordkeeping Ref.	See Recordkeeping Desc.	Annual		X	
34	14	Part B(2)(z)(4)	18	EU-4 & EU-5	N/A	CPCN 9297, B-VI-1(e)	X	Train operators at least once every three years on combustion optimization	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-VI-13(c)	Records of training program attendance for each operator at the site, and make these records available to MDE-ARMA upon request.	See Recordkeeping Ref.	See Recordkeeping Desc.	Every 3 years		X	
35	14	Part B(2)(aa)(2)	17	EU-4 & EU-5	Opacity	CPCN 9297, B-VI-1(a)		Operating at idle: no visible emissions equal to or greater than 10 percent opacity.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.			X	
36	14	Part B(2)(aa)(3)	18	EU-4 & EU-5	Opacity	CPCN 9297, B-VI-1(b)		Operating at other than idle: no visible emissions equal to or greater than 40 percent opacity.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.			X	
37	15	Part B(2)(bb)	18	EU-4 & EU-5	N/A	CPCN 9297, B-VI-1(d)	X	Fuel cannot contain sulfur content in excess of 0.3 percent.	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-VI-12	Maintain fuel supplier certifications for each fuel delivery that documents the sulfur content of the ULSD	See Recordkeeping Ref.	See Recordkeeping Desc.			X	
38	17	Part C(4)	6	Facility-wide	PM Filterable	CPCN 9297, B-III-3		77.2 tpy	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4(e)	Quarterly report that summarizes the monthly and consecutive rolling 12-month total emissions.	Quarterly	X	X	
39	17	Part C(4)	6	Facility-wide	PM10 Filterable and Condensable	CPCN 9297, B-III-3		94.4 tpy	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4(e)	Quarterly report that summarizes the monthly and consecutive rolling 12-month total emissions.	Quarterly	X	X	
40	17	Part C(4)	6	Facility-wide	NO _x	CPCN 9297, B-III-3		156.0 tpy	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4(e)	Quarterly report that summarizes the monthly and consecutive rolling 12-month total emissions.	Quarterly	X	X	
41	17	Part C(4)	6	Facility-wide	CO	CPCN 9297, B-III-3		203.4 tpy	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4(e)	Quarterly report that summarizes the monthly and consecutive rolling 12-month total emissions.	Quarterly	X	X	
42	17	Part C(4)	6	Facility-wide	VOC	CPCN 9297, B-III-3		56.2 tpy	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4(e)	Quarterly report that summarizes the monthly and consecutive rolling 12-month total emissions.	Quarterly	X	X	
43	17	Part C(4)	6	Facility-wide	CO ₂ e	CPCN 9297, B-III-3		2,467,793 tpy	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4(e)	Quarterly report that summarizes the monthly and consecutive rolling 12-month total emissions.	Quarterly	X	X	

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44	17	Part C(5)	6	Facility-wide	PM _{2.5}	CPCN 9297, B-III-1(k)		100 tpy	CTs and duct burners: CPCN 9297, B-III-8(a)(ii) Aux boiler: CPCN 9297, B-III-8(b) Emergency generator and fire pump engine: CPCN 9297, B-III-8(c)	CTs and duct burners: Monitor fuel usage in MMscf continuously Aux boiler: Monthly heat input (coupled with 0.0075 lb/MMBtu emission factor or lower tested. Emergency generator and fire pump engine: Monthly operating hours coupled with an emission factor	CTs and duct burners: CPCN 9297, B-III-8(a)(i)	CTs and duct burners: Initial and annual performance tests	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4(e)	Quarterly report that summarizes the monthly and consecutive rolling 12-month total emissions.	Quarterly	X	X	
45	18	Part C1(2)	10	EU-1 & EU-2	NOx Normal Ops.	CPCN 9297, Table B-1 40 CFR §60.4320(a) Table 1 to Subpart KKKK of Part 60		15 ppm @ 15% O2 or 54 ng/J of useful output (0.43 lb/MWh)	CPCN 9297, B-IV-3 40 CFR §60.4340(b)	NOx CEMs	CPCN 9297, Table B-1 40 CFR §60.4400(a)	Initial and annual stack tests (conflicts with CPCN B-IV-8 that states initial and continuous compliance with NOx and CO emission limits demonstrated by CEMS.)	See Reporting Ref.	See Reporting Desc.	40 CFR §60.4375	CEMs: Submit reports of excess emissions and monitor downtime, in accordance with §60.7(c) Stack test: Submit a written report before the close of business on the 60th day following test completion	Semiannually (CEMs) and per stack test.		X	X
46	18	Part C1(1)	9	EU-1 & EU-2	N/A	CPCN 9297, B-IV-1	X	CTs and duct burners limited to pipeline quality natural gas.	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
47	19	Part C1(3)(b) Part C1(7) Part B(2)(t)	31	EU-1 & EU-2	SO ₂	CPCN 9297, Table B-1 40 CFR 60.4330(a)(2)		Cannot burn fuel which contains total potential sulfur emissions in excess of 0.060 lb SO2/MMBtu	See Testing Ref.	See Testing Desc.	CPCN 9297, B-IV-8 CPCN 9297, Table B-1 40 CFR 60.4415(a)(1) 40 CFR 60.4365(a)	Exempt from monitoring sulfur content in fuel. Use the fuel quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the fuel, specifying that the total sulfur content for natural gas is <= 20 gr/100 scf.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	See Testing Ref.	See Testing Desc.	By contract		X	
48	23	Part C2(1)	15	EU-3	N/A	CPCN 9297, B-V-3	X	Auxiliary boiler limited to pipeline quality natural gas.	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
49	23	Part C2(3) Part C2(2) Part D2(4)	15	EU-3	N/A	CPCN 9297, B-V-4	X	Heat input: 372,000 MMBtu in any 12-month rolling period.	CPCN 9297, B-V-9	Continuously monitor the fuel flow.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-V-9 CPCN 9297, B-V-12 40 CFR 60.48c(g)(2)	The fuel usage shall be recorded at least on a monthly basis. Maintain records of natural gas fuel usage on a monthly basis.	CPCN 9297, B-III-4(d)	Quarterly report .	Quarterly	X	X	
50	23	Part C2(4)(a)	15	EU-3	NO _x	CPCN 9297, B-V-5(a)(BACT)		0.01 lb/MMBtu	CPCN 9297, B-V-7(b)	Calculate NOx emissions using fuel measurements and vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
51	23	Part C2(4)(b)	15	EU-3	CO	CPCN 9297, B-V-5(b)(BACT)		0.080 lb/MMBtu	CPCN 9297, B-V-7(b)	Calculate CO emissions using fuel measurements and vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
52	23	Part C2(4)(c)	15	EU-3	PM	CPCN 9297, B-V-5(c)(BACT)		0.0075 lb/MMBtu	CPCN 9297, B-V-7(b)	Calculate PM emissions using fuel measurements and vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
53	23	Part C2(4)(d)	15	EU-3	PM ₁₀	CPCN 9297, B-V-5(d)(BACT)		0.0075 lb/MMBtu	CPCN 9297, B-V-7(b)	Calculate PM10 emissions using fuel measurements and vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
54	23	Part C2(4)(e)	15	EU-3	GHG	CPCN 9297, B-V-5(b)(BACT)		Contribution to Facility-Wide GHG	CPCN 9297, B-V-7(c) & (d)	Annual combustion analysis on the auxiliary boiler. CO2, CH4 and N2O emissions calculated in accordance with 40 CFR 98, Subpart C. Calculate emissions on a monthly basis.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4 CPCN 9297, B-V-7(c)	Quarterly Report Results of the combustion analysis shall be provided to MDE-ARMA within 45 days of its completion.	Quarterly	X	X	
55	24	Part C2(5)(a)	15	EU-3	NO _x	CPCN 9297, B-V-6(a)(LAER)		0.01 lb/MMBtu	CPCN 9297, B-V-7(b)	Calculate NOx emissions using fuel measurements and vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
56	24	Part C2(5)(b)	15	EU-3	VOC	CPCN 9297, B-V-6(b)(LAER)		0.002 lb/MMBtu	CPCN 9297, B-V-7(b)	Calculate VOC emissions using fuel measurements and vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	

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PSEG Keys Energy Center

Item No.	PTO Page (of 52)	PTO Condition	CPCN Page	Emission Unit	Pollutant	General Ref.	Oper. Limit	Description	Monitoring Ref.	Monitoring Description	Testing Ref.	Testing Description	Recordkeeping Ref.	Recordkeeping Description	Reporting Ref.	Reporting Description	Freq. of Compliance Demonstration	Qtr. Monitor.	Annual Compli. Cert.	Semi-Ann. Monitor.
57	24	Part C3(1)	19	EU-4 & EU-5	N/A	CPCN 9297, B-VI-5	X	The auxiliary generator and fire water pump engine shall be fueled with ultra-low sulfur diesel fuel only	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
58	24	Part C3(2) Part C3(14)	21	EU-4	N/A	40 CFR 60.4209(a) CPCN 9297, B-VI-8(e)	X	The emergency generator shall be equipped with a non-resettable hour meter	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-I-8	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4(d)	Quarterly report.	Quarterly	X	X	
59	24	Part C3(4)(a)	19	EU-4	NO _x + NMHC	40 CFR 60.4205(b) 40 CFR 60.4202(a)(2) 40 CFR 89.112(a)(Table 1) CPCN 9297, B-VI-3(a)		6.4 g/kW-hr (4.8 g/hp-hr)	CPCN 9297, B-VI-9(a)	Calculate NO _x + NMHC emissions using vendor guaranteed emission rates.	40 CFR 60.4211(c)	Certified to the emissions standards in §60.4205(b), as applicable. The generator must be installed and configured according to the manufacturer's specifications.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
60	24	Part C3(4)(b)	19	EU-4	CO	40 CFR 60.4205(b) 40 CFR 60.4202(a)(2) 40 CFR 89.112(a)(Table 1) CPCN 9297, B-VI-3(a)		3.5 g/kW-hr (2.6 g/hp-hr)	CPCN 9297, B-VI-9(a)	Calculate CO emissions using vendor guaranteed emission rates.	40 CFR 60.4211(c)	Certified to the emissions standards in §60.4205(b), as applicable. The generator must be installed and configured according to the manufacturer's specifications.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
61	24	Part C3(4)(c)	19	EU-4	PM	40 CFR 60.4205(b) 40 CFR 60.4202(a)(2) 40 CFR 89.112(a)(Table 1) CPCN 9297, B-VI-3(a)		0.2 g/kW-hr (0.15 g/hp-hr)	CPCN 9297, B-VI-9(a)	Calculate PM emissions using vendor guaranteed emission rates.	40 CFR 60.4211(c)	Certified to the emissions standards in §60.4205(b), as applicable. The generator must be installed and configured according to the manufacturer's specifications.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
62	24	Part C3(5)(a)	19	EU-4	Opacity During Acceleration Mode	40 CFR 60.4205(b) 40 CFR 60.4202(a)(2) 40 CFR 89.113(a)		20 percent	See Testing Ref.	See Testing Desc.	40 CFR 89.113(b)	Opacity levels are to be measured and calculated as set forth in 40 CFR part 86, subpart I.	See Testing Ref.	See Testing Desc.	See Testing Ref.	See Testing Desc.			X	
63	24	Part C3(5)(b)	19	EU-4	Opacity During Lugging Mode	40 CFR 60.4205(b) 40 CFR 60.4202(a)(2) 40 CFR 89.113(a)		15 percent	See Testing Ref.	See Testing Desc.	40 CFR 89.113(b)	Opacity levels are to be measured and calculated as set forth in 40 CFR part 86, subpart I.	See Testing Ref.	See Testing Desc.	See Testing Ref.	See Testing Desc.			X	
64	24	Part C3(5)(c)	19	EU-4	Opacity During Peaks	40 CFR 60.4205(b) 40 CFR 60.4202(a)(2) 40 CFR 89.113(a)		50 percent	See Testing Ref.	See Testing Desc.	40 CFR 89.113(b)	Opacity levels are to be measured and calculated as set forth in 40 CFR part 86, subpart I.	See Testing Ref.	See Testing Desc.	See Testing Ref.	See Testing Desc.			X	
65	25	Part C3(7)	20	EU-4	N/A	CPCN 9297, B-VI-8(c) 40 CFR 60.4211(f)(2)(i)	X	Generator may be operated for the purpose of maintenance checks and readiness testing no more than 100 hours per year, provided that those tests are recommended by Federal, State, or local government; the manufacturer; the vendor; or the insurance company associated with the engine.	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4(d)	Report summarizes, among other things, operating hours of emergency generator	Quarterly	X	X	
66	25	Part C3(8)(a)	19	EU-5	NO _x + NMHC	40 CFR 60.4205(c) 40 CFR Part 60, Subpart IIII, Table 4 CPCN 9297, B-VI-3(b)		4.0 g/kW-hr (3.0 g/hp-hr)	CPCN 9297, B-VI-9(a)	Calculate NO _x + NMHC emissions using vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
67	25	Part C3(8)(b)	19	EU-5	CO	40 CFR 60.4205(c) 40 CFR Part 60, Subpart IIII, Table 4 CPCN 9297, B-VI-3(b)		3.5 g/kW-hr (2.6 g/hp-hr)	CPCN 9297, B-VI-9(a)	Calculate CO emissions using vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
68	25	Part C3(8)(c)	19	EU-5	PM	40 CFR 60.4205(c) 40 CFR Part 60, Subpart IIII, Table 4 CPCN 9297, B-VI-3(b)		0.20 g/kW-hr (0.15 g/hp-hr)	CPCN 9297, B-VI-9(a)	Calculate PM emissions using vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
69	25	Part C3(10)(a) Part C3(15)	19	EU-4 & EU-5	N/A	40 CFR 60.4207(b) 40 CFR 80.510(b) CPCN 9297, B-VI-3 CPCN 9297, B-VI-5	X	Sulfur Content 15 ppm maximum	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-VI-12	Maintain fuel supplier certifications for each fuel delivery that documents the sulfur content of the ULSD	See Recordkeeping Ref.	See Recordkeeping Desc.			X	
70	25	Part C3(10)(b)(i)	19	EU-4 & EU-5	N/A	40 CFR 60.4207(b) 40 CFR 80.510(b) CPCN 9297, B-VI-3	X	Cetane Index 40 minimum	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-VI-12	Maintain fuel supplier certifications for each fuel delivery that documents the sulfur content of the ULSD	See Recordkeeping Ref.	See Recordkeeping Desc.			X	
71	25	Part C3(10)(b)(ii)	19	EU-4 & EU-5	N/A	40 CFR 60.4207(b) 40 CFR 80.510(b) CPCN 9297, B-VI-3	X	Aromatic Content 35 volume percent maximum	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-VI-12	Maintain fuel supplier certifications for each fuel delivery that documents the sulfur content of the ULSD	See Recordkeeping Ref.	See Recordkeeping Desc.			X	
72	26	Part C3(14)	21	EU-5	N/A	40 CFR 60.4209(a) CPCN 9297, B-VI-8(e)	X	The fire pump engine shall be equipped with a non-resettable hour meter	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-I-8	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4(d)	Quarterly report.	Quarterly	X	X	
73	26	Part C3(12)(b)	20	EU-4	PM10 (filterable and condensable)	CPCN 9297, B-VI-6(a)(ii)		0.18 g/hp-hour	CPCN 9297, B-VI-9(a)	Calculate PM10 emissions using vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
74	26	Part C3(13)(b)	20	EU-5	PM10 (filterable and condensable)	CPCN 9297, B-VI-6(b)(ii)		0.18 g/hp-hour	CPCN 9297, B-VI-9(a)	Calculate PM10 emissions using vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	

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PSEG Keys Energy Center

Item No.	PTO Page (of 52)	PTO Condition	CPCN Page	Emission Unit	Pollutant	General Ref.	Oper. Limit	Description	Monitoring Ref.	Monitoring Description	Testing Ref.	Testing Description	Recordkeeping Ref.	Recordkeeping Description	Reporting Ref.	Reporting Description	Freq. of Compliance Demonstration	Qtr. Monitor.	Annual Compli. Cert.	Semi-Ann. Monitor.
75	27	Part C4(1)	22	EU-6	N/A	CPCN 9297, B-VII-1	X	Implementation of an Audio, Visual, and Olfactory (AVO) Program on file at power plant site. In accordance with an AVO program Plan, the AVO inspections shall be documented, leaks identified from the AVO assessment shall be repaired within five days of discovery, repairs documented, and associated repair records maintained.	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-VII-1	Document repairs and maintain records.	CPCN 9297, B-VII-3	These data shall be readily available for inspection by representatives of MDE-ARMA.	Inspections as required by AVO		X	
76	27	Part C5(1)	23	EU-7	N/A	CPCN 9297, B-VIII-1	X	Circuit breaker leaks detected shall be repaired within five days of discovery; repairs documented, and associated repair records maintained.	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-VIII-3	PSEG Keys shall maintain all records of monitoring and repair associated with the circuit breakers at the Facility for at least five years after the completion of the calendar year in which they were collected.	CPCN 9297, B-VIII-3	These data shall be readily available for inspection by representatives of MDE-ARMA.	Leaks repaired as needed		X	
77	27	Part C4(2)	22	EU-6	GHG	CPCN 9297, B-VII-2		Contribution to Facility-Wide GHG	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-8	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-5	Quarterly Report	Quarterly	X	X	
78	27	Part C5(2)	23	EU-7	GHG	CPCN 9297, B-VIII-2		Contribution to Facility-Wide GHG	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-9	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-6	Quarterly Report	Quarterly	X	X	
79	28	Part C6(2)	24	EU-8	VOC	CPCN 9297, B-IX-2(LAER)		0.1 tpy (through periodic maintenance)	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-IX-3	PSEG Keys shall maintain records of periodic maintenance performed on the tanks for at least five years.	CPCN 9297, B-IX-3	These data shall be readily available for inspection by representatives of MDE-ARMA.	Per MDE request.		X	
80	28	Part C7	24	EU-9	PM and PM ₁₀	CPCN 9297, B-X-1(BACT)	X	Minimize PM and PM ₁₀ emissions from onsite roadways by taking reasonable precautions to prevent particulate matter from becoming airborne by sweeping or water application dust control, as needed.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.			X	
81	30	Part D1(5)	12	EU-1 & EU-2	N/A	CPCN 9297, B-IV-10	X	Install a fuel flow meter and continuously monitor the fuel flow for each CT/HRSG and duct burner. The total fuel usage per month shall be recorded.	CPCN 9297, B-IV-10	Continuously monitor the fuel flow.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-IV-18(d)	Keep records for monthly and consecutive rolling 12-month total fuel use and hours of operation for each CT and duct burner	CPCN 9297, B-III-4(d)	Quarterly report .	Quarterly	X	X	
82	38	Part E2(7)	17	EU-3	N/A	CPCN 9297, B-V-16	X	Maintenance on auxiliary boiler.	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-V-16 40 CFR 60.48c(i)	Maintain records of any maintenance performed on the auxiliary boiler for 2 years from the date of record.	See Recordkeeping Ref.	See Recordkeeping Desc.	N/A		X	
83	43	Part B(2)(t)	28	EU-1 & EU-2	N/A	CPCN 9297, Table B-1	X	6,802 Btu/kWh (net) (LHV)	See Testing Ref.	See Testing Desc.	CPCN 9297, Table B-1	Initial compliance demonstrated using ASME PTC 46 test method. Annual thermal efficiency test conducted according to ASME PTC-46 (or approved alternative) and compare results to design thermal efficiency value.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	See Testing Ref.	See Testing Desc.	Annual		X	
84	N/A	None	21	EU-4	GHG	CPCN 9297, B-VI-9(b)		Contribution to Facility-Wide GHG	CPCN 9297, B-VI-9(b)	CO2, CH4 and N2O emissions calculated in accordance with 40 CFR 98, Subpart C. Calculate emissions on a monthly basis.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly Report	Quarterly	X	X	
85	N/A	None	21	EU-5	GHG	CPCN 9297, B-VI-9(b)		Contribution to Facility-Wide GHG	CPCN 9297, B-VI-9(b)	CO2, CH4 and N2O emissions calculated in accordance with 40 CFR 98, Subpart C. Calculate emissions on a monthly basis.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly Report	Quarterly	X	X	

SECTION 3C. OBSOLETE, EXTRANEEOUS, OR INSIGNIFICANT PERMIT CONDITIONS

List permit to construct conditions which should be considered to be obsolete, extraneous, or environmentally insignificant.

Emissions Unit No.: ALL Permit to Construct No. CPCN Case No. 9297

Emissions Point No.	Date Permit Issued *	Condition No.	Brief Description of Condition and Reason for Exclusion
All	10/11/17	B-I-4	Permit to construct approval expiration conditions. / Facility has been constructed.
All	10/11/17	B-I-5	Requirement to submit State PTO application. / Initial PTO #033-2737 currently in force.
All	10/11/17	B-I-6	Requirement to submit Part 70 permit application. / The application is being submitted herewith.
PT-1 thru PT-5	10/11/17	B-III-5	Notification of construction, startup, and anticipated compliance stack testing for NSPS sources. /
			Notifications provided to MDE and EPA on 11/11/15, 5/10/18 (CT11), 5/16/18 (CT12) and 9/21/18.
PT-4 and PT-5	10/11/17	B-III-6	Notification of startup of MACT Subpart ZZZZ sources. / Notifications provided to MDE and EPA on 12/7/17.
PT-3, PT-4 and and PT-5	10/11/17	B-III-7	Submit registration forms for auxiliary boiler, emergency generator, and fire pump engine. /
			Forms submitted to MDE on 3/29/2017.



SECTION 3C. OBSOLETE, EXTRANEOUS, OR INSIGNIFICANT PERMIT CONDITIONS

List permit to construct conditions which should be considered to be obsolete, extraneous, or environmentally insignificant.

Emissions Unit No.: EU - 3 Permit to Construct No. CPCN Case No. 9297

Emissions Point No.	Date Permit Issued	Condition No.	Brief Description of Condition and Reason for Exclusion
PT-3	10/11/17	B-V-II	Notification of construction and startup date. / Notification provided to MDE and EPA on 11/11/15 and 3/12/18.



SECTION 3C. OBSOLETE, EXTRANEIOUS, OR INSIGNIFICANT PERMIT CONDITIONS

List permit to construct conditions which should be considered to be obsolete, extraneous, or environmentally insignificant.

Emissions Unit No.: EU - 4 Permit to Construct No. CPCN Case No. 9297

Emissions Point No.	Date Permit Issued	Condition No.	Brief Description of Condition and Reason for Exclusion
PT-4	10/11/17	B-VI-2	Distributed generation - Emergency generators and load shaving units NOx requirements. / Regulation has been repealed.



SECTION 3C. OBSOLETE, EXTRANEIOUS, OR INSIGNIFICANT PERMIT CONDITIONS

List permit to construct conditions which should be considered to be obsolete, extraneous, or environmentally insignificant.

Emissions Unit No.: EU - 4 and EU - 5 Permit to Construct No. CPCN Case No. 9297

Emissions Point No.	Date Permit Issued	Condition No.	Brief Description of Condition and Reason for Exclusion
PT-3 and PT-4	10/11/17	B-VI-10	Notification of construction and startup date. / Notification provided to MDE and EPA on 11/11/15 and 12/7/17.



SECTION 3D. ALTERNATE OPERATING SCENARIOS

Emissions Unit No.: _____

Briefly describe any alternate operating scenarios. Assign a number to each scenario for identification purposes.

NOT APPLICABLE



**SECTION 3E. CITATION TO AND DESCRIPTION OF APPLICABLE
FEDERALLY ENFORCEABLE REQUIREMENTS FOR AN
ALTERNATE OPERATING SCENARIO**

Scenario No.: _____

Emissions Unit No.: _____ **General Reference:** _____

Briefly describe any applicable Emissions Standard/Limits/Operational Limitations:

NOT APPLICABLE

Compliance Demonstration:

Methods used to demonstrate compliance:

Monitoring: Reference _____ Describe: _____

Testing: Reference _____ Describe: _____

Record Keeping: Reference _____ Describe: _____

Reporting: Reference _____ Describe: _____

Frequency of submittal of the compliance demonstration: _____

Check appropriate reports required to be submitted:

- ☐ Quarterly Monitoring Report: _____
- ☐ Annual Compliance Certification: _____
- ☐ Semi-Annual Monitoring Report: _____



SECTION 4. CONTROL EQUIPMENT

1. <u>Associated Emissions Units No. :</u> EU-1 and EU-2		2. <u>Emissions Point No.:</u> PT-1 and PT-2	
3. <u>Type and Description of Control Equipment:</u> Selective catalytic reduction (SCR) Oxidation catalyst system			
4. Pollutants Controlled:		Control Efficiency:	
NOx (SCR)		83%	
CO (oxidation catalyst)		80%	
VOC (oxidation catalyst)		35%	
5. Capture Efficiency: 100%			



SECTION 4. CONTROL EQUIPMENT

1. <u>Associated Emissions Units No. :</u> EU-3	2. <u>Emissions Point No.:</u> PT-3
3. <u>Type and Description of Control Equipment:</u> Oxidation catalyst system	
4. Pollutants Controlled:	Control Efficiency:
CO (oxidation catalyst)	50%
VOC (oxidation catalyst)	34%
5. Capture Efficiency: 100%	



SECTION 5. SUMMARY SHEET OF POTENTIAL EMISSIONS

List all applicable pollutants in tons per year (tpy) pertaining to this facility. The Emissions Unit No. should be consistent with numbers used in Section 3. Attach a copy of all calculations.

Pollutant	2-Methylnaphthalene	3-Methylcholanthrene	7,12-Dimethylbenz (a)anthracene	Acenaphthene	Acenaphthylene
CAS Number (If Applicable)	91-57-6	56-49-5	57-97-6	83-32-9	203-96-8
Emissions Unit EU-1	4.57E-05	3.42E-06	3.04E-05	3.42E-06	3.42E-06
Emissions Unit EU-2	4.57E-05	3.42E-06	3.04E-05	3.42E-06	3.42E-06
Emissions Unit EU-3	4.38E-06	3.28E-07	2.92E-06	3.28E-07	3.28E-07
Emissions Unit EU-4	---	---	---	3.56E-06	7.01E-06
Emissions Unit EU-5	---	---	---	1.28E-07	4.55E-07
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Fugitive Emissions					
Total	9.57E-05	7.18E-06	6.38E-05	1.09E-05	1.46E-05

Clean Air Act Hazardous Air Pollutants (HAPs) only.
To demonstrate that the PSEG Keys Energy Center is not a major HAPs source.



SECTION 5. SUMMARY SHEET OF POTENTIAL EMISSIONS

List all applicable pollutants in tons per year (tpy) pertaining to this facility. The Emissions Unit No. should be consistent with numbers used in Section 3. Attach a copy of all calculations.

Pollutant	Anthracene	Benz(a)anthracene	Benzene	Benzo(a)pyrene	Benzo(b)fluoranthene
CAS Number (If Applicable)	120-12-7	56-55-3	71-43-2	50-32-8	205-99-2
Emissions Unit EU-1	4.57E-06	3.42E-06	1.26E-01	2.28E-06	3.42E-06
Emissions Unit EU-2	4.57E-06	3.42E-06	1.26E-01	2.28E-06	3.42E-06
Emissions Unit EU-3	4.38E-07	3.28E-07	3.83E-04	2.19E-07	3.28E-07
Emissions Unit EU-4	9.35E-07	4.73E-07	5.90E-04	1.95E-07	8.44E-07
Emissions Unit EU-5	1.68E-07	1.51E-07	8.40E-05	1.69E-08	8.92E-09
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Fugitive Emissions					
Total	1.07E-05	7.80E-06	2.54E-01	5.00E-06	8.03E-06

Clean Air Act Hazardous Air Pollutants (HAPs) only.
To demonstrate that the PSEG Keys Energy Center is not a major HAPs source.



SECTION 5. SUMMARY SHEET OF POTENTIAL EMISSIONS

List all applicable pollutants in tons per year (tpy) pertaining to this facility. The Emissions Unit No. should be consistent with numbers used in Section 3. Attach a copy of all calculations.

Pollutant	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	1,4-Dichlorobenzene(P)
CAS Number (If Applicable)	191-24-2	207-08-9	218-01-9	53-70-3	106-46-7
Emissions Unit EU-1	2.28E-06	3.42E-06	3.42E-06	2.28E-06	2.28E-03
Emissions Unit EU-2	2.28E-06	3.42E-06	3.42E-06	2.28E-06	2.28E-03
Emissions Unit EU-3	2.19E-07	3.28E-07	3.28E-07	2.19E-07	2.19E-04
Emissions Unit EU-4	4.23E-07	1.66E-07	1.16E-06	2.63E-07	---
Emissions Unit EU-5	4.40E-08	1.40E-08	3.18E-08	5.25E-08	---
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Fugitive Emissions					
Total	5.25E-06	7.36E-06	8.37E-06	5.10E-06	4.78E-03

Clean Air Act Hazardous Air Pollutants (HAPs) only.
To demonstrate that the PSEG Keys Energy Center is not a major HAPs source.



SECTION 5. SUMMARY SHEET OF POTENTIAL EMISSIONS

List all applicable pollutants in tons per year (tpy) pertaining to this facility. The Emissions Unit No. should be consistent with numbers used in Section 3. Attach a copy of all calculations.

Pollutant	Fluoranthene	Fluorene	Formaldehyde	Hexane	Indeno(1,2,3-cd)pyrene
CAS Number (If Applicable)	206-44-0	86-73-7	80-00-0	110-54-3	193-39-5
Emissions Unit EU-1	5.71E-06	5.33E-06	1.12E-00	3.42E-00	3.42E-06
Emissions Unit EU-2	5.71E-06	5.33E-06	1.12E-00	3.42E-00	3.42E-06
Emissions Unit EU-3	5.47E-07	5.11E-07	1.37E-02	3.28E-01	3.28E-07
Emissions Unit EU-4	3.06E-06	9.73E-06	6.00E-05	---	3.15E-07
Emissions Unit EU-5	6.85E-07	2.63E-06	1.06E-04	---	3.38E-08
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Fugitive Emissions					
Total	1.57E-05	2.35E-05	2.26E-00	7.18E-00	7.52E-06

Clean Air Act Hazardous Air Pollutants (HAPs) only.
To demonstrate that the PSEG Keys Energy Center is not a major HAPs source.



SECTION 5. SUMMARY SHEET OF POTENTIAL EMISSIONS

List all applicable pollutants in tons per year (tpy) pertaining to this facility. The Emissions Unit No. should be consistent with numbers used in Section 3. Attach a copy of all calculations.

Pollutant	Naphthalene	Phenanthrene	Pyrene	Toluene	Arsenic
CAS Number (If Applicable)	91-20-3	85-01-8	129-00-0	108-88-3	7440-38-2
Emissions Unit EU-1	1.44E-02	3.23E-05	9.51E-06	1.33E-00	3.80E-04
Emissions Unit EU-2	1.44E-02	3.23E-05	9.51E-06	1.33E-00	3.80E-04
Emissions Unit EU-3	1.11E-04	3.10E-06	9.12E-07	6.20E-04	3.65E-05
Emissions Unit EU-4	9.88E-05	3.10E-05	2.82E-06	2.14E-04	---
Emissions Unit EU-5	7.63E-06	2.65E-06	4.30E-07	3.68E-05	---
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Fugitive Emissions					
Total	2.91E-02	1.01E-04	2.32E-05	2.67E-00	7.97E-04

Clean Air Act Hazardous Air Pollutants (HAPs) only.
To demonstrate that the PSEG Keys Energy Center is not a major HAPs source.



SECTION 5. SUMMARY SHEET OF POTENTIAL EMISSIONS

List all applicable pollutants in tons per year (tpy) pertaining to this facility. The Emissions Unit No. should be consistent with numbers used in Section 3. Attach a copy of all calculations.

Pollutant	Beryllium	Cadmium	Chromium	Cobalt	Manganese
CAS Number (If Applicable)	7440-41-7	7440-43-9	7440-47-3	7440-48-4	7439-96-5
Emissions Unit EU-1	2.28E-05	2.09E-03	2.66E-03	1.60E-04	7.23E-04
Emissions Unit EU-2	2.28E-05	2.09E-03	2.66E-03	1.60E-04	7.23E-04
Emissions Unit EU-3	2.19E-06	2.01E-04	2.55E-04	1.53E-05	6.93E-05
Emissions Unit EU-4	---	---	---	---	---
Emissions Unit EU-5	---	---	---	---	---
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Fugitive Emissions					
Total	4.78E-05	4.39E-03	5.58E-03	3.35E-04	1.52E-03

Clean Air Act Hazardous Air Pollutants (HAPs) only.
To demonstrate that the PSEG Keys Energy Center is not a major HAPs source.



SECTION 5. SUMMARY SHEET OF POTENTIAL EMISSIONS

List all applicable pollutants in tons per year (tpy) pertaining to this facility. The Emissions Unit No. should be consistent with numbers used in Section 3. Attach a copy of all calculations.

Pollutant	Mercury	Nickel	Selenium	1,3-Butadiene	Acetaldehyde
CAS Number (If Applicable)	7439-97-6	7440-02-0	7782-49-2	106-99-0	75-07-0
Emissions Unit EU-1	4.95E-04	3.99E-03	4.57E-05	4.39E-03	4.08E-01
Emissions Unit EU-2	4.95E-04	3.99E-03	4.57E-05	4.39E-03	4.08E-01
Emissions Unit EU-3	4.74E-05	3.83E-04	4.38E-06	---	---
Emissions Unit EU-4	---	---	---	---	1.92E-05
Emissions Unit EU-5	---	---	---	3.52E-06	6.90E-05
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Fugitive Emissions					
Total	1.04E-03	8.37E-03	9.57E-05	8.78E-03	8.17E-01

Clean Air Act Hazardous Air Pollutants (HAPs) only.
To demonstrate that the PSEG Keys Energy Center is not a major HAPs source.



SECTION 5. SUMMARY SHEET OF POTENTIAL EMISSIONS

List all applicable pollutants in tons per year (tpy) pertaining to this facility. The Emissions Unit No. should be consistent with numbers used in Section 3. Attach a copy of all calculations.

Pollutant	Acrolein	Ethylbenzene	PAH	Propylene Oxide	Xylenes
CAS Number (If Applicable)	107-02-8	100-41-4	7782-49-2	75-56-9	1330-20-7
Emissions Unit EU-1	6.53E-02	3.27E-01	2.25E-02	2.96E-01	6.53E-01
Emissions Unit EU-2	6.53E-02	3.27E-01	2.25E-02	2.96E-01	6.53E-01
Emissions Unit EU-3	---	---	---	---	---
Emissions Unit EU-4	5.99E-06	---	1.61E-04	---	1.47E-04
Emissions Unit EU-5	8.33E-06	---	1.51E-05	---	2.57E-05
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Emissions Unit #					
Fugitive Emissions					
Total	1.31E-01	6.53E-01	4.51E-02	5.92E-01	1.31E-00

Clean Air Act Hazardous Air Pollutants (HAPs) only.
To demonstrate that the PSEG Keys Energy Center is not a major HAPs source.



SECTION 6. EXPLANATION OF PROPOSED EXEMPTIONS FROM OTHERWISE APPLICABLE FEDERALLY ENFORCEABLE REQUIREMENTS

Describe and cite the applicable requirements to be exempted. Complete this Section only if the facility is claiming exemptions from or the non-applicability of any federally enforceable requirements.

1. Applicable Requirement:

40 CFR 63 Subpart YYYY - NESHAPS for Stationary Combustion Turbines

2. Brief Description:

Subpart YYYY establishes emissions and operating limitations for HAPs emitted from stationary combustion turbines located at major sources of HAPs.

3. Reasons for Proposed Exemption or Justification of Non-applicability:

The combustion turbines are not subject to Subpart YYYY because the Keys Energy Center is not a major source of HAP emissions. See the application text and Attachment G.



SECTION 6. EXPLANATION OF PROPOSED EXEMPTIONS FROM OTHERWISE APPLICABLE FEDERALLY ENFORCEABLE REQUIREMENTS

Describe and cite the applicable requirements to be exempted. Complete this Section only if the facility is claiming exemptions from or the non-applicability of any federally enforceable requirements.

1. Applicable Requirement:

40 CFR 63 Subpart DDDDD - NESHAPS for Major Sources: Industrial, Commercial, Institutional Boilers and Process Heaters

2. Brief Description:

Subpart DDDDD establishes emission limitations and work practice standards for HAPs emitted from industrial, commercial, and institutional boilers and process heaters located at major sources of HAPs.

3. Reasons for Proposed Exemption or Justification of Non-applicability:

The auxiliary boiler is not subject to Subpart DDDDD because the Keys Energy Center is not a major source of HAP emissions. See the application text and Attachment G.



SECTION 6. EXPLANATION OF PROPOSED EXEMPTIONS FROM OTHERWISE APPLICABLE FEDERALLY ENFORCEABLE REQUIREMENTS

Describe and cite the applicable requirements to be exempted. Complete this Section only if the facility is claiming exemptions from or the non-applicability of any federally enforceable requirements.

1. Applicable Requirement:

40 CFR 63 Subpart JJJJJ - NESHAPS for Industrial, Commercial, and Institutional Boilers - Area Sources

2. Brief Description:

Subpart JJJJJ establishes emissions and operating limitations for HAPs for industrial, commercial, and institutional boilers located at an area source of HAPs emissions.

3. Reasons for Proposed Exemption or Justification of Non-applicability:

The auxiliary boiler is not subject to Subpart JJJJJ because it is a "gas-fired boiler". This exemption is found at 40 CFR 63.11195(e).



SECTION 6.

EXPLANATION OF PROPOSED EXEMPTIONS FROM
OTHERWISE APPLICABLE FEDERALLY ENFORCEABLE
REQUIREMENTS

Describe and cite the applicable requirements to be exempted. Complete this Section only if the facility is claiming exemptions from or the non-applicability of any federally enforceable requirements.

1. Applicable Requirement:

40 CFR Part 68 - Chemical Accident Prevention Provisions

2. Brief Description:

If a facility produces, processes, stores or uses toxic substances or regulated flammable substances in excess of the threshold quantities listed in the regulation, it is subject to Part 68.

3. Reasons for Proposed Exemption or Justification of Non-applicability:

PSEG Keys does not have more than the threshold quantity of a regulated substance at the facility, and therefore is not subject to Part 68.



SECTION 6. EXPLANATION OF PROPOSED EXEMPTIONS FROM OTHERWISE APPLICABLE FEDERALLY ENFORCEABLE REQUIREMENTS

Describe and cite the applicable requirements to be exempted. Complete this Section only if the facility is claiming exemptions from or the non-applicability of any federally enforceable requirements.

1. Applicable Requirement:

**40 CFR 82 - Protection of Stratospheric Ozone
Subpart F - Recycling and Emissions Reduction**

2. Brief Description:

Subpart F prescribes requirements to maximize the recapture and recycling of Class I and Class II refrigerants (Ozone Depleting Substances ODSs). It applies to any person maintaining, servicing, or repairing "appliances" containing Class I, Class II, or non-exempt substitute refrigerants. Appliances include air conditioners and motor vehicle air conditioners.

3. Reasons for Proposed Exemption or Justification of Non-applicability:

PSEG Keys in not subject to Subpart F because none of the appliances at the facility contain refrigerants that are regulated under Subpart F.



SECTION 7. COMPLIANCE SCHEDULE FOR NONCOMPLYING EMISSIONS
UNITS

NOT APPLICABLE

1. Emissions Unit #	Anticipated Compliance Date
Applicable Federally Enforceable Requirement being Violated:	

2. Description of Plan to Achieve Compliance:

Certified Progress Reports for sources in noncompliance shall be submitted at least quarterly to the Department.



STATE-ONLY ENFORCEABLE REQUIREMENTS

Facility Information:

Name of Facility: PSEG Keys Energy Center	County: Prince George's
Premises Number: AI # 93478	
Street Address: 10322 N. Keys Road Brandywine, MD 20613-8200	
24-hour Emergency Telephone Number for Air Pollution Matters: 301-782-2516	
Type of Equipment (List Significant Units): - Two (2) Siemens natural gas-fired combustion turbines, each with an associated Forney natural gas-fired duct burner - Two (2) heat recovery steam generators (HRSGs), each equipped with an SCR and oxidation catalyst system - One (1) Cleaver Brooks natural gas-fired auxiliary boiler - One (1) MTU-Onsite Energy diesel fired emergency generator - One (1) Cummins diesel fired water pump engine.	



**SECTION 1. CITATION TO AND DESCRIPTION OF
APPLICABLE STATE-ONLY ENFORCEABLE
REQUIREMENTS**

Registration No.: All

Fee Schedule

Emissions Unit No.: All

General Reference: COMAR 26.11.02.19(A)

Briefly describe the requirement and the emissions limit (if applicable):

Requires PSEG Keys to pay annual Title V operating permit Fees.

Ref: CPCN 9297, B-III-2(a)

Methods used to demonstrate compliance:

MDE will bill PSEG Keys for the fees.



**SECTION 1. CITATION TO AND DESCRIPTION OF
APPLICABLE STATE-ONLY ENFORCEABLE
REQUIREMENTS**

Registration No.: All

Emissions Unit No.: All

Nuisance

General Reference: COMAR 26.11.06.08

Briefly describe the requirement and the emissions limit (if applicable):

Prohibits PSEG Keys from operating or maintaining the facility in such a manner that a nuisance or air pollution is created.

Ref: CPCN 9297, B-III-2(b)

Methods used to demonstrate compliance:

Compliance with emission limits/standards and operational limits in Part 70 operating permit, including general duty to operate and maintain all installations and associated air pollution control equipment so as to assure full and continuous compliance with all applicable air pollution regulations and permit conditions (Initial PTO Condition Part C(2))



**SECTION 1. CITATION TO AND DESCRIPTION OF
APPLICABLE STATE-ONLY ENFORCEABLE
REQUIREMENTS**

Registration No.: All

Emissions Unit No.: All

Odors

General Reference: COMAR 26.11.06.09

Briefly describe the requirement and the emissions limit (if applicable):

Prohibits PSEG Keys from causing or permitting the discharge into the atmosphere of gases, vapors, or odors beyond the property line in such a manner that a nuisance or air pollution is created.

Ref: CPCN 9297, B-III-2(c)

Methods used to demonstrate compliance:

Compliance with emission limits/standards and operational limits in Part 70 operating permit, including general duty to operate and maintain all installations and associated air pollution control equipment so as to assure full and continuous compliance with all applicable air pollution regulations and permit conditions (Initial PTO Condition Part C(2))



**SECTION 1. CITATION TO AND DESCRIPTION OF
APPLICABLE STATE-ONLY ENFORCEABLE
REQUIREMENTS**

Registration No.: All

Emissions Unit No.: All

Emissions Certification
General Reference: COMAR 26.11.02.19(D)

Briefly describe the requirement and the emissions limit (if applicable):

Requires PSEG Keys to certify the actual emissions of regulated air pollutants from all installations at the facility.

Ref: CPCN 9297, B-III-2(d)

Methods used to demonstrate compliance:

Pursuant to COMAR 26.11.02.19(D)(2), PSEG Keys will submit the certification not later than April 1 of the year following the year for which certification is required.



**SECTION 1. CITATION TO AND DESCRIPTION OF
APPLICABLE STATE-ONLY ENFORCEABLE
REQUIREMENTS**

Registration No.: 033-2737-5-1578 and 033-2737-5-1579

Emissions Unit No.: EU-1 and EU-2 **General Reference:** COMAR 26.09

Briefly describe the requirement and the emissions limit (if applicable):

PSEG Keys shall comply with all applicable requirements of the Maryland CO2 Budget Trading Program.

Ref: CPCN 9297, B-I-8

Methods used to demonstrate compliance:

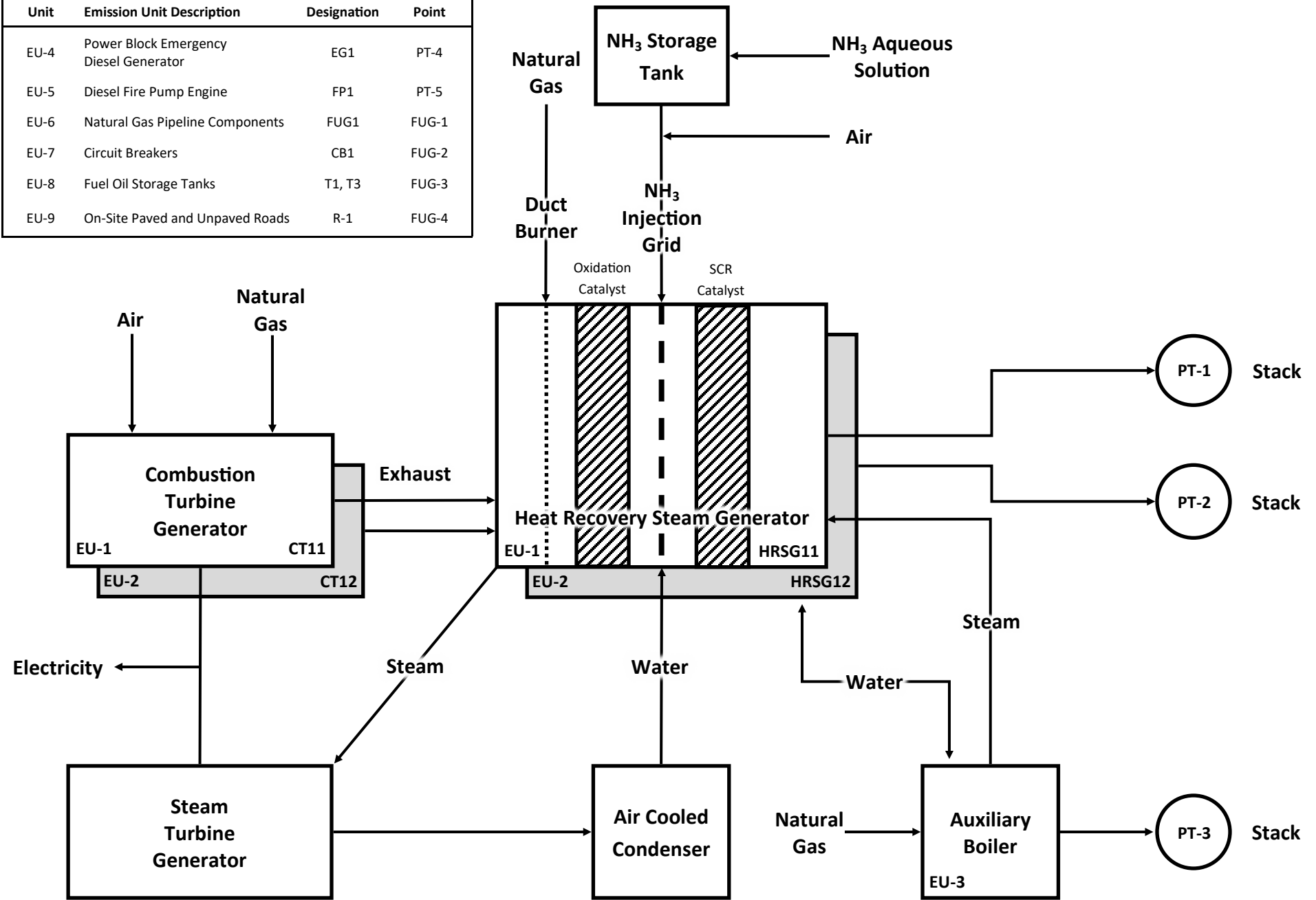
PSEG Keys submitted an initial CO2 budget permit application on October 6, 2017. The Department will attach the final permit to the PSEG Keys Energy Center Part 70 operating permit when it is issued. PSEG Keys will demonstrate compliance by the monitoring, recordkeeping, and reporting requirements provided in the CO2 budget permit.



ATTACHMENT B

FLOW DIAGRAM

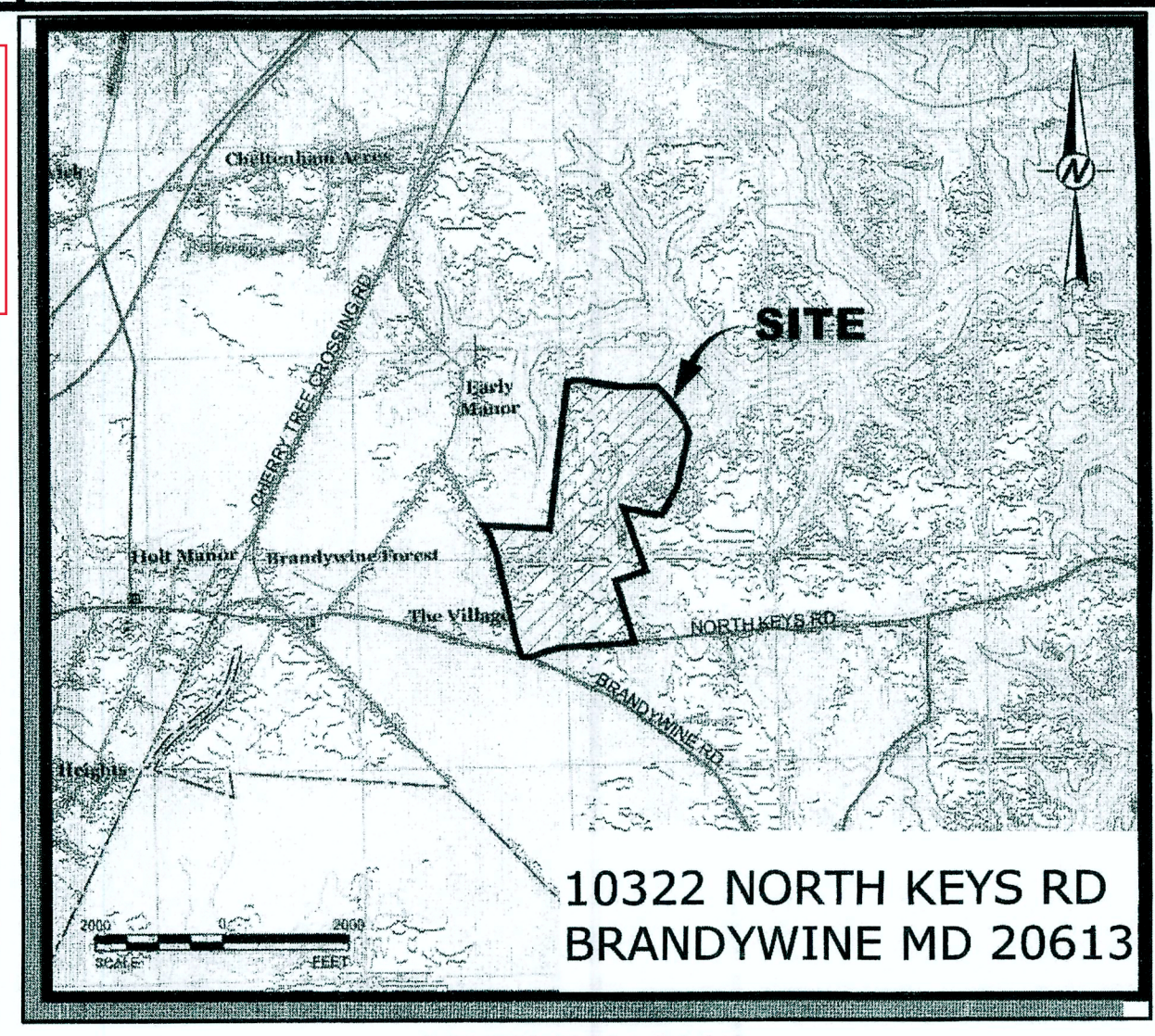
Emission Unit	Emission Unit Description	CPCN Designation	Emission Point
EU-4	Power Block Emergency Diesel Generator	EG1	PT-4
EU-5	Diesel Fire Pump Engine	FP1	PT-5
EU-6	Natural Gas Pipeline Components	FUG1	FUG-1
EU-7	Circuit Breakers	CB1	FUG-2
EU-8	Fuel Oil Storage Tanks	T1, T3	FUG-3
EU-9	On-Site Paved and Unpaved Roads	R-1	FUG-4



ATTACHMENT C

FACILITY PLOT PLAN

Figure C-1
Facility Layout



GENERAL NOTES:

PLANT NORTH
MARYLAND STATE PLANE NORTH

175 0 175 350
SCALE IN FEET

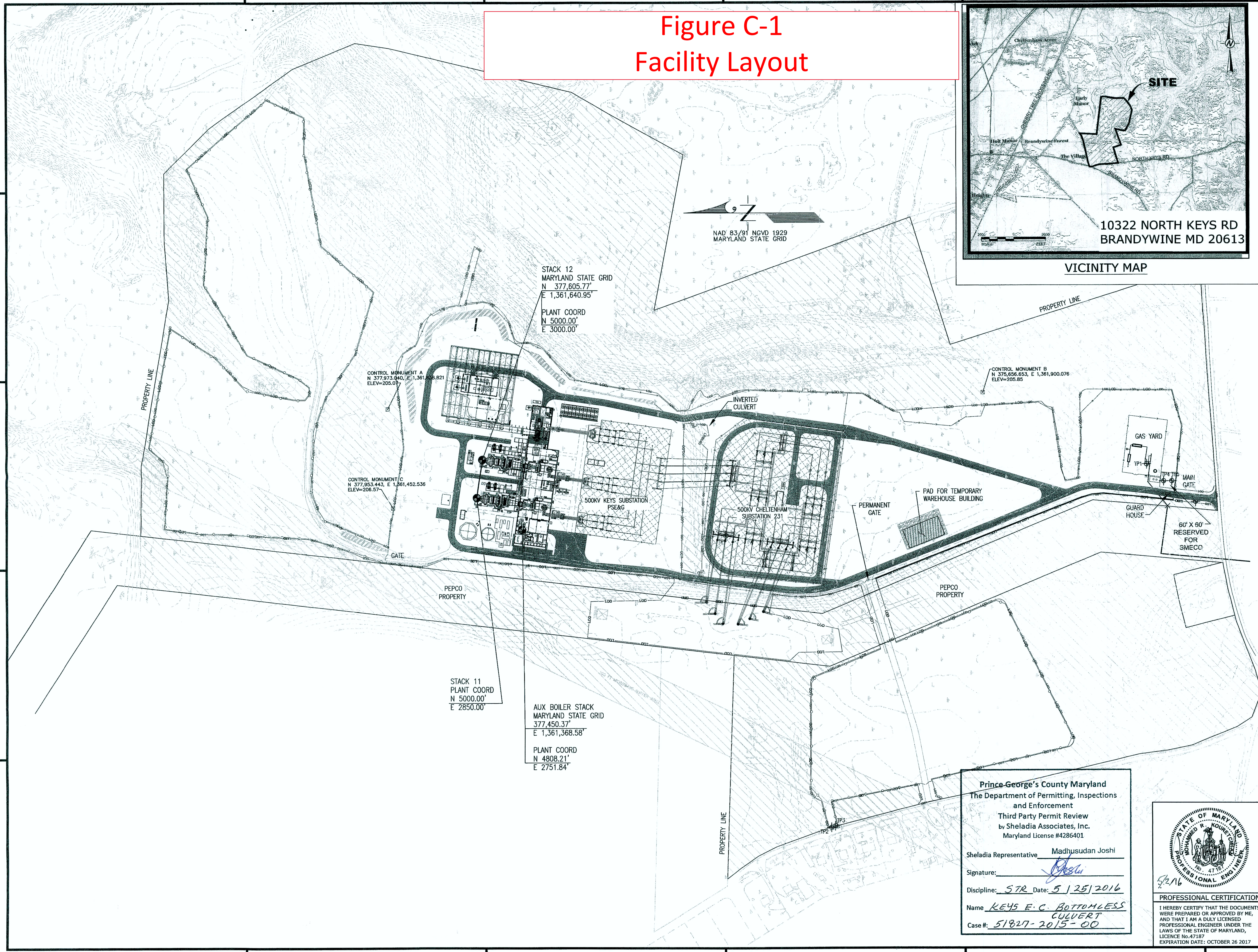
LEGEND:

Substation Area
Limit of Disturbance
Permanent Fence Line

TERMINAL POINTS

TP1 NATURAL GAS SUPPLY
TP2 POTABLE WATER
TP3 SEWER WATER
TP4 PEPCO SWYD PRIMARY ELECT. SERVICE (SMECO)
TP5 TEMPORARY CONSTRUCTION POWER W/ SMECO
TP6 TELECOMMUNICATIONS CONDUIT TERMINATION
TP7 500KV INTERCONNECT

ISSUED FOR INFORMATION									
REVISION	DATE	BY	CHECKED	APPROVED	PROJ. TECH.	DIR. TECH.	PROJ. MGR.	ELECT.	INSTR.
5/3/16	AS	MC	MS	MS	MS	MS	MS	MS	MS
SNC • LAVALIN CONSTRUCTORS INC.									
SCALE: 1"=175'-0"									
THIS DRAWING IS THE PROPERTY OF SNC-LAVALIN CONSTRUCTORS INC. AND IS NOT TO BE USED IN ANY WAY INJURIOUS TO THEIR INTERESTS AND IS TO BE RETURNED UPON REQUEST.									
KEYS ENERGY CENTER PROJECT									
SITE ARRANGEMENT									
DWG. 160091 SK084-S001									



NAD 83/91 NGVD 1929
MARYLAND STATE GRID

STACK 12
MARYLAND STATE GRID
N 377,605.77'
E 1,361,640.95'
PLANT COORD
N 5000.00'
E 3000.00'

CONTROL MONUMENT A
N 377,975.040, E 1,361,452.821
ELEV=205.07'

CONTROL MONUMENT C
N 377,953.443, E 1,361,452.536
ELEV=206.57'

CONTROL MONUMENT B
N 375,656.653, E 1,361,900.076
ELEV=205.85'

PEPCO
PROPERTY

STACK 11
PLANT COORD
N 5000.00'
E 2850.00'

AUX BOILER STACK
MARYLAND STATE GRID
377,450.37'
E 1,361,368.58'
PLANT COORD
N 4808.21'
E 2751.84'

Prince George's County Maryland
The Department of Permitting, Inspections
and Enforcement
Third Party Permit Review
by Sheladia Associates, Inc.
Maryland License #4286401

Sheladia Representative: Madhusudan Joshi

Signature: *[Signature]*

Discipline: STR Date: 5/25/2016

Name: KEYS E.C. BOTTOMLESS
CULVERT

Case #: 51827-2015-00

STATE OF MARYLAND
PROFESSIONAL ENGINEER
No. 47187
EXPIRATION DATE: OCTOBER 26 2017

PATH: S:\0835_GENESES KEYS ENERGY\SKETCH\160091 SK084-S001.DWG
TODAY'S DATE: May 2, 2016 TIME: 09:41 - PRINTED BY: SENNA
DATE OF LAST UPDATE: May 2 2016 9:39AM

A

B

C

D

E

F

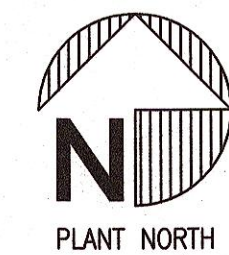
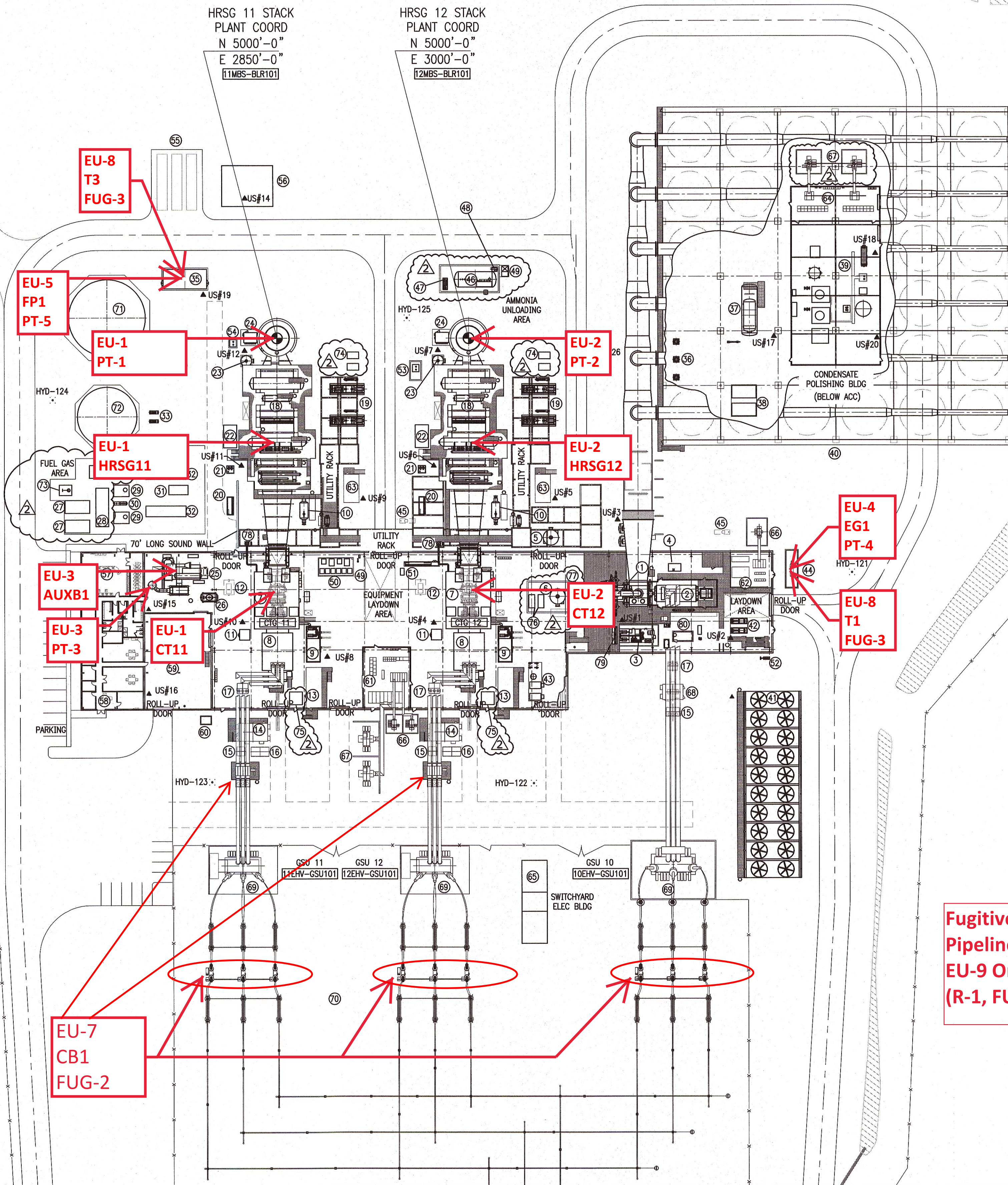
LEGEND

- 1 STEAM TURBINE
- 2 STEAM TURBINE GENERATOR
- 3 STG LUBE OIL SKID
- 4 GLAND STEAM CONDENSER
- 5 STG ATMOSPHERIC DRAINS TANK
- 6 VACUUM DRAINS TANK
- 7 CTG TURBINE
- 8 CTG GENERATOR
- 9 CTG LUBE OIL MODULE
- 10 KETTLE BOILER
- 11 CTG CONTROL OIL SKID
- 12 WATER WASH DRAINS TANK
- 13 CTG ELECTRICAL PACKAGE
- 14 SEE/SFC PACKAGE
- 15 SEE XFMR
- 16 SFC XFMR
- 17 GEN VT & SURGE CUBICLE
- 18 HEAT RECOVERY STEAM GENERATOR (HRSG)
- 19 FEEDWATER PUMPS
- 20 DUCT BURNER SKID
- 21 SCANNER AIR SKID
- 22 SELECTIVE CATALYTIC REDUCTION (SCR) NOX SKID
- 23 HRSG BLOWDOWN TANK
- 24 CEMS ENCLOSURE
- 25 AUXILIARY BOILER
- 26 AUX BOILER DEAERATOR TANK/FEEDWATER PUMPS
- 27 FUEL GAS PREHEATERS
- 28 FUEL GAS PRESSURE REGULATING SKIDS
- 29 FUEL COALESCING FILTER SKID
- 30 FUEL GAS DRAINS TANK
- 31 FUEL GAS ELECTRIC HEATER
- 32 FUEL GAS PERFORMANCE HEATER
- 33 DEMINERALIZED WATER PUMPS
- 34 SERVICE WATER PUMPS
- 35 FIRE PUMP ENCLOSURE
- 36 CONDENSATE PUMPS
- 37 ACC CONDENSATE COLLECTION TANK
- 38 ACC VACUUM PUMPS
- 39 CONDENSATE POLISHING EQUIPMENT
- 40 AIR COOLED CONDENSER
- 41 CLOSED COOLING WATER AIR COOLED HEAT EXCHANGER
- 42 CLOSED COOLING WATER PUMPS
- 43 AIR COMPRESSOR SKID
- 44 STANDBY DIESEL GENERATOR
- 45 OIL/WATER SEPARATOR
- 46 AMMONIA STORAGE TANK
- 47 AMMONIA TRANSFER PUMP ENCLOSURE
- 48 AMMONIA UNLOADING SKID
- 49 SAFETY SHOWER
- 50 CHEMICAL STORAGE/TRANSFER PUMPS
- 51 SAMPLE PANEL AND TEMPERATURE CONTROL UNIT
- 52 STG HYDROGEN BOTTLE RACK/REGULATORS
- 53 PLANT WASTEWATER SUMP
- 54 HRSG 11 BLOWDOWN SUMP
- 55 DEMINERALIZED WATER TRAILERS AREA
- 56 WATER TREATMENT AREA
- 57 CONTROL ROOM
- 58 ADMINISTRATION AREA
- 59 WAREHOUSE/SHOP
- 60 POTABLE WATER BACK FLOW PREVENTER (BFP) ENCLOSURE
- 61 MAIN ELECTRICAL ROOM
- 62 STG ELECTRICAL ROOM
- 63 HRSG ELECTRICAL ENCLOSURE
- 64 ACC ELECTRICAL ROOM
- 65 SWITCHYARD ELECTRICAL ROOM
- 66 STATION SERVICE TRANSFORMERS
- 67 STATION AUX TRANSFORMERS
- 68 EXCITATION CONTROL COMPARTMENT
- 69 GSU
- 70 SUB STATION
- 71 SERVICE/FIREWATER STORAGE TANK
- 72 DEMINERALIZED WATER STORAGE TANK

LEGEND (continued)

- 73 FUEL GAS KNOCK OUT DRUM
- 74 FEEDWATER BOOSTER PUMPS
- 75 CTG EVAPORATIVE COOLER PUMP SKID
- 76 VACUUM DRAINS TANK PUMPS
- 77 STG HYDRAULIC SUPPLY UNIT
- 78 FUEL GAS SCRUBBER
- 79 ELECTRIC SUPERHEATER
- 80 STG SEAL OIL UNIT

Figure C-2
Close-Up of Power Block Area



SCALE IN FEET

GENERAL NOTES:

1. PROJECT PLANT COORDINATES ARE SHOWN IN IMPERIAL (FEET) DECIMAL.
2. PROJECT ELEVATIONS ARE BASED ON THE PLANT ELEVATION DATUM. PLANT ELEVATION 99'-10" = 208.50' & PLANT COORDINATES BASED ON NAD 83/91 NGVD 1929.
3. FOR SITE GENERAL ARRANGEMENT SEE DRAWING 160091 GA001.
4. FOR CIVIL SITE PLAN AND VICINITY MAP SEE DRAWING 160091 C002.
5. FOR PLANT FINAL GRADING SEE DRAWING 160091 C002.
6. FOR PLANT PARTIAL PAVING SEE DRAWING 160091 C004.
7. FOR PLANT FENCE SEE DRAWING 160091 C040.
8. FOR ADMIN / CONTROL / WAREHOUSE AREA SEE DRAWING 160091 A002.
9. FOR GENERAL ARRANGEMENT POWER BLOCK SEE DRAWING 160091 GA003.
10. FOR GENERAL ARRANGEMENT PLAN HRSG / CTG AREA, SEE DRAWING 160091 GA004.
11. FOR GENERAL ARRANGEMENT UPPER STG AND MEZZANINE AREAS SEE DRAWING 160091 GA005.
12. FOR GENERAL ARRANGEMENT AIR COOLED CONDENSER SEE DRAWING 160091 GA007.
13. FOR GENERAL ARRANGEMENT TANK AREA SEE DRAWING 160091 GA008.
14. FOR GENERAL ARRANGEMENT FUEL GAS AND AMMONIA AREA SEE DRAWING 160091 GA009.
15. FOR GENERAL ARRANGEMENT PLANT SERVICES AREA SEE DRAWING 160091 GA010.
16. FOR GENERAL ARRANGEMENT EQUIPMENT LOCATION SCHEDULE SEE DRAWING 160091 GA012.
17. FOR SWITCHYARD ELECTRICAL ARRANGEMENT KEY PLAN SEE DRAWING 160091 E900.
18. FOR UTILITY RACK MODULE SEE DRAWING 160091 P300 THRU P324.

UPDATED FGS EQUIPMENT, ADDED FW BOOSTER PUMPS, EVAPORATIVE COOLER PUMPS, VACUUM DRAIN PUMPS. ADDED LABEL FOR FG KNOCK-OUT DRUM AND HYDRAULIC SUPPLY UNIT. REVISED LOCATION OF AMMONIA AREA. REVISED NOTE 8 AND 18. REVISED LOCATION OF STATION AUX TRANSFORMERS. ADDED FIRE HYDRANTS AND UTILITY STATIONS.

UPDATED ACC EQUIPMENT TO VENDOR INFORMATION. UPDATED LEGEND WITH ALL MAJOR EQUIPMENT. REMOVED SECOND AMMONIA TANK. ELIMINATED OVERWRITTEN TEXT.

1 / 6 / 16 KDE REP LP MJD SF

ISSUED FOR CONSTRUCTION

9 / 30 / 15 RET REP LP MJD SF

REVISION	DATE	BY	CHECKED	APPROVED	PROJ. TECH.	DIR. TECH.	PROJ. MGR.
1	9/30/15	RET	REP	LP	MJD	SF	

SNC • LAVALIN
CONSTRUCTORS INC.

SCALE: 1"=50'-0"

THIS DRAWING IS THE PROPERTY OF SNC-LAVALIN CONSTRUCTORS INC. AND IS NOT TO BE USED IN ANY WAY INJURIOUS TO THEIR INTERESTS AND IS TO BE RETURNED UPON REQUEST.

KEYS ENERGY CENTER PROJECT

PLANT
GENERAL ARRANGEMENT

DWG. 160091 GA002-S001

ATTACHMENT D

2018 EMISSIONS CERTIFICATION REPORT

March 28, 2019

Daniel Davis
Maryland Department of the Environment
Air and Radiation Management Administration
1800 Washington Boulevard, Suite 715
Baltimore, Maryland 21310-1720

RE: RY 2018 Emissions Certification Report for PSEG Keys Energy Center LLC
Facility ID: 033-2737

Mr. Davis,

Please find enclosed the Reporting Year 2018 Emissions Certification Report for PSEG Keys Energy Center LLC ("PSEG"). The report contains a summary of estimated emissions for criteria pollutants, greenhouse gasses and toxic air pollutants for each permitted source at the facility. Additionally, enclosed with this report are calculations and total fuel usage used to derive the emissions estimates.

Please note the following items which PSEG has included per Department request:

- An estimate of particulate emissions from road traffic during facility construction;
- Estimated "shakedown" period (pre-CEMS certification) emissions for CT1 & CT2 have been aggregated; and
- CT1/HRSG1 and CT2/HRSG2 are each reported together as the exhaust gas flow for each combustion turbine and duct burner exits in a combined stack.

Per discussions with John Artes, the oxidation catalyst of the aux boiler was not included in Table E of Form 1.

A hard copy of this report is enclosed, and an electronic copy is being submitted via email to Mr. John Artes of MDE.

Certification Statements

This report contains emissions estimates for all Toxic Air Pollutants which, based on an analysis of the potential to emit from all facility sources in aggregate, exceed the de minimis reporting threshold in pounds per hour and/or tons per year.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



William S. Clancy
Power Plant Manager
PSEG Keys Energy Center LLC

MARYLAND DEPARTMENT OF THE ENVIRONMENT
1800 Washington Boulevard, Suite 715 • Baltimore Maryland 21230-1720
410-537-3000 • 1-800-633-6101 • <http://www.mde.state.md.us>
Air and Radiation Management Administration
Air Quality Compliance Program
410-537-3220

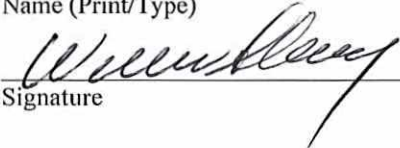
FORM 1:

**GENERAL FACILITY INFORMATION
EMISSIONS CERTIFICATION REPORT**

Calendar Year: 2018

A. FACILITY IDENTIFICATION				Do Not Write in This Space	
Facility Name PSEG Keys Energy Center				Date Received Regional	
Address 10322 North Keys Road				Date Received State	
City Brandywine County Prince George's Zip Code 20613				AIRS Code	
B. Briefly describe the major function of the facility				FINDS Code	
NAICS 221112 - Fossil-Fuel Electric Power Generation				SIC Code	
				Facility Number:	
				TEMPO ID:	
C. SEASONAL PRODUCTION (% if applicable)				Reviewed by:	
<u>Winter</u> (Dec.-Feb.)	<u>Spring</u> (Mar - May)	<u>Summer</u> (Jun - Aug)	<u>Fall</u> (Sept - Nov)		
0%	0%	41%	59%		
				Name	Date
D. Explain any increases or decreases in emissions from the previous calendar year for each registration at this facility.					
In 2017 FP1, EG1, and CB1 commenced operation. Per MDE request, annual emission calculations were provided for these sources.					
AUXB1, CT1, CT2, HRSG1, HRSG2, FUG1, T1 & T3 commenced operation during 2018. This necessitates submission of a full					
Emissions Certification report.					
E. CONTROL DEVICE INFORMATION (for NOx and VOC sources only)					
Control Device		Capture Efficiency		Removal Efficiency	
CT1/CT2 - SCR (NOx)		CEMS		CEMS	
CT1/CT2 - Ox. Catalyst (VOC)		Stack Test		Stack Test	

I am familiar with the facility and the installations and sources for which this report is submitted. I have personally examined the information in this report, which consists of 38 pages (including attachments), and certify that the information is correct to the best of my knowledge.

William S. Clancy	Power Plant Manager	3/28/19
Name (Print/Type)	Title	Date
		(301) 782-2501
Signature		Telephone

FORM 2:

**CRITERIA AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORT**

Calendar Year: 2018

Facility Name: PSEG Keys Energy Center LLC

Facility ID: 033-2737

Pollutant: Carbon Monoxide

Equipment Description/ Registration No.	SCC Number	Fuel		Actual Emissions		Operating Schedule (Actual)				TOSD	Operating Schedule			Estimation
				Tons/yr	Lbs/day	Hrs/dy	Dys/wk	Wk/yr	Days/yr	Lbs/dy	Hrs/dy	Start	End	Method
AUXB1	1-02-006-02	NG	S	0.2825	8.4314	6	1	10	67		0.6	CT1/CT2 Pre-Startup	CT1/CT2 Startup	C3
033-2737-5-1582			F	-	-									
EGU #11	2-01-002-01	NG	S	27.7693	330.5871	22	7	24	168		24	0:00	23:59	C1 - CEMS
033-2737-5-1578, 033-2737-5-1580			F	-	-									
EGU #12	2-01-002-01	NG	S	20.6617	243.0785	21	7	24	170		24	0:00	23:59	C1 - CEMS
033-2737-5-1579, 033-2737-5-1581			F	-	-									
FP1	2-03-001-01	Diesel	S	0.0036	0.4537	1	1	16	16		0.5	Varies for Testing	Varies for Testing	C4 - Vendor
033-2737-9-1484			F											
EG1	2-02-001-02	Diesel	S	0.0064	1.0662	1	1	12	12		0.5	Varies for Testing	Varies for Testing	C4 - Vendor
033-2737-9-1485			F	-	-									
CB1	N/A	SF6	S	-	-	24	7	52	365		24	0:00	23:59	C4 - N/A
N/A			F	-	-									
T1 & T3	A25-010-090	Diesel	S	-	-	24	7	52	365		24	0:00	23:59	C4 - N/A
N/A			F	-	-									
FUG1	N/A	NG	S	-	-	24	7	52	365		24	0:00	23:59	C4 - N/A
N/A			F	-	-									
TBD - Road Particulate	N/A	N/A	S	-	-	24	7	52	365		24	0:00	23:59	C4 - N/A
N/A			F	-	-									
Total				48.7235	583.6169									

S - Stack Emissions

F - Fugitive Emissions

Daily Emissions (lbs/day) are lbs/operating day of the source

TOSD: Typical Ozone Season Day means a typical day of that period of the year during which conditions for photochemical conditions are most favorable, which is generally during sustained periods of direct sunlight and warm temperatures (April-September). This section needs to be completed only for VOC and NOx sources.

Fuel: Include emissions for each fuel used. If more than one fuel is used, calculate and list emissions separately for each fuel.

Emission Estimation Method

A1 - U.S. EPA Reference Method
A2 - Other Particulate Sampling Train
A3 - Liquid Absorption Technique
A4 - Solid Absorption Technique
A5 - Freezing Out Technique
A9 - Other, Specify

C1 - User calculated based on source test or other measurement
C2 - User calculated based on material balance using engineering knowledge of the process
C3 - User calculated based on AP-42
C4 - User calculated by best guess/engineering judgment

C5 - User calculated based on a State or local agency emission factor
C6 - New construction, not operational
C7 - Source closed, operation ceased
C8 - Computer calculated based on standard

FORM 2:

**CRITERIA AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORT**

Calendar Year: 2018

Facility Name: PSEG Keys Energy Center LLC

Facility ID: 033-2737

Pollutant: SO₂

Equipment Description/ Registration No.	SCC Number	Fuel		Actual Emissions		Operating Schedule (Actual)				TOSD	Operating Schedule			Estimation
				Tons/yr	Lbs/day	Hrs/dy	Dys/wk	Wk/yr	Days/yr	Lbs/dy	Hrs/dy	Start	End	Method
AUXB1	1-02-006-02	NG	S	0.0021	0.0632	6	1	10	67		0.6	CT1/CT2 Pre-Startup	CT1/CT2 Startup	C4
033-2737-5-1582			F	-	-									
EGU #11	2-01-002-01	NG	S	2.4407	29.0555	22	7	24	168		24	0:00	23:59	C1 - CEMS
033-2737-5-1578, 033-2737-5-1580			F	-	-									
EGU #12	2-01-002-01	NG	S	2.5604	30.1225	21	7	24	170		24	0:00	23:59	C1 - CEMS
033-2737-5-1579, 033-2737-5-1581			F	-	-									
FP1	2-03-001-01	Diesel	S	0.0000	0.0012	1	1	16	16		0.5	Varies for Testing	Varies for Testing	C2
033-2737-9-1484			F											
EG1	2-02-001-02	Diesel	S	0.0001	0.0104	1	1	12	12		0.5	Varies for Testing	Varies for Testing	C2
033-2737-9-1485			F	-	-									
CB1	N/A	SF6	S	-	-	24	7	52	365		24	0:00	23:59	C4 - N/A
N/A			F	-	-									
T1 & T3	A25-010-090	Diesel	S	-	-	24	7	52	365		24	0:00	23:59	C4 - N/A
N/A			F	-	-									
FUG1	N/A	NG	S	-	-	24	7	52	365		24	0:00	23:59	C4 - N/A
N/A			F	-	-									
TBD - Road Particulate	N/A	N/A	S	-	-	24	7	52	365		24	0:00	23:59	C4 - N/A
N/A			F	-	-									
Total				5.0033	59.2529									

S - Stack Emissions

F - Fugitive Emissions

Daily Emissions (lbs/day) are lbs/operating day of the source

TOSD: Typical Ozone Season Day means a typical day of that period of the year during which conditions for photochemical conditions are most favorable, which is generally during sustained periods of direct sunlight and warm temperatures (April-September). This section needs to be completed only for VOC and NO_x sources.

Fuel: Include emissions for each fuel used. If more than one fuel is used, calculate and list emissions separately for each fuel.

Emission Estimation Method

A1 - U.S. EPA Reference Method
A2 - Other Particulate Sampling Train
A3 - Liquid Absorption Technique
A4 - Solid Absorption Technique
A5 - Freezing Out Technique
A9 - Other, Specify

C1 - User calculated based on source test or other measurement
C2 - User calculated based on material balance using engineering knowledge of the process
C3 - User calculated based on AP-42
C4 - User calculated by best guess/engineering judgment

C5 - User calculated based on a State or local agency emission factor
C6 - New construction, not operational
C7 - Source closed, operation ceased
C8 - Computer calculated based on standard

FORM 2:

**CRITERIA AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORT**

Calendar Year: 2018

Facility Name: PSEG Keys Energy Center LLC

Facility ID: 033-2737

Pollutant: Lead

Equipment Description/ Registration No.	SCC Number	Fuel		Actual Emissions		Operating Schedule (Actual)				TOSD	Operating Schedule			Estimation
				Tons/yr	Lbs/day	Hrs/dy	Dys/wk	Wk/yr	Days/yr	Lbs/dy	Hrs/dy	Start	End	Method
AUXB1	1-02-006-02	NG	S	0.0000	0.0001	6	1	10	67		0.6	CT1/CT2 Pre-Startup	CT1/CT2 Startup	C3
033-2737-5-1582			F	-	-									
EGU #11	2-01-002-01	NG	S	0.0002	0.0019	22	7	24	168		24	0:00	23:59	C3
033-2737-5-1578, 033-2737-5-1580			F	-	-									
EGU #12	2-01-002-01	NG	S	0.0002	0.0020	21	7	24	170		24	0:00	23:59	C3
033-2737-5-1579, 033-2737-5-1581			F	-	-									
FP1	2-03-001-01	Diesel	S	-	-	1	1	16	16		0.5	Varies for Testing	Varies for Testing	C3
033-2737-9-1484			F											
EG1	2-02-001-02	Diesel	S	-	-	1	1	12	12		0.5	Varies for Testing	Varies for Testing	C3
033-2737-9-1485			F	-	-									
CB1	N/A	SF6	S	-	-	24	7	52	365		24	0:00	23:59	C4 - N/A
N/A			F	-	-									
T1 & T3	A25-010-090	Diesel	S	-	-	24	7	52	365		24	0:00	23:59	C4 - N/A
N/A			F	-	-									
FUG1	N/A	NG	S	-	-	24	7	52	365		24	0:00	23:59	C4 - N/A
N/A			F	-	-									
TBD - Road Particulate	N/A	N/A	S	-	-	24	7	52	365		24	0:00	23:59	C4 - N/A
N/A			F	-	-									
Total				0.0003	0.0039									

S - Stack Emissions

F - Fugitive Emissions

Daily Emissions (lbs/day) are lbs/operating day of the source

TOSD: Typical Ozone Season Day means a typical day of that period of the year during which conditions for photochemical conditions are most favorable, which is generally during sustained periods of direct sunlight and warm temperatures (April-September). This section needs to be completed only for VOC and NOx sources.

Fuel: Include emissions for each fuel used. If more than one fuel is used, calculate and list emissions separately for each fuel.

Emission Estimation Method

A1 - U.S. EPA Reference Method
A2 - Other Particulate Sampling Train
A3 - Liquid Absorption Technique
A4 - Solid Absorption Technique
A5 - Freezing Out Technique
A9 - Other, Specify

C1 - User calculated based on source test or other measurement
C2 - User calculated based on material balance using engineering knowledge of the process
C3 - User calculated based on AP-42
C4 - User calculated by best guess/engineering Judgment

C5 - User calculated based on a State or local agency emission factor
C6 - New construction, not operational
C7 - Source closed, operation ceased
C8 - Computer calculated based on standard

FORM 2:

**CRITERIA AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORT**

Calendar Year: 2018

Facility Name: PSEG Keys Energy Center LLC

Facility ID: 033-2737

Pollutant: NOx

Equipment Description/ Registration No.	SCC Number	Fuel		Actual Emissions		Operating Schedule (Actual)				TOSD	Operating Schedule			Estimation
				Tons/yr	Lbs/day	Hrs/dy	Dys/wk	Wk/yr	Days/yr	Lbs/dy	Hrs/dy	Start	End	Method
AUXB1	1-02-006-02	NG	S	0.0353	1.0539	6	1	10	67	1.04	0.6	CT1/CT2 Pre-Startup	CT1/CT2 Startup	C3
033-2737-5-1582			F	-	-									
EGU #11	2-01-002-01	NG	S	26.9426	320.7448	22	7	24	168	341.98	24	0:00	23:59	C1 - CEMS
033-2737-5-1578, 033-2737-5-1580			F	-	-									
EGU #12	2-01-002-01	NG	S	37.9678	446.6796	21	7	24	170	539.51	24	0:00	23:59	C1 - CEMS
033-2737-5-1579, 033-2737-5-1581			F	-	-									
FP1	2-03-001-01	Diesel	S	0.0056	0.7044	1	1	16	16	0.00	0.5	Varies for Testing	Varies for Testing	C4 - Vendor
033-2737-9-1484			F	-	-									
EG1	2-02-001-02	Diesel	S	0.0614	10.2360	1	1	12	12	0.02	0.5	Varies for Testing	Varies for Testing	C4 - Vendor
033-2737-9-1485			F	-	-									
CB1	N/A	SF6	S	-	-	24	7	52	365	N/A	24	0:00	23:59	C4 - N/A
N/A			F	-	-									
T1 & T3	A25-010-090	Diesel	S	-	-	24	7	52	365	N/A	24	0:00	23:59	C4 - N/A
N/A			F	-	-									
FUG1	N/A	NG	S	-	-	24	7	52	365	N/A	24	0:00	23:59	C4 - N/A
N/A			F	-	-									
TBD - Road Particulate	N/A	N/A	S	-	-	24	7	52	365	N/A	24	0:00	23:59	C4 - N/A
N/A			F	-	-									
Total				65.0127	779.4187					882.55				

S - Stack Emissions

F - Fugitive Emissions

Daily Emissions (lbs/day) are lbs/operating day of the source

TOSD: Typical Ozone Season Day means a typical day of that period of the year during which conditions for photochemical conditions are most favorable, which is generally during sustained periods of direct sunlight and warm temperatures (April-September). This section needs to be completed only for VOC and NOx sources.

Fuel: Include emissions for each fuel used. If more than one fuel is used, calculate and list emissions separately for each fuel.

Emission Estimation Method

A1 - U.S. EPA Reference Method
A2 - Other Particulate Sampling Train
A3 - Liquid Absorption Technique
A4 - Solid Absorption Technique
A5 - Freezing Out Technique
A9 - Other, Specify

C1 - User calculated based on source test or other measurement
C2 - User calculated based on material balance using engineering knowledge of the process
C3 - User calculated based on AP-42
C4 - User calculated by best guess/engineering judgment

C5 - User calculated based on a State or local agency emission factor
C6 - New construction, not operational
C7 - Source closed, operation ceased
C8 - Computer calculated based on standard

FORM 2:

**CRITERIA AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORT**

Calendar Year: 2018

Facility Name: PSEG Keys Energy Center LLC

Facility ID: 033-2737

Pollutant: VOC

Equipment Description/ Registration No.	SCC Number	Fuel		Actual Emissions		Operating Schedule (Actual)				TOSD	Operating Schedule			Estimation
				Tons/yr	Lbs/day	Hrs/dy	Dys/wk	Wk/yr	Days/yr	Lbs/dy	Hrs/dy	Start	End	Method
AUXB1 033-2737-5-1582	1-02-006-02	NG	S	0.0071	0.2108	6	1	10	67	0.21	0.6	CT1/CT2 Pre-Startup	CT1/CT2 Startup	C3
			F	-	-									
EGU #11 033-2737-5-1578, 033-2737-5-1580	2-01-002-01	NG	S	4.8346	57.5553	22	7	24	168	116.88	24	0:00	23:59	C1 - Stack Tst
			F	-	-									
EGU #12 033-2737-5-1579, 033-2737-5-1581	2-01-002-01	NG	S	4.9415	58.1354	21	7	24	170	122.93	24	0:00	23:59	C1 - Stack Tst
			F	-	-									
FP1 033-2737-9-1484	2-03-001-01	Diesel	S	0.0003	0.0394	1	1	16	16	0.00	0.5	Varies for Testing	Varies for Testing	C4 - Vendor
			F	-	-									
EG1 033-2737-9-1485	2-02-001-02	Diesel	S	0.0068	1.1373	1	1	12	12	0.00	0.5	Varies for Testing	Varies for Testing	C4 - Vendor
			F	-	-									
CB1 N/A	N/A	SF6	S	-	-	24	7	52	365	N/A	24	0:00	23:59	C4 - N/A
			F	-	-									
T1 & T3 N/A	A25-010-090	Diesel	S	0.1000	0.5479	24	7	52	365	N/A	24	0:00	23:59	C4
			F	-	-									
FUG1 N/A	N/A	NG	S	-	-	24	7	52	365	N/A	24	0:00	23:59	C4 - N/A
			F	-	-									
TBD - Road Particulate N/A	N/A	N/A	S	-	-	24	7	52	365	N/A	24	0:00	23:59	C4 - N/A
			F	-	-									
Total				9.8904	117.6261					240.02				

S - Stack Emissions

F - Fugitive Emissions

Daily Emissions (lbs/day) are lbs/operating day of the source

TOSD: Typical Ozone Season Day means a typical day of that period of the year during which conditions for photochemical conditions are most favorable, which is generally during sustained periods of direct sunlight and warm temperatures (April-September). This section needs to be completed only for VOC and NOx sources.

Fuel: Include emissions for each fuel used. If more than one fuel is used, calculate and list emissions separately for each fuel.

Emission Estimation Method

A1 - U.S. EPA Reference Method
A2 - Other Particulate Sampling Train
A3 - Liquid Absorption Technique
A4 - Solid Absorption Technique
A5 - Freezing Out Technique
A9 - Other, Specify

C1 - User calculated based on source test or other measurement
C2 - User calculated based on material balance using engineering knowledge of the process
C3 - User calculated based on AP-42
C4 - User calculated by best guess/engineering Judgment

C5 - User calculated based on a State or local agency emission factor
C6 - New construction, not operational
C7 - Source closed, operation ceased
C8 - Computer calculated based on standard

FORM 3: PM

EMISSIONS CERTIFICATION REPORT

Particulate Matter

Calendar Year: 2018

Facility Name: PSEG Keys Energy Center LLC

Facility ID: 033-2737

Pollutant: PM

Equipment Description/ Registration No.	SCC Number	Fuel		PM -- Filterable		PM 10 -- Filterable		PM 2.5 -- Filterable		PM Condensable		Operation Hrs/dy	Estimation Method
				Tons/yr	Lbs/day	Tons/yr	Lbs/day	Tons/yr	Lbs/day	Tons/yr	Lbs/day		
AUXB1	1-02-006-02	NG	S	0.03	0.32	0.03	0.32	0.03	0.32	0.03	0.32	6	C3
033-2737-5-1582			F	-	-	-	-	-	-	-	-		
EGU #11	2-01-002-01	NG	S	5.09	60.57	6.48	77.20	5.10	60.68	13.95	166.07	22	C1 - Stack Tst
033-2737-5-1578, 033-2737-5-1580			F	-	-	-	-	-	-	-	-		
EGU #12	2-01-002-01	NG	S	5.11	60.87	5.84	69.57	4.88	58.04	12.09	143.98	21	C1 - Stack Tst
033-2737-5-1579, 033-2737-5-1581			F	-	-	-	-	-	-	-	-		
FP1	2-03-001-01	Diesel	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1	C4 - Vendor
033-2737-9-1484			F	-	-	-	-	-	-	-	-		
EG1	2-02-001-02	Diesel	S	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	1	C4 - Vendor
033-2737-9-1485			F	-	-	-	-	-	-	-	-		
CB1	N/A	SF6	S	-	-	-	-	-	-	-	-	24	
N/A			F	-	-	-	-	-	-	-	-		C4
T1 & T3	A25-010-090	Diesel	S	-	-	-	-	-	-	-	-	24	
N/A			F	-	-	-	-	-	-	-	-		C4
FUG1	N/A	NG	S	-	-	-	-	-	-	-	-	24	
N/A			F	-	-	-	-	-	-	-	-		C4
TBD - Road Particulate	N/A	N/A	S	-	-	-	-	-	-	-	-	24	
N/A			F	24.73	294.43	6.68	79.48	0.67	7.95	-	-		C3
Total				34.96	416.21	19.03	226.58	10.67	127.01	26.07	310.38		

S - Stack Emissions

F - Fugitive Emissions

Daily Emissions (lbs/day) are lbs/operating day of the source

TOSD: Typical Ozone Season Day means a typical day of that period of the year during which conditions for photochemical conditions are most favorable, which is generally during sustained periods of direct sunlight and warm temperatures (April-September). This section needs to be completed only for VOC and NOx sources.

Fuel: Include emissions for each fuel used. If more than one fuel is used, calculate and list emissions separately for each fuel.

Emission Estimation Method

A1 - U.S. EPA Reference Method
A2 - Other Particulate Sampling Train
A3 - Liquid Absorption Technique
A4 - Solid Absorption Technique
A5 - Freezing Out Technique
A9 - Other, Specify

C1 - User calculated based on source test or other measurement
C2 - User calculated based on material balance using engineering knowledge of the
C3 - User calculated based on AP-42
C4 - User calculated by best guess/engineering judgment

C5 - User calculated based on a State or local agency emission factor
C6 - New construction, not operational
C7 - Source closed, operation ceased
C8 - Computer calculated based on standard

FORM 4:

TOXIC AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORTCalendar Year: 2018Facility Name: PSEG Keys Energy Center LLC Facility ID: 033-2737 Pollutant: Benzene

Equipment Description/ Registration No.	Actual Emissions			Control Device**	% Efficiency
	Tons/yr	Lbs/day	Lbs/hr		
AUXB1	0.0000	0.0002	0.0000	N/A	N/A
033-2737-5-1582	-	-	-		
EGU #11	0.0456	0.5434	0.0243	N/A	N/A
033-2737-5-1578, 033-2737-5-1580	-	-	-		
EGU #12	0.0478	0.5621	0.0266	N/A	N/A
033-2737-5-1579, 033-2737-5-1581	-	-	-		
FP1	0.0000	0.0008	0.0015	N/A	N/A
033-2737-9-1484	-	-	-		
EG1	0.0000	0.0065	0.0155	N/A	N/A
033-2737-9-1485	-	-	-		
CB1	-	-	-	N/A	N/A
N/A	-	-	-		
T1 & T3	-	-	-	N/A	N/A
N/A	-	-	-		
FUG1	-	-	-	N/A	N/A
N/A	-	-	-		
TBD - Road Particulate	-	-	-	N/A	N/A
N/A	-	-	-		
TOTALS	0.09	1.11	0.07		

*Please attach all calculations.

*See Attachment 1 for the minimum reporting values.

**Control Device

S = Scrubber
 B = Baghouse
 ESP = Electrostatic Precipitator
 A = Afterburner
 C = Condenser

¹Emissions must be broken down by equipment registration number (ex. 9-0076, 9-0077)

FORM 4:

TOXIC AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORTCalendar Year: 2018Facility Name: PSEG Keys Energy Center LLC Facility ID: 033-2737 Pollutant: Formaldehyde

Equipment Description/ Registration No.	Actual Emissions			Control Device**	% Efficiency
	Tons/yr	Lbs/day	Lbs/hr		
AUXB1	0.0003	0.0077	0.0014	N/A	N/A
033-2737-5-1582	-	-	-		
EGU #11	0.3834	4.5640	0.2045	N/A	N/A
033-2737-5-1578, 033-2737-5-1580	-	-	-		
EGU #12	0.4020	4.7294	0.2241	N/A	N/A
033-2737-5-1579, 033-2737-5-1581	-	-	-		
FP1	0.0000	0.0010	0.0020	N/A	N/A
033-2737-9-1484	-	-	-		
EG1	0.0000	0.0082	0.0196	N/A	N/A
033-2737-9-1485	-	-	-		
CB1	-	-	-	N/A	N/A
N/A	-	-	-		
T1 & T3	-	-	-	N/A	N/A
N/A	-	-	-		
FUG1	-	-	-	N/A	N/A
N/A	-	-	-		
TBD - Road Particulate	-	-	-	N/A	N/A
N/A	-	-	-		
TOTALS	0.79	9.31	0.45		

*Please attach all calculations.

*See Attachment 1 for the minimum reporting values.

**Control Device

S = Scrubber

B = Baghouse

ESP = Electrostatic Precipitator

A = Afterburner

C = Condenser

¹Emissions must be broken down by equipment registration number (ex. 9-0076, 9-0077)

FORM 4:

TOXIC AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORT

Calendar Year: 2018

Facility Name: PSEG Keys Energy Center LLC Facility ID: 033-2737 Pollutant: Hexane

Equipment Description/ Registration No.	Actual Emissions			Control Device**	% Efficiency
	Tons/yr	Lbs/day	Lbs/hr		
AUXB1	0.0062	0.1860	0.0341	N/A	N/A
033-2737-5-1582	-	-	-		
EGU #11	0.5643	6.7175	0.3010	N/A	N/A
033-2737-5-1578, 033-2737-5-1580	-	-	-		
EGU #12	0.6105	7.1824	0.3403	N/A	N/A
033-2737-5-1579, 033-2737-5-1581	-	-	-		
FP1	-	-	-	N/A	N/A
033-2737-9-1484	-	-	-		
EG1	-	-	-	N/A	N/A
033-2737-9-1485	-	-	-		
CB1	-	-	-	N/A	N/A
N/A	-	-	-		
T1 & T3	-	-	-	N/A	N/A
N/A	-	-	-		
FUG1	-	-	-	N/A	N/A
N/A	-	-	-		
TBD - Road Particulate	-	-	-	N/A	N/A
N/A	-	-	-		
TOTALS	1.18	14.09	0.68		

*Please attach all calculations.

*See Attachment 1 for the minimum reporting values.

**Control Device

S = Scrubber

B = Baghouse

ESP = Electrostatic Precipitator

A = Afterburner

C = Condenser

¹Emissions must be broken down by equipment registration number (ex. 9-0076, 9-0077)

FORM 4:

TOXIC AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORT

Calendar Year: 2018

Facility Name: PSEG Keys Energy Center LLC Facility ID: 033-2737 Pollutant: Arsenic

Equipment Description/ Registration No.	Actual Emissions			Control Device**	% Efficiency
	Tons/yr	Lbs/day	Lbs/hr		
AUXB1	0.0000	0.0000	0.0000	N/A	N/A
033-2737-5-1582	-	-	-		
EGU #11	0.0001	0.0007	0.0000	N/A	N/A
033-2737-5-1578, 033-2737-5-1580	-	-	-		
EGU #12	0.0001	0.0008	0.0000	N/A	N/A
033-2737-5-1579, 033-2737-5-1581	-	-	-		
FP1	-	-	-	N/A	N/A
033-2737-9-1484	-	-	-		
EG1	-	-	-	N/A	N/A
033-2737-9-1485	-	-	-		
CB1	-	-	-	N/A	N/A
N/A	-	-	-		
T1 & T3	-	-	-	N/A	N/A
N/A	-	-	-		
FUG1	-	-	-	N/A	N/A
N/A	-	-	-		
TBD - Road Particulate	-	-	-	N/A	N/A
N/A	-	-	-		
TOTALS	0.00	0.00	0.00		

*Please attach all calculations.

*See Attachment 1 for the minimum reporting values.

**Control Device

S = Scrubber

B = Baghouse

ESP = Electrostatic Precipitator

A = Afterburner

C = Condenser

¹Emissions must be broken down by equipment registration number (ex. 9-0076, 9-0077)

FORM 4:

TOXIC AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORTCalendar Year: 2018Facility Name: PSEG Keys Energy Center LLC Facility ID: 033-2737 Pollutant: Beryllium

Equipment Description/ Registration No.	Actual Emissions			Control Device**	% Efficiency
	Tons/yr	Lbs/day	Lbs/hr		
AUXB1	0.0000	0.0000	0.0000	N/A	N/A
033-2737-5-1582	-	-	-		
EGU #11	0.0000	0.0000	0.0000	N/A	N/A
033-2737-5-1578, 033-2737-5-1580	-	-	-		
EGU #12	0.0000	0.0000	0.0000	N/A	N/A
033-2737-5-1579, 033-2737-5-1581	-	-	-		
FP1	-	-	-	N/A	N/A
033-2737-9-1484	-	-	-		
EG1	-	-	-	N/A	N/A
033-2737-9-1485	-	-	-		
CB1	-	-	-	N/A	N/A
N/A	-	-	-		
T1 & T3	-	-	-	N/A	N/A
N/A	-	-	-		
FUG1	-	-	-	N/A	N/A
N/A	-	-	-		
TBD - Road Particulate	-	-	-	N/A	N/A
N/A	-	-	-		
TOTALS	0.00	0.00	0.00		

*Please attach all calculations.

*See Attachment 1 for the minimum reporting values.

**Control Device

S = Scrubber

B = Baghouse

ESP = Electrostatic Precipitator

A = Afterburner

C = Condenser

¹Emissions must be broken down by equipment registration number (ex. 9-0076, 9-0077)

FORM 4:

TOXIC AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORT

Calendar Year: 2018

Facility Name: PSEG Keys Energy Center LLC Facility ID: 033-2737 Pollutant: Cadmium

Equipment Description/ Registration No.	Actual Emissions			Control Device**	% Efficiency
	Tons/yr	Lbs/day	Lbs/hr		
AUXB1	0.0000	0.0001	0.0000	N/A	N/A
033-2737-5-1582	-	-	-		
EGU #11	0.0003	0.0041	0.0002	N/A	N/A
033-2737-5-1578, 033-2737-5-1580	-	-	-		
EGU #12	0.0004	0.0044	0.0002	N/A	N/A
033-2737-5-1579, 033-2737-5-1581	-	-	-		
FP1	-	-	-	N/A	N/A
033-2737-9-1484	-	-	-		
EG1	-	-	-	N/A	N/A
033-2737-9-1485	-	-	-		
CB1	-	-	-	N/A	N/A
N/A	-	-	-		
T1 & T3	-	-	-	N/A	N/A
N/A	-	-	-		
FUG1	-	-	-	N/A	N/A
N/A	-	-	-		
TBD - Road Particulate	-	-	-	N/A	N/A
N/A	-	-	-		
TOTALS	0.00	0.01	0.00		

*Please attach all calculations.

*See Attachment 1 for the minimum reporting values.

**Control Device

S = Scrubber

B = Baghouse

ESP = Electrostatic Precipitator

A = Afterburner

C = Condenser

¹Emissions must be broken down by equipment registration number (ex. 9-0076, 9-0077)

FORM 4:

TOXIC AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORTCalendar Year: 2018Facility Name: PSEG Keys Energy Center LLC Facility ID: 033-2737 Pollutant: Chromium

Equipment Description/ Registration No.	Actual Emissions			Control Device**	% Efficiency
	Tons/yr	Lbs/day	Lbs/hr		
AUXB1	0.0000	0.0001	0.0000	N/A	N/A
033-2737-5-1582		-	-		
EGU #11	0.0004	0.0052	0.0002	N/A	N/A
033-2737-5-1578, 033-2737-5-1580		-	-		
EGU #12	0.0005	0.0056	0.0003	N/A	N/A
033-2737-5-1579, 033-2737-5-1581		-	-		
FP1	-	-	-	N/A	N/A
033-2737-9-1484		-	-		
EG1	-	-	-	N/A	N/A
033-2737-9-1485		-	-		
CB1	-	-	-	N/A	N/A
N/A		-	-		
T1 & T3	-	-	-	N/A	N/A
N/A		-	-		
FUG1	-	-	-	N/A	N/A
N/A		-	-		
TBD - Road Particulate	-	-	-	N/A	N/A
N/A		-	-		
TOTALS	0.00	0.01	0.00		

*Please attach all calculations.

*See Attachment 1 for the minimum reporting values.

**Control Device

S = Scrubber

B = Baghouse

ESP = Electrostatic Precipitator

A = Afterburner

C = Condenser

¹Emissions must be broken down by equipment registration number (ex. 9-0076, 9-0077)

FORM 4:

TOXIC AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORTCalendar Year: 2018Facility Name: PSEG Keys Energy Center LLC Facility ID: 033-2737 Pollutant: Mercury

Equipment Description/ Registration No.	Actual Emissions			Control Device**	% Efficiency
	Tons/yr	Lbs/day	Lbs/hr		
AUXB1	0.0000	0.0000	0.0000	N/A	N/A
033-2737-5-1582	-	-	-		
EGU #11	0.0001	0.0010	0.0000	N/A	N/A
033-2737-5-1578, 033-2737-5-1580	-	-	-		
EGU #12	0.0001	0.0010	0.0000	N/A	N/A
033-2737-5-1579, 033-2737-5-1581	-	-	-		
FP1	-	-	-	N/A	N/A
033-2737-9-1484	-	-	-		
EG1	-	-	-	N/A	N/A
033-2737-9-1485	-	-	-		
CB1	-	-	-	N/A	N/A
N/A	-	-	-		
T1 & T3	-	-	-	N/A	N/A
N/A	-	-	-		
FUG1	-	-	-	N/A	N/A
N/A	-	-	-		
TBD - Road Particulate	-	-	-	N/A	N/A
N/A	-	-	-		
TOTALS	0.00	0.00	0.00		

*Please attach all calculations.

*See Attachment 1 for the minimum reporting values.

**Control Device

S = Scrubber

B = Baghouse

ESP = Electrostatic Precipitator

A = Afterburner

C = Condenser

¹Emissions must be broken down by equipment registration number (ex. 9-0076, 9-0077)

FORM 4:

TOXIC AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORTCalendar Year: 2018Facility Name: PSEG Keys Energy Center LLC Facility ID: 033-2737 Pollutant: Nickel

Equipment Description/ Registration No.	Actual Emissions			Control Device**	% Efficiency
	Tons/yr	Lbs/day	Lbs/hr		
AUXB1	0.0000	0.0002	0.0000	N/A	N/A
033-2737-5-1582	-	-	-		
EGU #11	0.0007	0.0078	0.0004	N/A	N/A
033-2737-5-1578, 033-2737-5-1580	-	-	-		
EGU #12	0.0007	0.0084	0.0004	N/A	N/A
033-2737-5-1579, 033-2737-5-1581	-	-	-		
FP1	-	-	-	N/A	N/A
033-2737-9-1484	-	-	-		
EG1	-	-	-	N/A	N/A
033-2737-9-1485	-	-	-		
CB1	-	-	-	N/A	N/A
N/A	-	-	-		
T1 & T3	-	-	-	N/A	N/A
N/A	-	-	-		
FUG1	-	-	-	N/A	N/A
N/A	-	-	-		
TBD - Road Particulate	-	-	-	N/A	N/A
N/A	-	-	-		
TOTALS	0.00	0.02	0.00		

*Please attach all calculations.

*See Attachment 1 for the minimum reporting values.

**Control Device

S = Scrubber

B = Baghouse

ESP = Electrostatic Precipitator

A = Afterburner

C = Condenser

¹ Emissions must be broken down by equipment registration number (ex. 9-0076, 9-0077)

FORM 4:

TOXIC AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORTCalendar Year: 2018Facility Name: PSEG Keys Energy Center LLC Facility ID: 033-2737 Pollutant: Zinc

Equipment Description/ Registration No.	Actual Emissions			Control Device**	% Efficiency
	Tons/yr	Lbs/day	Lbs/hr		
AUXB1	0.0001	0.0030	0.0006	N/A	N/A
033-2737-5-1582	-	-	-		
EGU #11	0.0091	0.1082	0.0048	N/A	N/A
033-2737-5-1578, 033-2737-5-1580	-	-	-		
EGU #12	0.0098	0.1157	0.0055	N/A	N/A
033-2737-5-1579, 033-2737-5-1581	-	-	-		
FP1	-	-	-	N/A	N/A
033-2737-9-1484	-	-	-		
EG1	-	-	-	N/A	N/A
033-2737-9-1485	-	-	-		
CB1	-	-	-	N/A	N/A
N/A	-	-	-		
T1 & T3	-	-	-	N/A	N/A
N/A	-	-	-		
FUG1	-	-	-	N/A	N/A
N/A	-	-	-		
TBD - Road Particulate	-	-	-	N/A	N/A
N/A	-	-	-		
TOTALS	0.02	0.23	0.01		

*Please attach all calculations.

*See Attachment 1 for the minimum reporting values.

**Control Device

S = Scrubber

B = Baghouse

ESP = Electrostatic Precipitator

A = Afterburner

C = Condenser

¹ Emissions must be broken down by equipment registration number (ex. 9-0076, 9-0077)

FORM 4:

TOXIC AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORTCalendar Year: 2018Facility Name: PSEG Keys Energy Center LLC Facility ID: 033-2737 Pollutant: 1,3-Butadiene

Equipment Description/ Registration No.	Actual Emissions			Control Device**	% Efficiency
	Tons/yr	Lbs/day	Lbs/hr		
AUXB1	-	-	-	N/A	N/A
033-2737-5-1582	-	-	-		
EGU #11	0.0016	0.0192	0.0009	N/A	N/A
033-2737-5-1578, 033-2737-5-1580	-	-	-		
EGU #12	0.0017	0.0198	0.0009	N/A	N/A
033-2737-5-1579, 033-2737-5-1581	-	-	-		
FP1	0.0000	0.0000	0.0001	N/A	N/A
033-2737-9-1484	-	-	-		
EG1	0.0000	0.0003	0.0006	N/A	N/A
033-2737-9-1485	-	-	-		
CB1	-	-	-	N/A	N/A
N/A	-	-	-		
T1 & T3	-	-	-	N/A	N/A
N/A	-	-	-		
FUG1	-	-	-	N/A	N/A
N/A	-	-	-		
TBD - Road Particulate	-	-	-	N/A	N/A
N/A	-	-	-		
TOTALS	0.00	0.04	0.00		

*Please attach all calculations.

*See Attachment 1 for the minimum reporting values.

**Control Device

S = Scrubber

B = Baghouse

ESP = Electrostatic Precipitator

A = Afterburner

C = Condenser

¹Emissions must be broken down by equipment registration number (ex. 9-0076, 9-0077)

FORM 4:

TOXIC AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORTCalendar Year: 2018Facility Name: PSEG Keys Energy Center LLC Facility ID: 033-2737 Pollutant: Acetaldehyde

Equipment Description/ Registration No.	Actual Emissions			Control Device**	% Efficiency
	Tons/yr	Lbs/day	Lbs/hr		
AUXB1	-	-	-	N/A	N/A
033-2737-5-1582	-	-	-		
EGU #11	0.1499	1.7851	0.0800	N/A	N/A
033-2737-5-1578, 033-2737-5-1580	-	-	-		
EGU #12	0.1569	1.8459	0.0875	N/A	N/A
033-2737-5-1579, 033-2737-5-1581	-	-	-		
FP1	0.0000	0.0006	0.0013	N/A	N/A
033-2737-9-1484	-	-	-		
EG1	0.0000	0.0053	0.0127	N/A	N/A
033-2737-9-1485	-	-	-		
CB1	-	-	-	N/A	N/A
N/A	-	-	-		
T1 & T3	-	-	-	N/A	N/A
N/A	-	-	-		
FUG1	-	-	-	N/A	N/A
N/A	-	-	-		
TBD - Road Particulate	-	-	-	N/A	N/A
N/A	-	-	-		
TOTALS	0.31	3.64	0.18		

*Please attach all calculations.

*See Attachment 1 for the minimum reporting values.

**Control Device

S = Scrubber

B = Baghouse

ESP = Electrostatic Precipitator

A = Afterburner

C = Condenser

¹Emissions must be broken down by equipment registration number (ex. 9-0076, 9-0077)

FORM 4:

TOXIC AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORTCalendar Year: 2018Facility Name: PSEG Keys Energy Center LLC Facility ID: 033-2737 Pollutant: Acrolein

Equipment Description/ Registration No.	Actual Emissions			Control Device**	% Efficiency
	Tons/yr	Lbs/day	Lbs/hr		
AUXB1	-	-	-	N/A	N/A
033-2737-5-1582	-	-	-		
EGU #11	0.0240	0.2856	0.0128	N/A	N/A
033-2737-5-1578, 033-2737-5-1580	-	-	-		
EGU #12	0.0251	0.2953	0.0140	N/A	N/A
033-2737-5-1579, 033-2737-5-1581	-	-	-		
FP1	0.0000	0.0001	0.0002	N/A	N/A
033-2737-9-1484	-	-	-		
EG1	0.0000	0.0006	0.0015	N/A	N/A
033-2737-9-1485	-	-	-		
CB1	-	-	-	N/A	N/A
N/A	-	-	-		
T1 & T3	-	-	-	N/A	N/A
N/A	-	-	-		
FUG1	-	-	-	N/A	N/A
N/A	-	-	-		
TBD - Road Particulate	-	-	-	N/A	N/A
N/A	-	-	-		
TOTALS	0.05	0.58	0.03		

*Please attach all calculations.

*See Attachment 1 for the minimum reporting values.

**Control Device

S = Scrubber
 B = Baghouse
 ESP = Electrostatic Precipitator
 A = Afterburner
 C = Condenser

¹ Emissions must be broken down by equipment registration number (ex. 9-0076, 9-0077)

FORM 4:

TOXIC AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORT

Calendar Year: 2018

Facility Name: PSEG Keys Energy Center LLC Facility ID: 033-2737 Pollutant: Propylene Oxide

Equipment Description/ Registration No.	Actual Emissions			Control Device**	% Efficiency
	Tons/yr	Lbs/day	Lbs/hr		
AUXB1	-	-	-	N/A	N/A
033-2737-5-1582	-	-	-		
EGU #11	0.1087	1.2942	0.0580	N/A	N/A
033-2737-5-1578, 033-2737-5-1580	-	-	-		
EGU #12	0.1138	1.3383	0.0634	N/A	N/A
033-2737-5-1579, 033-2737-5-1581	-	-	-		
FP1	-	-	-	N/A	N/A
033-2737-9-1484	-	-	-		
EG1	-	-	-	N/A	N/A
033-2737-9-1485	-	-	-		
CB1	-	-	-	N/A	N/A
N/A	-	-	-		
T1 & T3	-	-	-	N/A	N/A
N/A	-	-	-		
FUG1	-	-	-	N/A	N/A
N/A	-	-	-		
TBD - Road Particulate	-	-	-	N/A	N/A
N/A	-	-	-		
TOTALS	0.22	2.63	0.12		

*Please attach all calculations.

*See Attachment 1 for the minimum reporting values.

**Control Device

S = Scrubber
 B = Baghouse
 ESP = Electrostatic Precipitator
 A = Afterburner
 C = Condenser

¹Emissions must be broken down by equipment registration number (ex. 9-0076, 9-0077)

FORM 5:

BILLABLE TOXIC AIR POLLUTANTS

Calendar Year: 2018

EMISSIONS CERTIFICATION REPORT

Facility Name: PSEG Keys Energy Center LLC Facility ID: 033-2737

Chemical Name	CAS Number		Actual Emissions			Estimation Method
			Tons/yr	Lbs/day	Lbs/hr	
carbon disulfide	75-15-0	S	0.00E+00	0.00E+00	0.00E+00	C4 - No Factors Exist
		F				
carbonyl sulfide	463-58-1	S	0.00E+00	0.00E+00	0.00E+00	C4 - No Factors Exist
		F				
chlorine	7782-50-5	S	0.00E+00	0.00E+00	0.00E+00	C4 - No Factors Exist
		F				
cyanide compounds	57-12-5	S	0.00E+00	0.00E+00	0.00E+00	C4 - No Factors Exist
		F				
hydrochloric acid	7647-01-0	S	0.00E+00	0.00E+00	0.00E+00	C4 - No Factors Exist
		F				
hydrogen fluoride	7664-39-3	S	0.00E+00	0.00E+00	0.00E+00	C4 - No Factors Exist
		F				
methyl chloroform	71-55-6	S	0.00E+00	0.00E+00	0.00E+00	C4 - No Factors Exist
		F				
perchloroethylene	127-18-4	S	0.00E+00	0.00E+00	0.00E+00	C4 - No Factors Exist
		F				
phosphine	7803-51-2	S	0.00E+00	0.00E+00	0.00E+00	C4 - No Factors Exist
		F				
titanium tetrachloride	7550-45-0	S	0.00E+00	0.00E+00	0.00E+00	C4 - No Factors Exist
		F				
TOTALS			0.00E+00	0.00E+00	0.00E+00	

Emission Estimation Method

A1 - U.S. EPA Reference Method
A2 - Other Particulate Sampling Train
A3 - Liquid Absorption Technique
A4 - Solid Absorption Technique
A5 - Freezing Out Technique
A9 - Other, Specify

C1 - User calculated based on source test or other measurement
C2 - User calculated based on material balance using engineering knowledge of the process
C3 - User calculated based on AP-42
C4 - User calculated by best guess/engineering judgment
C5 - User calculated based on a State or local agency emission factor
C6 - New construction, not operational
C7 - Source closed, operation ceased
C8 - Computer calculated based on standards

This form is to include only the chemical identified.

S - Stack Emissions F - Fugitive Emissions Daily Emissions (lbs/day) are lbs/operating day of the source.

PLEASE NOTE: Be sure to attach all data and calculations necessary to support the emissions figures shown above.

FORM 6:

**GREENHOUSE GAS AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORT**

Calendar Year: 2018Facility Name: PSEG Keys Energy Center LLCFacility ID: 033-2737Pollutant: CO₂

Equipment Description/ Registration Number ¹	Actual Emissions		
	Tons/yr	Lbs/day	Lbs/hr
AUXB1 033-2737-5-1582	413.00	12,328.47	2,263.03
EGU #11 033-2737-5-1578, 033-2737-5-1580	368,992.50	4,392,767.83	196,848.49
EGU #12 033-2737-5-1579, 033-2737-5-1581	386,661.35	4,548,957.08	215,530.30
FP1 033-2737-9-1484	1.10	137.11	259.62
EG1 033-2737-9-1485	6.88	1,146.93	2,484.32
CB1 N/A	-	-	-
T1 & T3 N/A	-	-	-
FUG1 N/A	20.18	110.57	4.61
TBD - Road Particulate N/A	-	-	-
TOTALS	756,095.01	8,955,447.99	417,390.38

This form must be used to report
Greenhouse gas emissions:

carbon dioxide (CO₂)
methane (CH₄)
nitrous oxide (N₂O)
hydrofluorocarbons (HFCs)
perfluorocarbons (PFCs)
sulfur hexafluoride (SF₆)

* Please attach all calculations

¹Emissions must be broken down by equipment registration number (ex 9-0076, 9-0077)

FORM 6:**GREENHOUSE GAS AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORT**Calendar Year: 2018Facility Name: PSEG Keys Energy Center LLCFacility ID: 033-2737Pollutant: CH4

Equipment Description/ Registration Number ¹	Actual Emissions		
	Tons/yr	Lbs/day	Lbs/hr
AUXB1 033-2737-5-1582	0.01	0.23	0.04
EGU #11 033-2737-5-1578, 033-2737-5-1580	8.97	106.78	4.78
EGU #12 033-2737-5-1579, 033-2737-5-1581	9.41	110.71	5.25
FP1 033-2737-9-1484	0.00	0.01	0.01
EG1 033-2737-9-1485	0.00	0.05	0.10
CB1 N/A	-	-	-
T1 & T3 N/A	-	-	-
FUG1 N/A	3.29	18.02	0.75
TBD - Road Particulate N/A	-	-	-
TOTALS	21.68	235.79	10.93

This form must be used to report
Greenhouse gas emissions:

carbon dioxide (CO₂)
methane (CH₄)
nitrous oxide (N₂O)
hydrofluorocarbons (HFCs)
perfluorocarbons (PFCs)
sulfur hexafluoride (SF₆)

* Please attach all calculations

¹Emissions must be broken down by equipment registration number (ex 9-0076, 9-0077)

FORM 6:**GREENHOUSE GAS AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORT**Calendar Year: 2018Facility Name: PSEG Keys Energy Center LLCFacility ID: 033-2737Pollutant: N2O

Equipment Description/ Registration Number ¹	Actual Emissions		
	Tons/yr	Lbs/day	Lbs/hr
AUXB1 033-2737-5-1582	0.00	0.02	0.00
EGU #11 033-2737-5-1578, 033-2737-5-1580	0.90	10.68	0.48
EGU #12 033-2737-5-1579, 033-2737-5-1581	0.94	11.07	0.52
FP1 033-2737-9-1484	0.00	0.00	0.00
EG1 033-2737-9-1485	0.00	0.01	0.02
CB1 N/A	-	-	-
T1 & T3 N/A	-	-	-
FUG1 N/A	-	-	-
TBD - Road Particulate N/A	-	-	-
TOTALS	1.84	21.78	1.03

This form must be used to report
Greenhouse gas emissions:

carbon dioxide (CO₂)
methane (CH₄)
nitrous oxide (N₂O)
hydrofluorocarbons (HFCs)
perfluorocarbons (PFCs)
sulfur hexafluoride (SF₆)

* Please attach all calculations

¹Emissions must be broken down by equipment registration number (ex 9-0076, 9-0077)

FORM 6:**GREENHOUSE GAS AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORT**Calendar Year: 2018Facility Name: PSEG Keys Energy Center LLCFacility ID: 033-2737Pollutant: HFCs

Equipment Description/ Registration Number ¹	Actual Emissions		
	Tons/yr	Lbs/day	Lbs/hr
AUXB1 033-2737-5-1582	-	-	-
EGU #11 033-2737-5-1578, 033-2737-5-1580	-	-	-
EGU #12 033-2737-5-1579, 033-2737-5-1581	-	-	-
FP1 033-2737-9-1484	-	-	-
EG1 033-2737-9-1485	-	-	-
CB1 N/A	-	-	-
T1 & T3 N/A	-	-	-
FUG1 N/A	-	-	-
TBD - Road Particulate N/A	-	-	-
TOTALS	-	-	-

This form must be used to report
Greenhouse gas emissions:

carbon dioxide (CO₂)
methane (CH₄)
nitrous oxide (N₂O)
hydrofluorocarbons (HFCs)
perfluorocarbons (PFCs)
sulfur hexafluoride (SF₆)

* Please attach all calculations

¹Emissions must be broken down by equipment registration number (ex 9-0076, 9-0077)

FORM 6:**GREENHOUSE GAS AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORT**Calendar Year: 2018Facility Name: PSEG Keys Energy Center LLCFacility ID: 033-2737Pollutant: PFCs

Equipment Description/ Registration Number ¹	Actual Emissions		
	Tons/yr	Lbs/day	Lbs/hr
AUXB1 033-2737-5-1582	-	-	-
EGU #11 033-2737-5-1578, 033-2737-5-1580	-	-	-
EGU #12 033-2737-5-1579, 033-2737-5-1581	-	-	-
FP1 033-2737-9-1484	-	-	-
EG1 033-2737-9-1485	-	-	-
CB1 N/A	-	-	-
T1 & T3 N/A	-	-	-
FUG1 N/A	-	-	-
TBD - Road Particulate N/A	-	-	-
TOTALS	-	-	-

This form must be used to report
Greenhouse gas emissions:

carbon dioxide (CO₂)
methane (CH₄)
nitrous oxide (N₂O)
hydrofluorocarbons (HFCs)
perfluorocarbons (PFCs)
sulfur hexafluoride (SF₆)

* Please attach all calculations

¹Emissions must be broken down by equipment registration number (ex 9-0076, 9-0077)

FORM 6:**GREENHOUSE GAS AIR POLLUTANTS
EMISSIONS CERTIFICATION REPORT**Calendar Year: 2018Facility Name: PSEG Keys Energy Center LLCFacility ID: 033-2737Pollutant: SF6

Equipment Description/ Registration Number ¹	Actual Emissions		
	Tons/yr	Lbs/day	Lbs/hr
AUXB1 033-2737-5-1582	-	-	-
EGU #11 033-2737-5-1578, 033-2737-5-1580	-	-	-
EGU #12 033-2737-5-1579, 033-2737-5-1581	-	-	-
FP1 033-2737-9-1484	-	-	-
EG1 033-2737-9-1485	-	-	-
CB1 N/A	-	-	-
T1 & T3 N/A	-	-	-
FUG1 N/A	-	-	-
TBD - Road Particulate N/A	-	-	-
TOTALS	-	-	-

This form must be used to report
Greenhouse gas emissions:

carbon dioxide (CO2)
methane (CH4)
nitrous oxide (N2O)
hydrofluorocarbons (HFCs)
perfluorocarbons (PFCs)
sulfur hexafluoride (SF6)

* Please attach all calculations

¹Emissions must be broken down by equipment registration number (ex 9-0076, 9-0077)

Keys Energy Center Emissions Certification Report
Annual Emissions Estimate For CB1 - Circuit Breakers

40 CFR 98 Subpart DD-1 Mass Balance Calculation - Annual SF6 Emissions

Parameter	2018	Units	Source	Notes
SF ₆ in containers, not equipment, at beginning of the year	-	Lbs.	Site Engineering	
SF ₆ in containers, not equipment, at end of the year	-	Lbs.	Materials Management	
Decreases in SF6 inventory	-	Lbs.	Calculation	Represents SF ₆ usage from the inventory during the calendar year
SF ₆ purchased from chemical producers or distributors in bulk	-	Lbs.	Site Engineering	
SF ₆ purchased from equipment manufacturers or distributors with or inside equipment, including hermetically sealed-pressure switchgear	-	Lbs.	Site Engineering	No new equipment bought in 2018
SF ₆ returned to facility after off-site recycling	-	Lbs.		
Acquisitions of SF ₆	-	Lbs.	Calculation	Represents repair and maintenance as well as new installations
SF ₆ in bulk and contained in equipment that is sold to other entities	-	Lbs.		
SF ₆ returned to suppliers	-	Lbs.	Site Engineering	Includes SF ₆ from retired equipment, SF ₆ remaining in bottles after maintenance, and SF ₆ in empty bottles throughout the system.
SF ₆ sent off site for recycling	-	Lbs.		
SF ₆ sent off site for destruction	-	Lbs.		
Disbursements of SF ₆	-	Lbs.	Calculation	
The Nameplate Capacity of new equipment, including hermetically sealed-pressure switchgear	-	Lbs.	Vendor Records	No new equipment installed in 2018
The Nameplate Capacity of retired equipment, including hermetically sealed-pressure switchgear	-	Lbs.	Site Engineering	
Net Increase in Total Name Plate Capacity of Equipment Operated	-	Lbs.	Calculation	

SUMMARY

Decreases in SF6 Inventory	- lbs
Acquisitions of SF6	- lbs
Disbursements of SF6	- lbs
Net increase in Total Name Plate Capacity of Equipment Operated	- lbs
Keys Annual SF6 Emissions	- lbs

Keys Energy Center Annual Emission Calculation Workbook
EG1 - 1500 kW Emergency Diesel Generator

Year: 2018

Unit Specifications:

Nominal Capacity (kw) 1500 kW from vendor specifications
 Rated Output (hp) 2328 hp from vendor specifications
 Fuel Consumption (gal/hr) 111 gal/hr from vendor specifications
 mmbtu/gallon (from 40 CFR 98 Table C-1) 0.135
 Kg to lb conversion (from 40 CFR 98 table A-2) 2.20462

Annual Operational Data	Hrs of Operation	Fuel Use (mmbtu)	Days of Operation
January	-	-	-
February	0.30	4.50	3
March	0.10	1.50	1
April	-	-	-
May	3.00	44.96	3
June	-	-	-
July	0.10	1.50	1
August	-	-	-
September	0.22	3.30	1
October	-	-	-
November	0.61	9.14	1
December	1.21	18.13	2
Total	5.54	83.02	12

Operating Schedule	Actual
Hrs/day	1
Dys/wk	1
Wk/yr	12
Days/yr	12

Pollutant Calculations

Pollutant	Factor	UOM	Source	Tons/yr	lbs/day	TOSD lbs/dy	Emission Method
<i>Form 2 Criteria Pollutants</i>							
NOx	4.32 g/hp-hr	Permit Limit (90%)		0.0614	10.2360	0.0237	C4 - Vendor
SO2	0.0015 lb/mmbtu	Mass Balance (15ppm)		0.0001	0.0104	0.0000	C2
Carbon Monoxide	0.45 g/hp-hr	Vendor Specs		0.0064	1.0662	0.0025	C4 - Vendor
VOC	0.48 g/hp-hr	Permit Limit (10%)		0.0068	1.1373	0.0041	C4 - Vendor
Lead	0 g/kWh	No Factor Identified		0.0000	0.0000	0.0000	C3

Form 3 Criteria Pollutants (Particulate Matter)

PM -- Filterable	0.08 g/hp-hr	Vendor Specs		0.0011	0.1896	0.0010	C4 - Vendor
PM 10 -- Filterable	0.08 g/hp-hr	Vendor Specs		0.0011	0.1896	0.0010	C4 - Vendor
PM 2.5 -- Filterable	0.08 g/hp-hr	Vendor Specs		0.0011	0.1896	0.0019	C4 - Vendor
PM Condensable	0.08 g/hp-hr	Vendor Specs		0.0011	0.1896	0.0034	C4 - Vendor

Form 4 Toxic Air Pollutants (excluding Form 5)

			Tons/yr	lbs/day	lbs/hr	Emission Method
Benzene	9.33E-04 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0065	0.0140	C3
Toluene	4.09E-04 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0028	0.0061	C3
Xylene	2.85E-04 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0020	0.0043	C3
Propylene	2.58E-04 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0018	0.0039	C3
1,3-Butadiene	3.91E-05 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0003	0.0006	C3
Formaldehyde	1.18E-03 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0082	0.0177	C3
Acetaldehyde	7.67E-04 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0053	0.0115	C3
Acrolein	9.25E-05 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0006	0.0014	C3
Naphthalene	8.48E-05 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0006	0.0013	C3
Acenaphthylene	5.06E-06 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0001	C3
Acenaphthene	1.42E-06 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3
Fluorene	2.92E-05 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0002	0.0004	C3
Phenanthrene	2.94E-05 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0002	0.0004	C3
Anthracene	1.87E-06 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3
Fluoranthene	7.61E-06 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0001	0.0001	C3
Pyrene	4.78E-06 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0001	C3
Benzo(a)anthracene	1.68E-06 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3
Chrysene	3.53E-07 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3
Benzo(b)fluoranthene	9.91E-08 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3
Benzo(k)fluoranthene	1.55E-07 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3
Benzo(a)pyrene	1.88E-07 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3
Indeno(1,2,3-cd)pyrene	3.75E-07 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3
Dibenz(a,h)anthracene	5.83E-07 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3
Benzo(g,h,i)perylene	4.89E-07 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3

Form 6 Greenhouse Gases

			Tons/yr	lbs/day	lbs/hr	GWP	CO2e Tons/yr	Emission Method
CO2	165.787 lb/mmbtu	40 CFR 98 for Kerosene	6.8816	1146.9298	2484.3245		1 6.8816	A1
CH4	0.007 lb/mmbtu	40 CFR 98 for Kerosene	0.0003	0.0458	0.0991		25 0.0069	A1
N2O	0.001 lb/mmbtu	40 CFR 98 for Kerosene	0.0001	0.0092	0.0198		298 0.0164	A1
HFCs	0 lb/mmbtu	Best Engineering Judgement	0.0000	0.0000	0.0000		0 0.0000	A1
PFCs	0 lb/mmbtu	Best Engineering Judgement	0.0000	0.0000	0.0000		0 0.0000	A1
SF6	0 lb/mmbtu	Best Engineering Judgement	0.0000	0.0000	0.0000		0 0.0000	A1

Keys Energy Center Annual Emission Calculation Workbook
FP1 - 275 Horsepower Fire Water Pump Engine

Year: 2018

Unit Specifications:

Rated Output (hp) 275 hp from vendor specifications
Fuel Consumption (gal/hr) 11.6 gal/hr from vendor specifications
mmbtu/gallon (from 40 CFR 98 Table C-1) 0.135
Kg to lb conversion (from 40 CFR table A-2) 2.20462

Annual Operational Data	Hrs of Operation	Fuel Use (mmbtu)	Days of Operation
January	0.0	0.0	0
February	3.0	4.7	3
March	0.0	0.0	0
April	0.0	0.0	0
May	0.3	0.5	2
June	1.0	1.6	4
July	0.2	0.3	0
August	0.0	0.0	0
September	0.0	0.0	0
October	1.2	1.8	2
November	0.6	0.9	1
December	2.2	3.4	4
Total	8.5	13.2	16

Operating Schedule	Actual
Hrs/day	1
Dys/wk	1
Wk/yr	16
Days/yr	16

Pollutant Calculations

Pollutant	Factor	UOM	Source	Tons/yr	lbs/day	TOSD lbs/dy	Emission Method
<i>Form 2 Criteria Pollutants</i>							
NOx	2.2 g/hp-hr		Vendor Specs	0.0056	0.7044	0.0010	C4
SO2	0.0015 lb/mmbtu		Mass Balance (based on 15ppm)	0.0000	0.0012	0.0000	C2
Carbon Monoxide	1.417 g/hp-hr		Vendor Specs	0.0036	0.4537	0.0006	C4
VOC	0.123 g/hp-hr		Vendor Specs for NMHC	0.0003	0.0394	0.0001	A1
Lead	0 g/hp-hr		No Factor Identified	0.0000	0.0000	0.0000	C4

Form 3 Criteria Pollutants (Particulate Matter)

PM -- Filterable	0.118 g/hp-hr	Vendor Specs	0.0003	0.0378	0.0001	C4
PM 10 -- Filterable	0.118 g/hp-hr	Vendor Specs	0.0003	0.0378	0.0001	C4
PM 2.5 -- Filterable	0.118 g/hp-hr	Vendor Specs	0.0003	0.0378	0.0001	C4
PM Condensable	0.118 g/hp-hr	Vendor Specs	0.0003	0.0378	0.0001	C4

Form 4 Toxic Air Pollutants (excluding Form 5)

			Tons/yr	lbs/day	lbs/hr	Emission Method	Control Device	% Efficiency
Form 4 Toxic Air Pollutants (excluding Form 5)								
Benzene	9.33E-04 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0008	0.0015	C3	N/A	0%
Toluene	4.09E-04 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0003	0.0006	C3	N/A	0%
Xylene	2.85E-04 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0002	0.0004	C3	N/A	0%
Propylene	2.58E-04 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0002	0.0004	C3	N/A	0%
1,3-Butadiene	3.91E-05 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0001	C3	N/A	0%
Formaldehyde	1.18E-03 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0010	0.0018	C3	N/A	0%
Acetaldehyde	7.67E-04 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0006	0.0012	C3	N/A	0%
Acrolein	9.25E-05 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0001	0.0001	C3	N/A	0%
Naphthalene	8.48E-05 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0001	0.0001	C3	N/A	0%
Acenaphthylene	5.06E-06 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3	N/A	0%
Acenaphthene	1.42E-06 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3	N/A	0%
Fluorene	2.92E-05 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3	N/A	0%
Phenanthrene	2.94E-05 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3	N/A	0%
Anthracene	1.87E-06 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3	N/A	0%
Fluoranthene	7.61E-06 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3	N/A	0%
Pyrene	4.78E-06 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3	N/A	0%
Benzo(a)anthracene	1.68E-06 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3	N/A	0%
Chrysene	3.53E-07 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3	N/A	0%
Benzo(b)fluoranthene	9.91E-08 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3	N/A	0%
Benzo(k)fluoranthene	1.55E-07 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3	N/A	0%
Benzo(a)pyrene	1.88E-07 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3	N/A	0%
Indeno(1,2,3-cd)pyrene	3.75E-07 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3	N/A	0%
Dibenz(a,h)anthracene	5.83E-07 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3	N/A	0%
Benzo(g,h,i)perylene	4.89E-07 lb/mmbtu	AP-42 C03, S03 Table 3.3-2	0.0000	0.0000	0.0000	C3	N/A	0%

Form 6 Greenhouse Gases

			Tons/yr	lbs/day	lbs/hr	GWP	CO2e Tons/yr
CO2	165.787 lb/mmbtu	40 CFR 98 for Kerosene	1.0969	137.1135	259.6231	1	1.0969
CH4	0.007 lb/mmbtu	40 CFR 98 for Kerosene	0.0000	0.0055	0.0104	25	0.0011
N2O	0.0013 lb/mmbtu	40 CFR 98 for Kerosene	0.0000	0.0011	0.0021	298	0.0026
HFCs	0 lb/mmbtu	Best Engineering Judgement	0.0000	0.0000	0.0000	0	0.0000
PFCs	0 lb/mmbtu	Best Engineering Judgement	0.0000	0.0000	0.0000	0	0.0000
SF6	0 lb/mmbtu	Best Engineering Judgement	0.0000	0.0000	0.0000	0	0.0000

Keys Energy Center Emissions Certification Report
Annual Emissions Estimate For FUG1 - Natural Gas Pipeline & Catalytic Heaters

GHG Summary

Equipment Type	CO2 Emissions (TPY)	CH4 Emissions (TPY)	CO2e Emissions (TPY)
Miscellaneous Components	N/A	0.00	0.00
M&R Station Emissions	N/A	0.00	0.00
Distribution of Natural Gas	N/A	3.29	82.24
Catalytic Heaters	20.18	N/A	20.18
Total:	20.18	3.29	102.42

Data Input

Count	M&R Stations (Including Gas Yard)	Count	Equipment Type
0	Below Ground (inlet pressure >300 psia)	0	Connectors + Flanges
0	Below Ground (inlet pressure 100-300 psia)	0	Block Valves
0	Below Ground (inlet pressure <100 psia)	0	Control Valves
		0	Press. Rel. Valves
		0	Orifice Meters
		0	Regulators
		0	Open-Ended Lines
Count	Catalytic Heaters	Assumptions / Conversions	
3	SKD101 heater	100%	Fraction of Fugitive NG assumed to be CH4.
3	SKD106 heater	8760	Hours of Operation
		0.0423	lb/scf for CH4 (1 atm / 20C)
		2.20462	lb/kg Conversion
		5280	ft/mile Conversion
		1020	BTU/scf natural gas
		1	Global Warming Potential of CO2
		25	Global Warming Potential of CH4
		(Table A-1 to Subpart A of 40CFR Part 98)	
Length (ft)	On-Site Distribution Mains/Piping		
7367.63	Unprotected Steel		
2849.55	Protected Steel		
0	Plastic		
0	Cast Iron		

Equipment Calcs

Component Type	Component Count	Emission Factor* scf/hr/unit	CH4 Emissions (tpy)	GHG Emissions (tpy)
Connector	0	1.69	0.00	0.00
Block Valve	0	0.557	0.00	0.00
Control Valve	0	9.34	0.00	0.00
Press. Rel. Valve	0	0.27	0.00	0.00
Orifice Meter	0	0.212	0.00	0.00
Regulator	0	0.772	0.00	0.00
Open-Ended Line	0	26.131	0.00	0.00
TOTALS			0.00	0.00

* Emission Factors from Table W-7 to Subpart W of 40 CFR Part 98

Distribution Calcs

Metering / Regulating Stations	Inlet Pressure (psia)	Component Count	Emission Factor* scf/hr/stn	CH4 Emissions (tpy)	GHG Emissions (tpy)
Below Ground	>300	0	1.3	0.00	0.00
Below Ground	100-300	0	0.2	0.00	0.00
Below Ground	<100	0	0.1	0.00	0.00
TOTALS				0.00	0.00

Distribution Piping Material	Piping Length (feet)	Piping Length (miles)	Emission Factor* scf/hr/mile	CH4 Emissions (tpy)	GHG Emissions (tpy)
Unprotected Steel	7367.63	1.395	12.58	3.25	81.36
Protected Steel	2849.55	0.540	0.35	0.04	0.88
Plastic	0	0.000	1.13	0.00	0.00
Cast Iron	0	0.000	27.25	0.00	0.00
TOTALS				3.29	82.24

* Emission Factors from Table W-7 to Subpart W of 40 CFR Part 98

Cat Heater

Catalytic Heater Fugitive Emissions				
Heater	Rating (Btu/hr)	Count	Total NG (Btu/hr)	CO2 (TPY)
SKD101	12000	3	36000	17.94
SKD106	1500	3	4500	2.24
Total:				20.18

1 MMBtu of natural gas = 980.3922 scf
Methane molar mass = 16.04 lb/lb-mol
CO2 molar mass = 44.01 lb/lb-mol
lb/mol = 379.3 scf @ 60 F (15C)

1 MMBtu of natural gas = 41.46 lb/MMBtu
Catalytic conversion to CO2 gives: 113.8 lb CO2/MMBtu

Keys Energy Center Unpaved Roads (R-1) Emission Statement Factor Assumptions

AP-42 Chapter 13.2.2 Eqn 1a Predictive Emission Factor Equations

$$E = k((s/12)^a)((W/3)^b)$$

k	from Table 13.2.1-1
sL	Silt Loading (using Solid Waste Landfill mean value (Table 13.2.2-1) as an analog for a gas-fired power plant)
W	Average Weight of Vehicles traveling road (using 99%/1% example from AP-42)

Equation 1a	k	sL	W	a	b	equals	E
PM2.5	0.15	6.4	4.3	0.9	0.45		0.1002 lb/VMT
PM-10	1.5	6.4	4.3	0.9	0.45		1.0017 lb/VMT
PM-30/TSP	4.9	6.4	4.3	0.7	0.45		3.7107 lb/VMT

CONTROLS - Equation 2

$$E(\text{ext}) = E[(365-P)/365]$$

E	Emission Factor from Equation 1a
P	Number of Days in a year with at least 0.254mm (0.1 in) of precipitation, see Figure 13.2.2-1

P equals 150 for Maryland

	E	P	equals	E(ext)
PM2.5	0.1002	150		0.059022 lb/VMT
PM-10	1.0017	150		0.590042 lb/VMT
PM-30/TSP	3.7107	150		2.185755 lb/VMT

Assumptions

Employees	27	2	54
Delivery Trucks/day	4	20	80
Miles per vehicle/day	2		134
Days/year	365		4.3 Weighted Average of Avg Vehicle Weight (W)
Total VMT/year	22630		

Equation 1a Only

Total Emissions/year	lbs/year	tons/year
PM 2.5 -- Filterable	2,267.53	1.13
PM 10 -- Filterable	22,668.47	11.33
PM -- Filterable	83,973.14	41.99

Equation 1a + 2

Total Emissions/year	lbs/year	tons/year
PM 2.5 -- Filterable	1,335.67	0.67
PM 10 -- Filterable	13,352.66	6.68
PM -- Filterable	49,463.63	24.73

Keys Energy Center Emissions Certification Report

Stack Test Results Summary

Pollutant	CT11		CT12		Stack Test Method
	Base Load w/o DB (lb/mmmbtu)	Base Load w/ DB (lb/mmmbtu)	Base Load w/o DB (lb/mmmbtu)	Base Load w/ DB (lb/mmmbtu)	
PM - Filterable	0.0005	0.0009	0.0006	0.0007	Method 5
PM10 - Filterable	0.0011	0.0015	0.0009	0.001	Method 201A
PM2.5 Filterable	0.0005	0.0009	0.0005	0.0006	Method 201A
Condensable PM	0.0015	0.0029	0.0011	0.0015	Method 202
VOC	5.87E-05	6.67E-05	6.68E-05	1.71E-04	Method 25A

Note: As Stack Testing was not performed on startup/shutdown, permit rate of 0.0028 lb/mmmbtu used for PM 2.5 filterable on SU/SD operating scenarios for emission calculations.

Stack Test Reports Used:

CTG11 October 22-24. 2-18 Emissions Compliance Test - PSC Case No. 9297, Order No. 86692 by Air Hygiene, Inc.
 CTG12 October 25-27. 2-18 Emissions Compliance Test - PSC Case No. 9297, Order No. 86692 by Air Hygiene, Inc.

Keys Energy Center Emissions Certification Report
Annual Emissions Estimate For AUXB1

Month	Source	Total MMBTU	Total mmscf
1	CEMS	-	-
2	CEMS	19.32	0.02
3	CEMS	-	-
4	CEMS	-	-
5	CEMS	2,460.32	2.41
6	CEMS	2,138.20	2.10
7	CEMS	1,071.68	1.05
8	CEMS	17.13	0.02
9	CEMS	54.81	0.05
10	CEMS	41.53	0.04
11	CEMS	1,239.75	1.22
12	CEMS	18.53	0.02
Total		7,061.27	6.92

	TOSD		
	Pounds	Tons	lbs/day
	Days		55
Carbon Monoxide	459.37	0.23	8.35
NOx	57.42	0.03	1.04
SO2	3.45	0.00	0.06
Lead	0.00	0.00	0.00
VOC	11.48	0.01	0.21

ANNUAL EMISSIONS

FORM 2 & 3 - Criteria & PM	Factor Source	Factor	lbs	tons
Carbon Monoxide	BACT value in facility PTO	8.00E-02	564.9017	0.2825
NOx	LAER value in facility PTO	1.00E-02	70.6127	0.0353
SO2	EPA Pipeline Natural Gas	6.00E-04	4.2368	0.0021
Lead	AP-42 Table 1.4-2 divided by 1020	4.90E-07	0.0035	0.0000
PM -- Filterable	BACT value in facility PTO	7.50E-03	52.9595	0.0265
PM 10 -- Filterable	BACT value in facility PTO	7.50E-03	52.9595	0.0265
PM 2.5 -- Filterable	BACT value in facility PTO	7.50E-03	52.9595	0.0265
PM Condensable	BACT value in facility PTO	7.50E-03	52.9595	0.0265
VOC	LAER value in facility PTO	2.00E-03	14.1225	0.0071

FORM 6 - GHG	Factor Source	Factor	lbs	tons
CO2	40 CFR 98 Subpart C	1.17E+02	826,007.3543	413.0037
CH4	40 CFR 98 Subpart C	2.20E-03	15.5674	0.0078
N2O	40 CFR 98 Subpart C	2.20E-04	1.5567	0.0008
HFCs	40 CFR 98 Subpart C	0.00E+00	-	-
PFCs	40 CFR 98 Subpart C	0.00E+00	-	-
SF6	40 CFR 98 Subpart C	0.00E+00	-	-

FORM 4 - Non-Billable HAPs	Factor Source	Factor	lbs	tons
2-Methylnaphthalene	AP-42 Section 1.4 divided by 1020	2.35E-08	0.0002	0.0000
3-Methylcholanthrene	AP-42 Section 1.4 divided by 1020	1.76E-09	0.0000	0.0000
7,12-Dimethylbenz(a)anthracene	AP-42 Section 1.4 divided by 1020	1.57E-08	0.0001	0.0000
1,3-Butadiene	AP-42 Section 1.4 divided by 1020	0.00E+00	-	-
Acetaldehyde	AP-42 Section 1.4 divided by 1020	0.00E+00	-	-
Acenaphthene	AP-42 Section 1.4 divided by 1020	1.76E-09	0.0000	0.0000
Acenaphthylene	AP-42 Section 1.4 divided by 1020	1.76E-09	0.0000	0.0000
Acrolein	AP-42 Section 1.4 divided by 1020	0.00E+00	-	-
Anthracene	AP-42 Section 1.4 divided by 1020	2.35E-09	0.0000	0.0000
Benz(a)anthracene	AP-42 Section 1.4 divided by 1020	1.76E-09	0.0000	0.0000
Benzene	AP-42 Section 1.4 divided by 1020	2.06E-06	0.0145	0.0000
Benzo(a)pyrene	AP-42 Section 1.4 divided by 1020	1.18E-09	0.0000	0.0000
Benzo(b)fluoranthene	AP-42 Section 1.4 divided by 1020	1.76E-09	0.0000	0.0000
Benzo(g,h,i)perylene	AP-42 Section 1.4 divided by 1020	1.18E-09	0.0000	0.0000
Benzo(k)fluoranthene	AP-42 Section 1.4 divided by 1020	1.76E-09	0.0000	0.0000
Butane	AP-42 Section 1.4 divided by 1020	2.06E-03	14.5379	0.0073
Chrysene	AP-42 Section 1.4 divided by 1020	1.76E-09	0.0000	0.0000
Dibenzo(a,h)anthracene	AP-42 Section 1.4 divided by 1020	1.18E-09	0.0000	0.0000
1,4-Dichlorobenzene(P)	AP-42 Section 1.4 divided by 1020	1.18E-06	0.0083	0.0000
Ethane	AP-42 Section 1.4 divided by 1020	3.04E-03	21.4607	0.0107
Fluoranthene	AP-42 Section 1.4 divided by 1020	2.94E-09	0.0000	0.0000
Fluorene	AP-42 Section 1.4 divided by 1020	2.75E-09	0.0000	0.0000
Formaldehyde	AP-42 Section 1.4 divided by 1020	7.35E-05	0.5192	0.0003
Hexane	AP-42 Section 1.4 divided by 1020	1.76E-03	12.4611	0.0062
Indeno(1,2,3-cd)pyrene	AP-42 Section 1.4 divided by 1020	1.76E-09	0.0000	0.0000
Naphthalene	AP-42 Section 1.4 divided by 1020	5.98E-07	0.0042	0.0000
Pentane	AP-42 Section 1.4 divided by 1020	2.55E-03	17.9993	0.0090
Phenanthrene	AP-42 Section 1.4 divided by 1020	1.67E-08	0.0001	0.0000
Propylene Oxide	AP-42 Section 1.4 divided by 1020	0.00E+00	-	-
Propane	AP-42 Section 1.4 divided by 1020	1.57E-03	11.0765	0.0055
Pyrene	AP-42 Section 1.4 divided by 1020	4.90E-09	0.0000	0.0000
Toluene	AP-42 Section 1.4 divided by 1020	3.33E-06	0.0235	0.0000
Arsenic	AP-42 Section 1.4 divided by 1020	1.96E-07	0.0014	0.0000
Barium	AP-42 Section 1.4 divided by 1020	4.31E-06	0.0305	0.0000
Beryllium	AP-42 Section 1.4 divided by 1020	1.18E-08	0.0001	0.0000
Cadmium	AP-42 Section 1.4 divided by 1020	1.08E-06	0.0076	0.0000
Chromium	AP-42 Section 1.4 divided by 1020	1.37E-06	0.0097	0.0000
Cobalt	AP-42 Section 1.4 divided by 1020	8.24E-08	0.0006	0.0000
Copper	AP-42 Section 1.4 divided by 1020	8.33E-07	0.0059	0.0000
Manganese	AP-42 Section 1.4 divided by 1020	3.73E-07	0.0026	0.0000
Mercury	AP-42 Section 1.4 divided by 1020	2.55E-07	0.0018	0.0000
Molybdenum	AP-42 Section 1.4 divided by 1020	1.08E-06	0.0076	0.0000
Nickel	AP-42 Section 1.4 divided by 1020	2.06E-06	0.0145	0.0000
Selenium	AP-42 Section 1.4 divided by 1020	2.35E-08	0.0002	0.0000
Vanadium	AP-42 Section 1.4 divided by 1020	2.25E-06	0.0159	0.0000
Zinc	AP-42 Section 1.4 divided by 1020	2.84314E-05	0.2008	0.0001

Keys Energy Center Emissions Certification Report
Annual Emissions Estimate For CT1 & HRSG1 (combined line item)

Part 75 Heat Input	Keys 11 - Normal Operation Without Duct Burners				Keys 11 - Normal Operation With Duct Burners				Keys 11 - Duct Burner Fuel				Keys 11 - Startup/Shutdown				Keys 11 - Shutdown Period (Jan 1 - Sept) No DB				Keys 11 - Shutdown Period DB Fuel				TOTAL UNIT					
	Month	Fuel Use (mmBtu)	TOSD		Month	Fuel Use (mmBtu)	TOSD		Month	Fuel Use (mmBtu)	TOSD		Month	Fuel Use (mmBtu)	Type of Startup/shutdown		Month	Fuel Use (mmBtu)	TOSD		Month	Fuel Use (mmBtu)	TOSD		Fuel Use (mmBtu)					
1274805.34 1891188.7 119869.84 1368648.4	1				1				1			0.0000	1				1				1				0.0001					
	2				2				2			0.0042	2				2				2				0.6226					
	3				3				3				3				3				3									
	4				4				4				4				4				4									
	5				5				5				5				5				5									
	6				6				6				6				6				6									
	7				7				7				7				7				7									
	8				8				8				8				8				8									
	9	337,582			9	810,153.60			9	127,070.00			9				9				9						3,482,214.02			
	10	352,426			10	1,321,747.00			10	217,016.00			10				10				10						1,274,805.34			
	11	63,251			11	48,589.20			11	8,030.10			11				11				11						1,892,467.05			
	12	797,075			12	515,117.20			12	56,456.30			12				12				12						121,685.77			
Total	1,550,333			Total	2,695,607.00			Total	408,572.40			Total			8,062.43	Total				Total						1,373,616.56				
FORM 2 - Criteria Pollutants	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Pounds	Tons				
Carbon Monoxide	CEMS	N/A	2,634.60	1.32	N/A - See Normal Operation No DB Emissions				N/A - See Normal Operation No DB Emissions				N/A - See Normal Operation No DB Emissions				N/A - See Normal Operation No DB Emissions				N/A - See Shutdown Period No DB Emissions				55,538.63	27.77				
NOx	CEMS	N/A	26,364.00	13.18																									53,885.12	26.94
SO2	CEMS	N/A	2,792.00	1.40																										4,881.33
Lead	AP-42 Section 3.1	0			AP-42 Section 3.1	0			AP-42 Section 1.4	4.90E-07	0.20	0.00	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	2.10E-03	6,827.70	3.41	AP-42 Section 1.4	4.90E-07	0.11	0.00	0.31	0.00	8,000.18	4.00		
VOC	Stack Test (minus SU/SD)	5.87E-05	90.53	0.05	Stack Test	6.67E-05	179.80	0.09	Stack Test	6.67E-05	27.25	0.01	PERMIT per event	LAER - See Permit	1,298.80	0.65	AP-42 Section 3.1	2.10E-03	6,827.70	3.41	AP-42 Section 1.4	5.39E-03	1,245.21	0.62	9,669.29	4.83	12,155.24	6.08		
FORM 3 - Particulate Matter	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Pounds	Tons				
PM - Filterable	Stack Test	0.0005	775.17	0.39	Stack Test	0.0009	2,426.05	1.21	Stack Test	0.0009	367.72	0.18	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	1.90E-03	6,177.44	3.09	AP-42 Section 1.4	1.86E-03	430.16	0.22	10,176.53	5.09				
PM 10 - Filterable	Stack Test	0.0011	1,705.37	0.85	Stack Test	0.0015	4,043.41	2.02	Stack Test	0.0015	612.86	0.31						AP-42 Section 3.1	1.90E-03	6,177.44	3.09	AP-42 Section 1.4	1.86E-03	430.16	0.22	12,969.24	6.48			
PM 2.5 - Filterable	Stack Test (minus SU/SD)	0.0005	771.14	0.39	Stack Test	0.0009	2,426.05	1.21	Stack Test	0.0009	367.72	0.18		PERMIT	0.0028	22.57	0.01	AP-42 Section 3.1	1.90E-03	6,177.44	3.09	AP-42 Section 1.4	1.86E-03	430.16	0.22	10,195.07	5.10			
PM Condensable	Stack Test	0.0015	2,325.50	1.16	Stack Test	0.0029	7,817.26	3.91	Stack Test	0.0029	1,184.86	0.59	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	4.70E-03	15,281.03	7.64	AP-42 Section 1.4	5.59E-03	1,290.49	0.65	27,899.15	13.95				
FORM 4 - Non-Billable HAPs	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)		Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Pounds	Tons			
2-Methylnaphthalene	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	2.35E-08	0.0095	0.00		N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	2.35E-08	0.0054	0.00	0.02	0.00			
3-Methylcholanthrene	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0007	0.00						AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0004	0.00	0.01	0.00			
7,12-Dimethylbenz(a)anthracene	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.57E-08	0.0064	0.00						AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0004	0.00	0.00	0.00			
Acenaphthene	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0007	0.00	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0004	0.00	0.00	0.00				
Acenaphthylene	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0007	0.00						AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	2.35E-09	0.0005	0.00	0.00	0.00			
Anthracene	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	2.35E-09	0.0010	0.00						AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0004	0.00	0.00	0.00			
Benzo(a)anthracene	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0007	0.00	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0004	0.00	0.00	0.00				
Benzo(b)fluoranthene	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0007	0.00						AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0004	0.00	0.00	0.00			
Benzo(g,h,i)perylene	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0007	0.00						AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0004	0.00	0.00	0.00			
Benzo(k)fluoranthene	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0007	0.00	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0004	0.00	0.00	0.00				
Butane	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0007	0.00						AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0004	0.00	0.00				

Keys Energy Center Emissions Certification Report
Annual Emissions Estimate For CT2 & HRSG2 (combined line item)

Part 75 Heat Input

1163885.04

1905889.97

357874.18

1441183.8

FORM 2 - Criteria Pollutants

Carbon Monoxide

NOx

SO2

Lead

VOC

FORM 3 - Particulate Matter

PM - Filterable

PM 10 - Filterable

PM 2.5 - Filterable

PM Condensable

FORM 4 - Non-Billable HAPs

2-Methylnaphthalene

3-Methylcholanthrene

7,12-Dimethylbenz(a)anthracene

Acenaphthene

Acenaphthylene

Anthracene

Benzo(a)anthracene

Benzo(a)pyrene

Benzo(b)fluoranthene

Benzo(g,h,i)perylene

Benzo(k)fluoranthene

Butane

Chrysene

Dibenz(a,h)anthracene

1,4-Dichlorobenzene(P)

Ethane

Fluoranthene

Fluorene

FORM 5 - Billable TAPs

Carbon Disulfide

Carbonyl Sulfide

Chlorine

Cyanide Compounds

Hydrochloric Acid

Hydrogen Fluoride

Methyl Chloroform

Methylene Chloride

Perchloroethylene

Phosphine

Titanium Tetrachloride

FORM 6 - GHG

CO2

CH4

N2O

HFCs

PFCS

SF6

Keys 12 - Normal Operation Without Duct Burners				Keys 12 - Normal Operation With Duct Burners				Keys 12 - Duct Burner Fuel				Keys 12 - Startup/Shutdown				Keys 12 - Shutdown Period (Jan 1- Sept) No DB				Keys 12 - Shutdown Period DB Fuel				TOTAL UNIT			
Month	Fuel Use (mmbtu)	TOSD	Lead	Month	Fuel Use (mmbtu)	TOSD	Lead	Month	Fuel Use (mmbtu)	TOSD	Lead	Month	Fuel Use (mmbtu)	Type of Startup/shutdown	Month	Fuel Use (mmbtu)	TOSD	Lead	Month	Fuel Use (mmbtu)	TOSD	Lead	Fuel Use (mmbtu)	Pounds	Tons	Pounds	Tons
1			-	1			-	1			0.0000	1		Cold SU	1			-	1			0.0001	-				
2			0.0097	2			0.0646	2			0.0102	2		Warm SU	2			3.5996	2			0.6467	-				
3				3				3				3		Hot SU	3				3				-				
4				4				4				4		Shutdown	4				4				-				
5				5				5				5			5				5				-				
6				6				6				6			6				6				-				
7				7				7				7			7				7				-				
8				8				8				8			8				8				-				
9	289,234			9	755,322.60			9	119,328.10			9	728.86			9	0		3428194.664	9	0			3,668,045.30			
10	360,295			10	1,331,014.10			10	214,580.40			10	1,527.65			10	0			10	0			1,164,613.90			
11	57,149			11	257,722.80			11	43,002.10			11	2,340.10			11	0			11	0			1,907,417.62			
12	713,187			12	652,857.80			12	75,138.60			12	224.23			12	0			12	0			360,214.28			
Total	1,419,866			Total	7,996,917.30			Total	452,049.20			Total	4,820.84			Total	3428194.664		Total	239850.6357				8,541,999.13			
Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Pounds	Tons	Pounds	Tons
CEMS	N/A	2,045.80	1.02	N/A - See Normal Operation No DB Emissions				N/A - See Normal Operation No DB Emissions				N/A - See Normal Operation No DB Emissions				CEMS	N/A	39,277.55	19.64	N/A - See Shutdown Period No DB Emissions				41,323.35	20.66	39,668.25	19.83
CEMS	N/A	27,678.00	13.84													CEMS	N/A	48,257.53	24.13					75,935.53	37.97	55,569.43	27.78
CEMS	N/A	2,920.00	1.46													EPA PNG	0.0006	2,056.92	1.03					5,120.83	2.56	2,755.25	1.38
AP-42 Section 3.1	0	6.68E-05	94.53	0.05	AP-42 Section 3.1	0	-	AP-42 Section 1.4	4.90E-07	0.22	0.00	PERMIT per event	LAER - See Permit	706.20	0.35	AP-42 Section 3.1	2.10E-03	7,199.21	3.60	AP-42 Section 1.4	4.90E-07	0.12	0.00	0.34	0.00	2,000.18	1.00
Stack Test (minus SU/SD)	6.68E-05	94.53	0.05	Stack Test	1.71E-04	512.47	0.26	Stack Test	1.71E-04	77.30	0.04					AP-42 Section 3.1	4.70E-03	16,112.51	8.06	AP-42 Section 1.4	5.39E-03	1,293.31	0.65	9,883.02	4.94	12,661.41	6.33
Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Pounds	Tons	Pounds	Tons
Stack Test	0.0006	851.92	0.43	Stack Test	0.0007	2,097.84	1.05	Stack Test	0.0007	316.43	0.16	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	1.90E-03	6,513.57	3.26	AP-42 Section 1.4	1.86E-03	446.78	0.22	10,226.55	5.11		
Stack Test	0.0009	1,277.88	0.64	Stack Test	0.001	2,996.92	1.50	Stack Test	0.001	452.05	0.23	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	1.90E-03	6,513.57	3.26	AP-42 Section 1.4	1.86E-03	446.78	0.22	11,687.20	5.84		
Stack Test (minus SU/SD)	0.0005	707.52	0.35	Stack Test	0.0006	1,798.15	0.90	Stack Test	0.0006	271.23	0.14	PERMIT	0.0028	13.50	0.01	AP-42 Section 3.1	1.90E-03	6,513.57	3.26	AP-42 Section 1.4	1.86E-03	446.78	0.22	9,750.75	4.88		
Stack Test	0.0011	1,561.85	0.78	Stack Test	0.0015	4,495.38	2.25	Stack Test	0.0015	678.07	0.34	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	4.70E-03	16,112.51	8.06	AP-42 Section 1.4	5.39E-03	1,340.34	0.67	24,188.16	12.09		
Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Factor Source	Factor	Emissions (lbs)	Emissions (tons)	Pounds	Tons	Pounds	Tons
AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	2.35E-08	0.0106	0.00	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	2.35E-08	0.0056	0.00	0.02	0.00		
AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0008	0.00	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0004	0.00	0.00	0.00		
AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.57E-08	0.0071	0.00	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.57E-08	0.0038	0.00	0.01	0.00		
AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0008	0.00	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0004	0.00	0.00	0.00		
AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0008	0.00	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0004	0.00	0.00	0.00		
AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	2.35E-09	0.0011	0.00	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	2.35E-09	0.0006	0.00	0.00	0.00		
AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0008	0.00	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0004	0.00	0.00	0.00		
AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	2.06E-06	0.9307	0.00	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	1.70E-05	41.1383	0.02	AP-42 Section 1.4	2.06E-06	0.9308	0.00	95.56	0.05		
AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.18E-09	0.0008	0.00	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.18E-09	0.0003	0.00	0.00	0.00		
AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.18E-09	0.0005	0.00	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.18E-09	0.0003	0.00	0.00	0.00		
AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0008	0.00	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0004	0.00	0.00	0.00		
AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	2.06E-03	930.6895	0.00	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	2.06E-03	493.8101	0.25	1,424.50	0.71		
AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0008	0.00	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.76E-09	0.0004	0.00	0.00	0.00		
AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.18E-09	0.0005	0.00	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.18E-09	0.0003	0.00	0.00	0.00		
AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.18E-06	0.5318	0.00	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	1.18E-06	0.2822	0.00	0.81	0.00		
AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	3.04E-03	1,373.8750	0.69	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	3.04E-03	728.9578	0.36	2,102.83	1.05		
AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	2.94E-09	0.0013	0.00	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	2.94E-09	0.0007	0.00	0.00	0.00		
AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	2.75E-09	0.0012	0.00	N/A - See Normal Operation No DB Emissions				AP-42 Section 3.1	0.00E+00	-	-	AP-42 Section 1.4	2.75E-09	0.0007	0.00	0.00	0.00		
Based on MACT 91 ppb standard. Factor from 7/3/2014 ERD, Appendix B.				Based on MACT 91 ppb standard. Factor from 7/3/2014 ERD, Appendix B.				Based on MACT 91 ppb standard. Factor from 7/3/2014 ERD, Appendix B.				Based on MACT 91 ppb standard. Factor from 7/3/2014 ERD, Appendix B.				Based on MACT 91 ppb standard. Factor from 7/3/2014 ERD, Appendix B.				Based on MACT 91 ppb standard. Factor from 7/3/2014 ERD, Appendix B.							
Formaldehyde	9.60E-05	136.3072	0.07	Formaldehyde	9.60E-05	287.7041	0.14	Formaldehyde	7.35E-05	33.2389	0.02	N/A - See Normal Operation No DB Emissions				Formaldehyde	9.60E-05	329.1067	0.16	Formaldehyde	7.35E-05	17.6361	0.01	803.99	0.40		
Hexane	0.00E+00	-	-	Hexane	0.00E+00	-	-	Hexane	1.76E-03	797.7319	0.40	N/A - See Normal Operation No DB Emissions				Hexane	0.00E+00	-	-	Hexane	1.76E-03	422.2658	0.21	1,221.00	0.61		
Indeno(1,2,3-cd)pyrene	0.00E+00	-	-	Indeno(1,2,3-cd)pyrene	0.00E+00	-	-	Indeno(1,2,3-cd)pyrene	1.76E-09	0.0008	0.00	N/A - See Normal Operation No DB Emissions				Indeno(1,2,3-cd)pyrene	0.00E+00	-	-	Indeno(1,2,3-cd)pyrene	1.76E-09	0.0004	0.00	0.00	0.00		
Naphthalene	1.30E-06	1.8458	0.00	Naphthalene	1.30E-06	3.8960	0.00	Naphthalene	5.98E-07	0.2703	0.00	N/A - See Normal Operation No DB Emissions				Naphthalene	1.30E-06	4.4567	0.00	Naphthalene	5.98E-07	0.1434	0.00	10.61	0.01		
Pentane	0.00E+00	-	-	Pentane	0.00E+00	-	-	Pentane	2.55E-03	1,152.2813	0.58	N/A - See Normal Operation No DB Emissions				Pentane	0.00E+00	-	-	Pentane	2.55E-03	611.3840	0.31	1,763.67	0.88		
Phenanthrene	0.00E+00	-	-	Phenanthrene	0.00E+00	-	-	Phenanthrene	1.67E-08	0.0075	0.00	N/A - See Normal Operation No DB Emissions				Phenanthrene	0.00E+00	-	-	Phenanthrene	1.67E-08	0.0040	0.00	0.01	0.00		
Propane	0.00E+00	-	-	Propane	0.00E+00	-	-	Propane	1.57E-03	709.0968	0.35	N/A - See Normal Operation No DB Emissions				Propane	0.00E+00	-	-	Propane	1.57E-03	376.2363	0.19	1,085.33	0.54		
Pyrene	0.00E+00	-	-	Pyrene	0.00E+00	-	-	Pyrene	4.90E-09	0.0022	0.00	N/A - See Normal Operation No DB Emissions				Pyrene	0.00E+00	-	-	Pyrene	4.90E-09	0.0012	0.00	0.00	0.00		
Toluene	1.30E-04	184.5826	0.09	Toluene	1.30E-04	389.5992	0.19	Toluene	3.33E-06	1.5068	0.00	N/A - See Normal Operation No DB Emissions				Toluene	1.30E-04	445									

ATTACHMENT E

CHECK-OFF LIST OF EMISSION UNITS AND ACTIVITIES EXEMPT FROM THE PART 70 PERMIT APPLICATION

III. Check-off List of Emissions Units and Activities Exempt from the Part 70 Permit Application

Insignificant Activities

Place a check mark beside each type of emissions unit or activity that is located at the facility. Where noted, please indicate the number of that type of emissions unit or activity located at the facility.

- (1) No. ____ Fuel burning equipment using gaseous fuels or no. 1 or no. 2 fuel oil, and having a heat input less than 1,000,000 Btu (1.06 gigajoules) per hour;
- (2) No. ____ Fuel-burning equipment using solid fuel and having a heat input of less than 350,000 Btu (0.37 gigajoule) per hour;
- (3) No. ____ Stationary internal combustion engines with less than 500 brake horsepower (373 kilowatts) of power output
- (4) ☒ Space heaters utilizing direct heat transfer and used solely for comfort heat; (see footnote A)
- (5) ____ Water cooling towers and water cooling ponds unless used for evaporative cooling of water from barometric jets or barometric condensers, or used in conjunction with an installation requiring a permit to operate;
- (6) No. ____ Unheated VOC dispensing containers or unheated VOC rinsing containers of 60 gallons (227 liters) capacity or less;
- (7) ____ Commercial bakery ovens with a rated heat input capacity of less than 2,000,000 Btu per hour;
- (8) ____ Kilns used for firing ceramic ware, heated exclusively by natural gas, liquefied petroleum gas, electricity, or any combination of these;
- (9) ____ Confection cookers where the products are edible and intended for human consumption;
- (10) ____ Die casting machines;
- (11) ____ Photographic process equipment used to reproduce an image upon sensitized material through the use of radiant energy;
- (12) ☒ Equipment for drilling, carving, cutting, routing, turning, sawing, planing, spindle sanding, or disc sanding of wood or wood products;

Footnote A - All space heaters are electrically powered units.

- (13) ____ Brazing, soldering, or welding equipment, and cutting torches related to manufacturing and construction activities that emit HAP metals and not directly related to plant maintenance, upkeep and repair or maintenance shop activities;
- (14) ____ Equipment for washing or drying products fabricated from metal or glass, provided that no VOC is used in the process and that no oil or solid fuel is burned;
- (15) ____ Containers, reservoirs, or tanks used exclusively for electrolytic plating work, or electrolytic polishing, or electrolytic stripping of brass, bronze, cadmium, copper, iron, lead, nickel, tin, zinc, and precious metals;
- (16) Containers, reservoirs, or tanks used exclusively for:
- (a) ____ Dipping operations for applying coatings of natural or synthetic resins that contain no VOC;
 - (b) ____ Dipping operations for coating objects with oils, waxes, or greases, and where no VOC is used;
 - (c) ____ Storage of butane, propane, or liquefied petroleum, or natural gas;
 - (d) No. 26 Storage of lubricating oils: (see footnote B)
 - (e) No. ____ Unheated storage of VOC with an initial boiling point of 300 °F (
 - (f) No. 1 Storage of Numbers 1, 2, 4, 5, and 6 fuel oil and aviation jet engine fuel, (see footnote C)
 - (g) No. ____ Storage of motor vehicle gasoline and having individual tank capacities of 2,000 gallons (7.6 cubic meters) or less;
 - (h) No. ____ The storage of VOC normally used as solvents, diluents, thinners, inks, colorants, paints, lacquers, enamels, varnishes, liquid resins, or other surface coatings and having individual capacities of 2,000 gallons (7.6 cubic meters) or less;
- (17) ____ Gaseous fuel-fired or electrically heated furnaces for heat treating glass or metals, the use of which does not involve molten materials;
- (18) Crucible furnaces, pot furnaces, or induction furnaces, with individual capacities of 1,000 pounds (454 kilograms) or less each, in which no sweating or distilling is conducted, or any fluxing is conducted using chloride, fluoride,

Footnote B - Number provided includes an average of five (5) storage totes of lubricating oils used to fill the twenty-one (21) dedicated lube oil tanks/containers.

Footnote C - KEC plans on using a portable, double-walled fuel cube tank to store and supply diesel fuel for the facility's mobile equipment and contractor equipment if necessary. The tank will be portable by means of a forklift.

or ammonium compounds, and from which only the following metals are poured or in which only the following metals are held in a molten state:

- (a) ____ Aluminum or any alloy containing over 50 percent aluminum, if no gaseous chloride compounds, chlorine, aluminum chloride, or aluminum fluoride is used;
 - (b) ____ Magnesium or any alloy containing over 50 percent magnesium;
 - (c) ____ Lead or any alloy containing over 50 percent lead;
 - (d) ____ Tin or any alloy containing over 50 percent tin;
 - (e) ____ Zinc or any alloy containing over 50 percent zinc;
 - (f) ____ Copper;
 - (g) ____ Precious metals;
- (19) ____ Charbroilers and pit barbecues as defined in COMAR 26.11.18.01 with a total cooking area of 5 square feet (0.46 square meter) or less;
- (20) ____ First aid and emergency medical care provided at the facility, including related activities such as sterilization and medicine preparation used in support of a manufacturing or production process;
- (21) ____ Certain recreational equipment and activities, such as fireplaces, barbecue pits and cookers, fireworks displays, and kerosene fuel use;
- (22) ____ Potable water treatment equipment, not including air stripping equipment;
- (23) ____ Firing and testing of military weapons and explosives;
- (24) ____ Emissions resulting from the use of explosives for blasting at quarrying operations and from the required disposal of boxes used to ship the explosive;
- (25) ____ Comfort air conditioning subject to requirements of Title VI of the Clean Air Act;
- (26) ____ Grain, metal, or mineral extrusion presses;
- (27) ____ Breweries with an annual beer production less than 60,000 barrels;

(28) ____ Natural draft hoods or natural draft ventilators that exhaust air pollutants into the ambient air from manufacturing/industrial or commercial processes;

(29) ☒ Laboratory fume hoods and vents;

(30) No. ____ Sheet-fed letter or lithographic printing press(es) with a cylinder width of less than 18 inches;

For the following, attach additional pages as necessary:

(31) any other emissions unit, not listed in this section, with a potential to emit less than the “de minimus” levels listed in COMAR 26.11.02.10X (list and describe units):

No. ____ **NOT APPLICABLE**

No. ____

No. ____

No. ____

No. ____

(32) any other emissions unit at the facility which is not subject to an applicable requirement of the Clean Air Act (list and describe):

No. ____ **NOT APPLICABLE**

No. ____

No. ____

ATTACHMENT F

COMPLIANCE ASSURANCE MONITORING (CAM) PLAN

Compliance Assurance Monitoring (CAM) Plan
VOC – Oxidation Catalyst Systems – Combustion Turbines/Duct Burners
PSEG Keys Energy Center

Introduction

The purpose of this document is to address the requirements of 40 CFR Part 64 Compliance Assurance Monitoring (“CAM”) as they apply to the PSEG Keys Energy Center LLC (“PSEG”) Keys Energy Center (“KEC”).

For facilities subject to CAM requirements, the Maryland Department of Environment (“MDE”) requires that an applicant for a Part 70 operating permit include a CAM plan in the applicant’s Part 70 permit application.

The CAM rule was promulgated by EPA in 1997 and it is intended to provide a reasonable assurance of compliance with applicable requirements under the Clean Air Act for each pollutant-specific emission unit (“PSEU”). Pursuant to 40 CFR §64.2, CAM applies to PSEUs that meet all of the following conditions:

- the emission unit is located at a major source for which a Title V permit is required; and,
- the emission unit is subject to an emission limitation or standard for a specific contaminant; and,
- the emission unit uses a control device to achieve compliance with that specific contaminant's federally enforceable limit or standard; and,
- the emission unit has potential pre-control emissions (of that specific contaminant) of at least 100% of the major source amount (see COMAR 26.11.02.01(C) -"Major Source"); and,
- the emission unit is not otherwise exempt from CAM (for exemptions, see 40 CFR 64.2(b)).

The PSEUs for the KEC are each of two natural gas-fired combustion turbines and associated duct burners¹ and two heat recovery steam generators (“HRSGS”)² designated by PSEG in the Part 70 permit application as EU-1 and EU-2. Each of the two emission units meets all of the above criteria for VOC emissions and are therefore subject to the CAM requirements for VOC.

As described in the application, a CAM plan is not required for NO_x and CO because each of those pollutants are measured by a continuous emissions monitoring system (“CEMS”) and are exempt from CAM per 40 CFR 64.2(b). In addition, a CAM plan is not required for CO or VOC for the

¹ ARA Registration Nos. 033-2737-5-1578 and 033-2737-5-1579

² ARA Registration Nos. 033-2737-5-1580 and 033-2737-5-1581

auxiliary boiler oxidation catalyst system because the auxiliary boiler's potential pre-control emissions are less than the major source levels for each of these pollutants.

Background

Keys Energy Center is a 2-on-1 (2 combustion turbines and a single steam turbine) combined-cycle power plant. The combustion turbines are Siemens Model SGT6-5000Fee (F-class) combustion turbines. EU-1 and EU-2 employ selective catalytic reduction ("SCR") technology to reduce emissions of NO_x and oxidation catalysts to reduce emissions of CO and VOC.

Oxidation catalysts are add-on control devices placed in the exhaust gas path. Oxidation catalysts oxidize CO and VOC to carbon dioxide and water, completing the combustion process that was started in the combustion device. The oxidation process takes place spontaneously, without the need to introduce other reactants into the flue gas stream. The same parameters that influence the oxidation catalyst to control CO also influence control of VOC, e.g., catalyst activity and temperature.

Applicable Emission Limits and Testing Requirements

The VOC emission limits for the EU-1 and EU-2 are listed in the KEC Initial Permit to Operate³ ("PTO") as follows (PTO Condition C1.13 and Table B-1):

- VOC ≤ 1 ppmvd @ 15% O₂ (without duct firing)
- VOC ≤ 2 ppmvd @ 15% O₂ (with duct firing)

The KEC PTO (Condition D1.4) requires PSEG to include VOC in the initial compliance performance testing and to stack test VOC annually. The initial compliance testing was performed in October 2018.

That same PTO condition requires that initial and continuous compliance with the PTO CO emissions be demonstrated by installing and operating a certified continuous emissions monitoring systems ("CEMS").

Proposed Monitoring Approach and Rationale

The CAM indicator selected for VOC emissions from PSEUs EU-1 and EU-2 is the CO emission rate measured by the CO CEMS that the MDE requires PSEG to operate.

The CO emission rate was chosen as the CAM indicator because the same parameters that influence the oxidation catalyst control of CO also influence control of VOC. Elevated CO levels are an indicator that emissions of VOC may also be elevated. And because CO will be measured continuously by the CO CEMS, CO levels that remain below the Department's prescribed CO

³ Permit No. 033-2737 issued December 1, 2018.

emission limit will indicate that the oxidation catalyst system is performing adequately and will provide reasonable assurance of ongoing compliance with the PSEUs permitted VOC emission limitations.

Table 1 provides the required CAM information.

The indicator range for CO is the emission limitation established in the permit (≤ 2.0 ppmvd @ 15% O₂ with and without duct firing – See Table B-1 of PTO). Both the proposed indicator range and averaging period are based on the values prescribed in the permit.

In the event of an excursion of the CO emission limitation, the occurrence will be evaluated by a station operator to determine the procedures necessary to correct the condition. In addition to correcting the condition, the operator will also ensure that the following recordkeeping and reporting requirements are met:

1. Time of day and duration of any CAM plan excursion and resulting corrective actions will be recorded.
2. A list of all CAM plan excursions, their durations and corrective actions will be reported in the applicable Quarterly Summary Report that PSEG must submit pursuant to PTO Condition B.2.d.2.c.

Table 1
VOC CAM Plan Performance Indicator - PSEU EU-1 and EU-2

I. Performance Indicator	CO emission rate (ppmvd @ 15% O ₂)
Measurement Approach	CO is measured and recorded using a certified CEMS.
II. Indicator Range	CO emissions less than or equal to the CO emission limitation prescribed in the KEC permit (i.e., <= 2 ppmvd @ 15% O ₂).
III. Performance Criteria	The CO CEMS meets the performance criteria for installation and operation as prescribed in the equipment protocol and Performance Specification Test protocol prepared in accordance with applicable EPA and MDE requirements.
Data Representativeness	The indicator is based on the CO BACT emission level prescribed by the Department. CO data will be collected and validated in accordance with applicable EPA and MDE requirements.
Verification of Operational Status	CO CEMS data availability is in accordance with applicable EPA and MDE requirements.
QA/QC Practices/Criteria	CO QA/QC procedures are consistent with the applicable EPA and MDE requirements.
Monitoring Frequency	CO is measured on a continuous basis with the exception of QA/QC periods, monitor malfunction periods and periods where the module is not combusting fuel.
Data Collection Procedures	CO data is collected by a computerized Data Acquisition System meeting applicable EPA and MDE requirements.
Averaging Period	CO emission rate is a 3-hour block average pursuant to Table B-1 of the KEC Permit To Operate.

ATTACHMENT G

BACKUP EMISSIONS CALCULATIONS

**KEC HAPs PTE
Facility Long Term**

HAP	CAS#	Clean Air Act HAP	POM (PAH)	Reporting Threshold (tpy)	CT (x2) Emissions (tpy)	DB (x2) Emissions (tpy)	AB Emissions (tpy)	EDG Emissions (tpy)	Fire Pump Emissions (tpy)	Facility Emissions (tpy)
2-Methylnaphthalene	91-57-6	Yes			0.00E+00	9.13E-05	4.38E-06	0.00E+00	0.00E+00	9.57E-05
3-Methylcholanthrene	56-49-5	Yes			0.00E+00	6.85E-06	3.28E-07	0.00E+00	0.00E+00	7.18E-06
7,12-Dimethylbenz(a)anthracene	57-97-6	Yes			0.00E+00	6.09E-05	2.92E-06	0.00E+00	0.00E+00	6.38E-05
Acenaphthene	83-32-9	Yes	Yes	0.01	0.00E+00	6.85E-06	3.28E-07	3.56E-06	1.28E-07	1.09E-05
Acenaphthylene	203-96-8	Yes	Yes	0.1	0.00E+00	6.85E-06	3.28E-07	7.01E-06	4.55E-07	1.46E-05
Anthracene	120-12-7	Yes	Yes	0.01	0.00E+00	9.13E-06	4.38E-07	9.35E-07	1.68E-07	1.07E-05
Benz(a)anthracene	56-55-3	Yes	Yes	0.001	0.00E+00	6.85E-06	3.28E-07	4.73E-07	1.51E-07	7.80E-06
Benzene	71-43-2	Yes		0.1	2.45E-01	7.99E-03	3.83E-04	5.90E-04	8.40E-05	2.54E-01
Benzo(a)pyrene	50-32-8	Yes	Yes	0.0001	0.00E+00	4.57E-06	2.19E-07	1.95E-07	1.69E-08	5.00E-06
Benzo(b)fluoranthene	205-99-2	Yes	Yes	0.001	0.00E+00	6.85E-06	3.28E-07	8.44E-07	8.92E-09	8.03E-06
Benzo(g,h,i)perylene	191-24-2	Yes	Yes	0.01	0.00E+00	4.57E-06	2.19E-07	4.23E-07	4.40E-08	5.25E-06
Benzo(k)fluoranthene	207-08-9	Yes	Yes	0.01	0.00E+00	6.85E-06	3.28E-07	1.66E-07	1.40E-08	7.36E-06
Butane	106-97-8				0.00E+00	7.99E+00	3.83E-01	0.00E+00	0.00E+00	8.37E+00
Chrysene	218-01-9	Yes	Yes	0.01	0.00E+00	6.85E-06	3.28E-07	1.16E-06	3.18E-08	8.37E-06
Dibenzo(a,h)anthracene	53-70-3	Yes	Yes	0.0001	0.00E+00	4.57E-06	2.19E-07	2.63E-07	5.25E-08	5.10E-06
1,4-Dichlorobenzene(P)	106-46-7	Yes		0.1	0.00E+00	4.57E-03	2.19E-04	0.00E+00	0.00E+00	4.78E-03
Ethane	74-84-0				0.00E+00	1.18E+01	5.65E-01	0.00E+00	0.00E+00	1.24E+01
Fluoranthene	206-44-0	Yes	Yes	0.1	0.00E+00	1.14E-05	5.47E-07	3.06E-06	6.85E-07	1.57E-05
Fluorene	86-73-7	Yes	Yes	0.01	0.00E+00	1.07E-05	5.11E-07	9.73E-06	2.63E-06	2.35E-05
Formaldehyde	80-00-0	Yes		0.01	1.96E+00	2.85E-01	1.37E-02	6.00E-05	1.06E-04	2.26E+00
Hexane	110-54-3	Yes		10	0.00E+00	6.85E+00	3.28E-01	0.00E+00	0.00E+00	7.18E+00
Indeno(1,2,3-cd)pyrene	193-39-5	Yes	Yes	0.001	0.00E+00	6.85E-06	3.28E-07	3.15E-07	3.38E-08	7.52E-06
Naphthalene	91-20-3	Yes	Yes	1	2.65E-02	2.32E-03	1.11E-04	9.88E-05	7.63E-06	2.91E-02
Pentane	109-66-0				0.00E+00	9.89E+00	4.74E-01	0.00E+00	0.00E+00	1.04E+01
Phenanthrene	85-01-8	Yes	Yes	0.01	0.00E+00	6.47E-05	3.10E-06	3.10E-05	2.65E-06	1.01E-04
Propane	74-98-6				0.00E+00	6.09E+00	2.92E-01	0.00E+00	0.00E+00	6.38E+00
Pyrene	129-00-0	Yes	Yes	0.01	0.00E+00	1.90E-05	9.12E-07	2.82E-06	4.30E-07	2.32E-05
Toluene	108-88-3	Yes		10	2.65E+00	1.29E-02	6.20E-04	2.14E-04	3.68E-05	2.67E+00
Arsenic	7440-38-2	Yes		0.0001	0.00E+00	7.61E-04	3.65E-05	0.00E+00	0.00E+00	7.97E-04
Barium	7440-39-3				0.00E+00	1.67E-02	8.02E-04	0.00E+00	0.00E+00	1.75E-02
Beryllium	7440-41-7	Yes		0.0001	0.00E+00	4.57E-05	2.19E-06	0.00E+00	0.00E+00	4.78E-05
Cadmium	7440-43-9	Yes		0.0001	0.00E+00	4.19E-03	2.01E-04	0.00E+00	0.00E+00	4.39E-03
Chromium (Elemental) Compounds	7440-47-3	Yes		0.01	0.00E+00	5.33E-03	2.55E-04	0.00E+00	0.00E+00	5.58E-03
Cobalt	7440-48-4	Yes		0.001	0.00E+00	3.20E-04	1.53E-05	0.00E+00	0.00E+00	3.35E-04
Copper	7440-50-8			0.01	0.00E+00	3.23E-03	1.55E-04	0.00E+00	0.00E+00	3.39E-03
Manganese	7439-96-5	Yes		0.01	0.00E+00	1.45E-03	6.93E-05	0.00E+00	0.00E+00	1.52E-03
Mercury	7439-97-6	Yes		0.001	0.00E+00	9.89E-04	4.74E-05	0.00E+00	0.00E+00	1.04E-03
Molybdenum	7439-98-7				0.00E+00	4.19E-03	2.01E-04	0.00E+00	0.00E+00	4.39E-03
Nickel	7440-02-0	Yes		0.001	0.00E+00	7.99E-03	3.83E-04	0.00E+00	0.00E+00	8.37E-03
Selenium	7782-49-2	Yes		0.01	0.00E+00	9.13E-05	4.38E-06	0.00E+00	0.00E+00	9.57E-05
Vanadium	7440-62-2				0.00E+00	8.75E-03	4.19E-04	0.00E+00	0.00E+00	9.17E-03
Zinc	7440-66-6			0.1	0.00E+00	1.10E-01	5.29E-03	0.00E+00	0.00E+00	1.16E-01
1,3-Butadiene	106-99-0	Yes		0.001	8.78E-03	0.00E+00	0.00E+00	0.00E+00	3.52E-06	8.78E-03
Acetaldehyde	75-07-0	Yes		0.1	8.16E-01	0.00E+00	0.00E+00	1.92E-05	6.90E-05	8.17E-01
Acrolein	107-02-8	Yes		0.01	1.31E-01	0.00E+00	0.00E+00	5.99E-06	8.33E-06	1.31E-01
Ethylbenzene	100-41-4	Yes			6.53E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.53E-01
PAH	—	Yes			4.49E-02	0.00E+00	0.00E+00	1.61E-04	1.51E-05	4.51E-02
Propylene Oxide	75-56-9	Yes		0.1	5.92E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.92E-01
Xylenes	1330-20-7	Yes		10	1.31E+00	0.00E+00	0.00E+00	1.47E-04	2.57E-05	1.31E+00

Total CAA HAPs = 16.0 tons/year
Max Indiv. HAP (hexane) = 7.2 tons/year

**KEC HAPs PTE
CT**

HAP	CAS#	Emission Factor (lb/MMscf)	Emission Factor (lb/MMBtu)	Emissions for 1 CT (lb/hr)	Emissions for 1 CT (tpy)	POM (PAH)
2-Methylnaphthalene	91-57-6			0.00E+00	0.00E+00	
3-Methylcholanthrene	56-49-5			0.00E+00	0.00E+00	
7,12-Dimethylbenz(a)anthracene	57-97-6			0.00E+00	0.00E+00	
Acenaphthene	83-32-9			0.00E+00	0.00E+00	Yes
Acenaphthylene	203-96-8			0.00E+00	0.00E+00	Yes
Anthracene	120-12-7			0.00E+00	0.00E+00	Yes
Benz(a)anthracene	56-55-3			0.00E+00	0.00E+00	Yes
Benzene	71-43-2		1.20E-05	2.80E-02	1.22E-01	
Benzo(a)pyrene	50-32-8			0.00E+00	0.00E+00	Yes
Benzo(b)fluoranthene	205-99-2			0.00E+00	0.00E+00	Yes
Benzo(g,h,i)perylene	191-24-2			0.00E+00	0.00E+00	Yes
Benzo(k)fluoranthene	207-08-9			0.00E+00	0.00E+00	Yes
Butane	106-97-8			0.00E+00	0.00E+00	
Chrysene	218-01-9			0.00E+00	0.00E+00	Yes
Dibenzo(a,h)anthracene	53-70-3			0.00E+00	0.00E+00	Yes
1,4-Dichlorobenzene(P)	106-46-7			0.00E+00	0.00E+00	
Ethane	74-84-0			0.00E+00	0.00E+00	
Fluoranthene	206-44-0			0.00E+00	0.00E+00	Yes
Fluorene	86-73-7			0.00E+00	0.00E+00	Yes
Formaldehyde	80-00-0		9.6E-05	2.24E-01	9.80E-01	
Hexane	110-54-3			0.00E+00	0.00E+00	
Indeno(1,2,3-cd)pyrene	193-39-5			0.00E+00	0.00E+00	Yes
Naphthalene	91-20-3		1.30E-06	3.03E-03	1.33E-02	Yes
Pentane	109-66-0			0.00E+00	0.00E+00	
Phenanthrene	85-01-8			0.00E+00	0.00E+00	Yes
Propane	74-98-6			0.00E+00	0.00E+00	
Pyrene	129-00-0			0.00E+00	0.00E+00	Yes
Toluene	108-88-3		1.30E-04	3.03E-01	1.33E+00	
Arsenic	7440-38-2			0.00E+00	0.00E+00	
Barium	7440-39-3			0.00E+00	0.00E+00	
Beryllium	7440-41-7			0.00E+00	0.00E+00	
Cadmium	7440-43-9			0.00E+00	0.00E+00	
Chromium	7440-47-3			0.00E+00	0.00E+00	
Cobalt	7440-48-4			0.00E+00	0.00E+00	
Copper	7440-50-8			0.00E+00	0.00E+00	
Manganese	7439-96-5			0.00E+00	0.00E+00	
Mercury	7439-97-6			0.00E+00	0.00E+00	
Molybdenum	7439-98-7			0.00E+00	0.00E+00	
Nickel	7440-02-0			0.00E+00	0.00E+00	
Selenium	7782-49-2			0.00E+00	0.00E+00	
Vanadium	7440-62-2			0.00E+00	0.00E+00	
Zinc	7440-66-6			0.00E+00	0.00E+00	
1,3-Butadiene	106-99-0		4.30E-07	1.00E-03	4.39E-03	
Acetaldehyde	75-07-0		4.00E-05	9.32E-02	4.08E-01	
Acrolein	107-02-8		6.40E-06	1.49E-02	6.53E-02	
Ethylbenzene	100-41-4		3.20E-05	7.46E-02	3.27E-01	
POM(PAH)	—		2.20E-06	5.13E-03	2.25E-02	
Propylene Oxide	75-56-9		2.90E-05	6.76E-02	2.96E-01	
Xylenes	1330-20-7		6.40E-05	1.49E-01	6.53E-01	

Heating value of natural gas: 1,020 Btu/scf
Heat input to combustion turbine: 2,330 MMBtu/hr - HHV
Hours of operation: 8,760 hours/year

Based on MACT 91 ppb standard. Factor from 7/3/2014 ERD, Appendix B.
n-Hexane

Also included in PAH value below.

Chromium (Elemental) Compounds

All emission factors (except formaldehyde) from AP-42 Table 3.1-3

KEC HAPs PTE

DB

HAP	CAS#	Emission Factor (lb/MMscf)	Emission Factor (lb/MMBtu)	Emissions for 1 DB (lb/hr)	Emissions for 1 DB (tpy)	POM (PAH)
2-Methylnaphthalene	91-57-6	2.40E-05	2.35E-08	1.04E-05	4.57E-05	
3-Methylcholanthrene	56-49-5	1.80E-06	1.76E-09	7.82E-07	3.42E-06	
7,12-Dimethylbenz(a)anthracene	57-97-6	1.60E-05	1.57E-08	6.95E-06	3.04E-05	
Acenaphthene	83-32-9	1.80E-06	1.76E-09	7.82E-07	3.42E-06	Yes
Acenaphthylene	203-96-8	1.80E-06	1.76E-09	7.82E-07	3.42E-06	Yes
Anthracene	120-12-7	2.40E-06	2.35E-09	1.04E-06	4.57E-06	Yes
Benz(a)anthracene	56-55-3	1.80E-06	1.76E-09	7.82E-07	3.42E-06	Yes
Benzene	71-43-2	2.10E-03	2.06E-06	9.12E-04	3.99E-03	
Benzo(a)pyrene	50-32-8	1.20E-06	1.18E-09	5.21E-07	2.28E-06	Yes
Benzo(b)fluoranthene	205-99-2	1.80E-06	1.76E-09	7.82E-07	3.42E-06	Yes
Benzo(g,h,i)perylene	191-24-2	1.20E-06	1.18E-09	5.21E-07	2.28E-06	Yes
Benzo(k)fluoranthene	207-08-9	1.80E-06	1.76E-09	7.82E-07	3.42E-06	Yes
Butane	106-97-8	2.10E+00	2.06E-03	9.12E-01	3.99E+00	
Chrysene	218-01-9	1.80E-06	1.76E-09	7.82E-07	3.42E-06	Yes
Dibenzo(a,h)anthracene	53-70-3	1.20E-06	1.18E-09	5.21E-07	2.28E-06	Yes
1,4-Dichlorobenzene(P)	106-46-7	1.20E-03	1.18E-06	5.21E-04	2.28E-03	
Ethane	74-84-0	3.10E+00	3.04E-03	1.35E+00	5.90E+00	
Fluoranthene	206-44-0	3.00E-06	2.94E-09	1.30E-06	5.71E-06	Yes
Fluorene	86-73-7	2.80E-06	2.75E-09	1.22E-06	5.33E-06	Yes
Formaldehyde	80-00-0	7.50E-02	7.35E-05	3.26E-02	1.43E-01	
Hexane	110-54-3	1.80E+00	1.76E-03	7.82E-01	3.42E+00	n-Hexane
Indeno(1,2,3-cd)pyrene	193-39-5	1.80E-06	1.76E-09	7.82E-07	3.42E-06	Yes
Naphthalene	91-20-3	6.10E-04	5.98E-07	2.65E-04	1.16E-03	Yes
Pentane	109-66-0	2.60E+00	2.55E-03	1.13E+00	4.95E+00	
Phenanthrene	85-01-8	1.70E-05	1.67E-08	7.38E-06	3.23E-05	Yes
Propane	74-98-6	1.60E+00	1.57E-03	6.95E-01	3.04E+00	
Pyrene	129-00-0	5.00E-06	4.90E-09	2.17E-06	9.51E-06	Yes
Toluene	108-88-3	3.40E-03	3.33E-06	1.48E-03	6.47E-03	
Arsenic	7440-38-2	2.00E-04	1.96E-07	8.69E-05	3.80E-04	
Barium	7440-39-3	4.40E-03	4.31E-06	1.91E-03	8.37E-03	
Beryllium	7440-41-7	1.20E-05	1.18E-08	5.21E-06	2.28E-05	
Cadmium	7440-43-9	1.10E-03	1.08E-06	4.78E-04	2.09E-03	
Chromium	7440-47-3	1.40E-03	1.37E-06	6.08E-04	2.66E-03	Chromium (Elemental) Compounds
Cobalt	7440-48-4	8.40E-05	8.24E-08	3.65E-05	1.60E-04	
Copper	7440-50-8	8.50E-04	8.33E-07	3.69E-04	1.62E-03	
Manganese	7439-96-5	3.80E-04	3.73E-07	1.65E-04	7.23E-04	
Mercury	7439-97-6	2.60E-04	2.55E-07	1.13E-04	4.95E-04	
Molybdenum	7439-98-7	1.10E-03	1.08E-06	4.78E-04	2.09E-03	
Nickel	7440-02-0	2.10E-03	2.06E-06	9.12E-04	3.99E-03	
Selenium	7782-49-2	2.40E-05	2.35E-08	1.04E-05	4.57E-05	
Vanadium	7440-62-2	2.30E-03	2.25E-06	9.99E-04	4.38E-03	
Zinc	7440-66-6	2.90E-02	2.84E-05	1.26E-02	5.52E-02	

Heating value of natural gas: 1,020 Btu/scf
Heat input: 443 MMBtu/hr
Hours of operation: 8,760 hours/year

All emission factors from AP-42 Table 1.4-3 and Table 1.4-4

KEC HAPs PTE

AB

HAP	CAS#	Emission Factor (lb/MMscf)	Emission Factor (lb/MMBtu)	Emissions (lb/hr)	Emissions (tpy)	POM (PAH)
2-Methylnaphthalene	91-57-6	2.40E-05	2.35E-08	2.05E-06	4.38E-06	
3-Methylcholanthrene	56-49-5	1.80E-06	1.76E-09	1.54E-07	3.28E-07	
7,12-Dimethylbenz(a)anthracene	57-97-6	1.60E-05	1.57E-08	1.37E-06	2.92E-06	
Acenaphthene	83-32-9	1.80E-06	1.76E-09	1.54E-07	3.28E-07	Yes
Acenaphthylene	203-96-8	1.80E-06	1.76E-09	1.54E-07	3.28E-07	Yes
Anthracene	120-12-7	2.40E-06	2.35E-09	2.05E-07	4.38E-07	Yes
Benz(a)anthracene	56-55-3	1.80E-06	1.76E-09	1.54E-07	3.28E-07	Yes
Benzene	71-43-2	2.10E-03	2.06E-06	1.79E-04	3.83E-04	
Benzo(a)pyrene	50-32-8	1.20E-06	1.18E-09	1.02E-07	2.19E-07	Yes
Benzo(b)fluoranthene	205-99-2	1.80E-06	1.76E-09	1.54E-07	3.28E-07	Yes
Benzo(g,h,i)perylene	191-24-2	1.20E-06	1.18E-09	1.02E-07	2.19E-07	Yes
Benzo(k)fluoranthene	207-08-9	1.80E-06	1.76E-09	1.54E-07	3.28E-07	Yes
Butane	106-97-8	2.10E+00	2.06E-03	1.79E-01	3.83E-01	
Chrysene	218-01-9	1.80E-06	1.76E-09	1.54E-07	3.28E-07	Yes
Dibenzo(a,h)anthracene	53-70-3	1.20E-06	1.18E-09	1.02E-07	2.19E-07	Yes
1,4-Dichlorobenzene(P)	106-46-7	1.20E-03	1.18E-06	1.02E-04	2.19E-04	
Ethane	74-84-0	3.10E+00	3.04E-03	2.65E-01	5.65E-01	
Fluoranthene	206-44-0	3.00E-06	2.94E-09	2.56E-07	5.47E-07	Yes
Fluorene	86-73-7	2.80E-06	2.75E-09	2.39E-07	5.11E-07	Yes
Formaldehyde	80-00-0	7.50E-02	7.35E-05	6.40E-03	1.37E-02	n-Hexane
Hexane	110-54-3	1.80E+00	1.76E-03	1.54E-01	3.28E-01	
Indeno(1,2,3-cd)pyrene	193-39-5	1.80E-06	1.76E-09	1.54E-07	3.28E-07	Yes
Naphthalene	91-20-3	6.10E-04	5.98E-07	5.21E-05	1.11E-04	Yes
Pentane	109-66-0	2.60E+00	2.55E-03	2.22E-01	4.74E-01	
Phenanthrene	85-01-8	1.70E-05	1.67E-08	1.45E-06	3.10E-06	Yes
Propane	74-98-6	1.60E+00	1.57E-03	1.37E-01	2.92E-01	
Pyrene	129-00-0	5.00E-06	4.90E-09	4.27E-07	9.12E-07	Yes
Toluene	108-88-3	3.40E-03	3.33E-06	2.90E-04	6.20E-04	
Arsenic	7440-38-2	2.00E-04	1.96E-07	1.71E-05	3.65E-05	
Barium	7440-39-3	4.40E-03	4.31E-06	3.76E-04	8.02E-04	
Beryllium	7440-41-7	1.20E-05	1.18E-08	1.02E-06	2.19E-06	
Cadmium	7440-43-9	1.10E-03	1.08E-06	9.39E-05	2.01E-04	Chromium (Elemental) Compounds
Chromium	7440-47-3	1.40E-03	1.37E-06	1.20E-04	2.55E-04	
Cobalt	7440-48-4	8.40E-05	8.24E-08	7.17E-06	1.53E-05	
Copper	7440-50-8	8.50E-04	8.33E-07	7.26E-05	1.55E-04	
Manganese	7439-96-5	3.80E-04	3.73E-07	3.24E-05	6.93E-05	
Mercury	7439-97-6	2.60E-04	2.55E-07	2.22E-05	4.74E-05	
Molybdenum	7439-98-7	1.10E-03	1.08E-06	9.39E-05	2.01E-04	
Nickel	7440-02-0	2.10E-03	2.06E-06	1.79E-04	3.83E-04	
Selenium	7782-49-2	2.40E-05	2.35E-08	2.05E-06	4.38E-06	
Vanadium	7440-62-2	2.30E-03	2.25E-06	1.96E-04	4.19E-04	
Zinc	7440-66-6	2.90E-02	2.84E-05	2.48E-03	5.29E-03	

Heating value of natural gas: 1,020 Btu/scf
Heat input: 87.1 MMBtu/hr
Initial PTO Permit Limit: 372,000 MMBtu/year [Part C2(3)]

All emission factors from AP-42 Table 1.4-3 and Table 1.4-4

**KEC HAPs PTE
EDG**

HAP	CAS#	Emission Factor (lb/MMscf)	Emission Factor (lb/MMBtu)	Emissions (lb/hr)	Emissions (tpy)	POM (PAH)
2-Methylnaphthalene	91-57-6			0.00E+00	0.00E+00	
3-Methylcholanthrene	56-49-5			0.00E+00	0.00E+00	
7,12-Dimethylbenz(a)anthracene	57-97-6			0.00E+00	0.00E+00	
Acenaphthene	83-32-9		4.68E-06	7.11E-05	3.56E-06	Yes
Acenaphthylene	203-96-8		9.23E-06	1.40E-04	7.01E-06	Yes
Anthracene	120-12-7		1.23E-06	1.87E-05	9.35E-07	Yes
Benz(a)anthracene	56-55-3		6.22E-07	9.45E-06	4.73E-07	Yes
Benzene	71-43-2		7.76E-04	1.18E-02	5.90E-04	
Benzo(a)pyrene	50-32-8		2.57E-07	3.91E-06	1.95E-07	Yes
Benzo(b)fluoranthene	205-99-2		1.11E-06	1.69E-05	8.44E-07	Yes
Benzo(g,h,i)perylene	191-24-2		5.56E-07	8.45E-06	4.23E-07	Yes
Benzo(k)fluoranthene	207-08-9		2.18E-07	3.31E-06	1.66E-07	Yes
Butane	106-97-8			0.00E+00	0.00E+00	
Chrysene	218-01-9		1.53E-06	2.33E-05	1.16E-06	Yes
Dibenzo(a,h)anthracene	53-70-3		3.46E-07	5.26E-06	2.63E-07	Yes
1,4-Dichlorobenzene(P)	106-46-7			0.00E+00	0.00E+00	
Ethane	74-84-0			0.00E+00	0.00E+00	
Fluoranthene	206-44-0		4.03E-06	6.13E-05	3.06E-06	Yes
Fluorene	86-73-7		1.28E-05	1.95E-04	9.73E-06	Yes
Formaldehyde	80-00-0		7.89E-05	1.20E-03	6.00E-05	
Hexane	110-54-3			0.00E+00	0.00E+00	n-Hexane
Indeno(1,2,3-cd)pyrene	193-39-5		4.14E-07	6.29E-06	3.15E-07	Yes
Naphthalene	91-20-3		1.30E-04	1.98E-03	9.88E-05	Yes
Pentane	109-66-0			0.00E+00	0.00E+00	
Phenanthrene	85-01-8		4.08E-05	6.20E-04	3.10E-05	Yes
Propane	74-98-6			0.00E+00	0.00E+00	
Pyrene	129-00-0		3.71E-06	5.64E-05	2.82E-06	Yes
Toluene	108-88-3		2.81E-04	4.27E-03	2.14E-04	
Arsenic	7440-38-2			0.00E+00	0.00E+00	
Barium	7440-39-3			0.00E+00	0.00E+00	
Beryllium	7440-41-7			0.00E+00	0.00E+00	
Cadmium	7440-43-9			0.00E+00	0.00E+00	
Chromium	7440-47-3			0.00E+00	0.00E+00	
Cobalt	7440-48-4			0.00E+00	0.00E+00	
Copper	7440-50-8			0.00E+00	0.00E+00	
Manganese	7439-96-5			0.00E+00	0.00E+00	
Mercury	7439-97-6			0.00E+00	0.00E+00	
Molybdenum	7439-98-7			0.00E+00	0.00E+00	
Nickel	7440-02-0			0.00E+00	0.00E+00	
Selenium	7782-49-2			0.00E+00	0.00E+00	
Vanadium	7440-62-2			0.00E+00	0.00E+00	
Zinc	7440-66-6			0.00E+00	0.00E+00	
1,3-Butadiene	106-99-0			0.00E+00	0.00E+00	
Acetaldehyde	75-07-0		2.52E-05	3.83E-04	1.92E-05	
Acrolein	107-02-8		7.88E-06	1.20E-04	5.99E-06	
Ethylbenzene	100-41-4			0.00E+00	0.00E+00	
POM(PAH) (b)	—		2.12E-04	3.22E-03	1.61E-04	
Propylene Oxide	75-56-9			0.00E+00	0.00E+00	
Xylenes	1330-20-7		1.93E-04	2.93E-03	1.47E-04	
Propylene (Propene) (a)	115-07-1		2.79E-03	4.24E-02	2.12E-03	

Heat input: 15.2 MMBtu/hr
Hours of operation: 100 hours/year

(a) - Not a MDE TAP or a CAA HAP
(b) - Sum of individual PAHs emission factors above.

All emission factors from AP-42 Table 3.4-3 and Table 3.4-4

**KEC HAPs PTE
Fire Pump**

HAP	CAS#	Emission Factor (lb/MMscf)	Emission Factor (lb/MMBtu)	Emissions (lb/hr)	Emissions (tpy)	POM (PAH)
2-Methylnaphthalene	91-57-6			0.00E+00	0.00E+00	
3-Methylcholanthrene	56-49-5			0.00E+00	0.00E+00	
7,12-Dimethylbenz(a)anthracene	57-97-6			0.00E+00	0.00E+00	
Acenaphthene	83-32-9		1.42E-06	2.56E-06	1.28E-07	Yes
Acenaphthylene	203-96-8		5.06E-06	9.11E-06	4.55E-07	Yes
Anthracene	120-12-7		1.87E-06	3.37E-06	1.68E-07	Yes
Benz(a)anthracene	56-55-3		1.68E-06	3.02E-06	1.51E-07	Yes
Benzene	71-43-2		9.33E-04	1.68E-03	8.40E-05	
Benzo(a)pyrene	50-32-8		1.88E-07	3.38E-07	1.69E-08	Yes
Benzo(b)fluoranthene	205-99-2		9.91E-08	1.78E-07	8.92E-09	Yes
Benzo(g,h,i)perylene	191-24-2		4.89E-07	8.80E-07	4.40E-08	Yes
Benzo(k)fluoranthene	207-08-9		1.55E-07	2.79E-07	1.40E-08	Yes
Butane	106-97-8			0.00E+00	0.00E+00	
Chrysene	218-01-9		3.53E-07	6.35E-07	3.18E-08	Yes
Dibenzo(a,h)anthracene	53-70-3		5.83E-07	1.05E-06	5.25E-08	Yes
1,4-Dichlorobenzene(P)	106-46-7			0.00E+00	0.00E+00	
Ethane	74-84-0			0.00E+00	0.00E+00	
Fluoranthene	206-44-0		7.61E-06	1.37E-05	6.85E-07	Yes
Fluorene	86-73-7		2.92E-05	5.26E-05	2.63E-06	Yes
Formaldehyde	80-00-0		1.18E-03	2.12E-03	1.06E-04	
Hexane	110-54-3			0.00E+00	0.00E+00	n-Hexane
Indeno(1,2,3-cd)pyrene	193-39-5		3.75E-07	6.75E-07	3.38E-08	Yes
Naphthalene	91-20-3		8.48E-05	1.53E-04	7.63E-06	Yes
Pentane	109-66-0			0.00E+00	0.00E+00	
Phenanthrene	85-01-8		2.94E-05	5.29E-05	2.65E-06	Yes
Propane	74-98-6			0.00E+00	0.00E+00	
Pyrene	129-00-0		4.78E-06	8.60E-06	4.30E-07	Yes
Toluene	108-88-3		4.09E-04	7.36E-04	3.68E-05	
Arsenic	7440-38-2			0.00E+00	0.00E+00	
Barium	7440-39-3			0.00E+00	0.00E+00	
Beryllium	7440-41-7			0.00E+00	0.00E+00	
Cadmium	7440-43-9			0.00E+00	0.00E+00	
Chromium	7440-47-3			0.00E+00	0.00E+00	
Cobalt	7440-48-4			0.00E+00	0.00E+00	
Copper	7440-50-8			0.00E+00	0.00E+00	
Manganese	7439-96-5			0.00E+00	0.00E+00	
Mercury	7439-97-6			0.00E+00	0.00E+00	
Molybdenum	7439-98-7			0.00E+00	0.00E+00	
Nickel	7440-02-0			0.00E+00	0.00E+00	
Selenium	7782-49-2			0.00E+00	0.00E+00	
Vanadium	7440-62-2			0.00E+00	0.00E+00	
Zinc	7440-66-6			0.00E+00	0.00E+00	
1,3-Butadiene	106-99-0		3.91E-05	7.04E-05	3.52E-06	
Acetaldehyde	75-07-0		7.67E-04	1.38E-03	6.90E-05	
Acrolein	107-02-8		9.25E-05	1.67E-04	8.33E-06	
Ethylbenzene	100-41-4			0.00E+00	0.00E+00	
POM(PAH) (b)	—		1.68E-04	3.03E-04	1.51E-05	
Propylene Oxide	75-56-9			0.00E+00	0.00E+00	
Xylenes	1330-20-7		2.85E-04	5.13E-04	2.57E-05	
Propylene (Propene) (a)	115-07-1		2.58E-03	4.64E-03	2.32E-04	

Heat input: 1.8 MMBtu/hr
Hours of operation: 100 hours/year

(a) - Not a MDE TAP or a CAA HAP
(b) - Sum of individual PAHs above.

All emission factors from AP-42 Table 3.3-2

ATTACHMENT H

ACID RAIN APPLICATION

STEP 3**Permit Requirements****Read the standard requirements.**

- (1) The designated representative of each affected source and each affected unit at the source shall:
 - (i) Submit a complete Acid Rain permit application (including a compliance plan) under 40 CFR part 72 in accordance with the deadlines specified in 40 CFR 72.30; and
 - (ii) Submit in a timely manner any supplemental information that the permitting authority determines is necessary in order to review an Acid Rain permit application and issue or deny an Acid Rain permit;
- (2) The owners and operators of each affected source and each affected unit at the source shall:
 - (i) Operate the unit in compliance with a complete Acid Rain permit application or a superseding Acid Rain permit issued by the permitting authority; and
 - (ii) Have an Acid Rain Permit.

Monitoring Requirements

- (1) The owners and operators and, to the extent applicable, designated representative of each affected source and each affected unit at the source shall comply with the monitoring requirements as provided in 40 CFR part 75.
- (2) The emissions measurements recorded and reported in accordance with 40 CFR part 75 shall be used to determine compliance by the source or unit, as appropriate, with the Acid Rain emissions limitations and emissions reduction requirements for sulfur dioxide and nitrogen oxides under the Acid Rain Program.
- (3) The requirements of 40 CFR part 75 shall not affect the responsibility of the owners and operators to monitor emissions of other pollutants or other emissions characteristics at the unit under other applicable requirements of the Act and other provisions of the operating permit for the source.

Sulfur Dioxide Requirements

- (1) The owners and operators of each source and each affected unit at the source shall:
 - (i) Hold allowances, as of the allowance transfer deadline, in the source's compliance account (after deductions under 40 CFR 73.34(c)), not less than the total annual emissions of sulfur dioxide for the previous calendar year from the affected units at the source; and
 - (ii) Comply with the applicable Acid Rain emissions limitations for sulfur dioxide.
- (2) Each ton of sulfur dioxide emitted in excess of the Acid Rain emissions limitations for sulfur dioxide shall constitute a separate violation of the Act.
- (3) An affected unit shall be subject to the requirements under paragraph (1) of the sulfur dioxide requirements as follows:
 - (i) Starting January 1, 2000, an affected unit under 40 CFR 72.6(a)(2); or
 - (ii) Starting on the later of January 1, 2000 or the deadline for monitor certification under 40 CFR part 75, an affected unit under 40 CFR 72.6(a)(3).
- (4) Allowances shall be held in, deducted from, or transferred among Allowance Tracking System accounts in accordance with the Acid Rain Program.
- (5) An allowance shall not be deducted in order to comply with the requirements under paragraph (1) of the sulfur dioxide requirements prior to the calendar year for which the allowance was allocated.
- (6) An allowance allocated by the Administrator under the Acid Rain Program is a limited authorization to emit sulfur dioxide in accordance with the Acid Rain Program. No provision of the Acid Rain Program, the Acid Rain permit application, the Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8 and no provision of law shall be construed to limit the authority of the United States to terminate or limit such authorization.
- (7) An allowance allocated by the Administrator under the Acid Rain Program does not constitute a property right.

Nitrogen Oxides Requirements

The owners and operators of the source and each affected unit at the source shall comply with the applicable Acid Rain emissions limitation for nitrogen oxides.

STEP 3, Cont'd.**Excess Emissions Requirements**

- (1) The designated representative of an affected source that has excess emissions in any calendar year shall submit a proposed offset plan, as required under 40 CFR part 77.
- (2) The owners and operators of an affected source that has excess emissions in any calendar year shall:
 - (i) Pay without demand the penalty required, and pay upon demand the interest on that penalty, as required by 40 CFR part 77; and
 - (ii) Comply with the terms of an approved offset plan, as required by 40 CFR part 77.

Recordkeeping and Reporting Requirements

- (1) Unless otherwise provided, the owners and operators of the source and each affected unit at the source shall keep on site at the source each of the following documents for a period of 5 years from the date the document is created. This period may be extended for cause, at any time prior to the end of 5 years, in writing by the Administrator or permitting authority:
 - (i) The certificate of representation for the designated representative for the source and each affected unit at the source and all documents that demonstrate the truth of the statements in the certificate of representation, in accordance with 40 CFR 72.24; provided that the certificate and documents shall be retained on site at the source beyond such 5-year period until such documents are superseded because of the submission of a new certificate of representation changing the designated representative;
 - (ii) All emissions monitoring information, in accordance with 40 CFR part 75, provided that to the extent that 40 CFR part 75 provides for a 3-year period for recordkeeping, the 3-year period shall apply.
 - (iii) Copies of all reports, compliance certifications, and other submissions and all records made or required under the Acid Rain Program; and,
 - (iv) Copies of all documents used to complete an Acid Rain permit application and any other submission under the Acid Rain Program or to demonstrate compliance with the requirements of the Acid Rain Program.
- (2) The designated representative of an affected source and each affected unit at the source shall submit the reports and compliance certifications required under the Acid Rain Program, including those under 40 CFR part 72 subpart I and 40 CFR part 75.

Liability

- (1) Any person who knowingly violates any requirement or prohibition of the Acid Rain Program, a complete Acid Rain permit application, an Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8, including any requirement for the payment of any penalty owed to the United States, shall be subject to enforcement pursuant to section 113(c) of the Act.
- (2) Any person who knowingly makes a false, material statement in any record, submission, or report under the Acid Rain Program shall be subject to criminal enforcement pursuant to section 113(c) of the Act and 18 U.S.C. 1001.
- (3) No permit revision shall excuse any violation of the requirements of the Acid Rain Program that occurs prior to the date that the revision takes effect.
- (4) Each affected source and each affected unit shall meet the requirements of the Acid Rain Program.
- (5) Any provision of the Acid Rain Program that applies to an affected source (including a provision applicable to the designated representative of an affected source) shall also apply to the owners and operators of such source and of the affected units at the source.
- (6) Any provision of the Acid Rain Program that applies to an affected unit (including a provision applicable to the designated representative of an affected unit) shall also apply to the owners and operators of such unit.
- (7) Each violation of a provision of 40 CFR parts 72, 73, 74, 75, 76, 77, and 78 by an affected source or affected unit, or by an owner or operator or designated representative of such source or unit, shall be a separate violation of the Act.

Keys Energy Center

Facility (Source) Name (from STEP 1)

STEP 3, Cont'd.**Effect on Other Authorities**

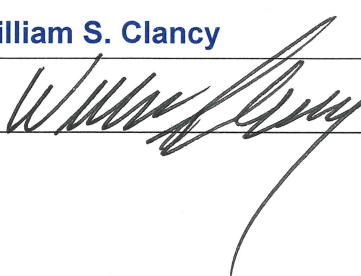
No provision of the Acid Rain Program, an Acid Rain permit application, an Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8 shall be construed as:

- (1) Except as expressly provided in title IV of the Act, exempting or excluding the owners and operators and, to the extent applicable, the designated representative of an affected source or affected unit from compliance with any other provision of the Act, including the provisions of title I of the Act relating to applicable National Ambient Air Quality Standards or State Implementation Plans;
- (2) Limiting the number of allowances a source can hold; provided, that the number of allowances held by the source shall not affect the source's obligation to comply with any other provisions of the Act;
- (3) Requiring a change of any kind in any State law regulating electric utility rates and charges, affecting any State law regarding such State regulation, or limiting such State regulation, including any prudence review requirements under such State law;
- (4) Modifying the Federal Power Act or affecting the authority of the Federal Energy Regulatory Commission under the Federal Power Act; or,
- (5) Interfering with or impairing any program for competitive bidding for power supply in a State in which such program is established.

STEP 4**Certification**

**Read the
certification
statement, sign,
and date.**

I am authorized to make this submission on behalf of the owners and operators of the affected source or affected units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

Name William S. Clancy	
Signature 	Date 2-MAY-19



Instructions for the Acid Rain Program Permit Application

The Acid Rain Program requires the designated representative to submit an Acid Rain permit application for each source with an affected unit. A complete Certificate of Representation must be received by EPA before the permit application is submitted to the title V permitting authority. A complete Acid Rain permit application, once submitted, is binding on the owners and operators of the affected source and is enforceable in the absence of a permit until the title V permitting authority either issues a permit to the source or disapproves the application.

Please type or print. If assistance is needed, contact the title V permitting authority.

STEP 1 A Plant Code is a 4 or 5 digit number assigned by the Department of Energy's (DOE) Energy Information Administration (EIA) to facilities that generate electricity. For older facilities, "Plant Code" is synonymous with "ORISPL" and "Facility" codes. If the facility generates electricity but no Plant Code has been assigned, or if there is uncertainty regarding what the Plant Code is, send an email to the EIA. The email address is EIA-860@eia.gov.

STEP 2 In column "a," identify each unit at the facility by providing the appropriate unit identification number, consistent with the identifiers used in the Certificate of Representation and with submissions made to DOE and/or EIA. Do not list duct burners. For new units without identification numbers, owners and operators must assign identifiers consistent with EIA and DOE requirements. Each Acid Rain Program submission that includes the unit identification number(s) (e.g., Acid Rain permit applications, monitoring plans, quarterly reports, etc.) should reference those unit identification numbers in exactly the same way that they are referenced on the Certificate of Representation.

Submission Deadlines

For new units, an initial Acid Rain permit application must be submitted to the title V permitting authority 24 months before the date the unit commences operation. Acid Rain permit renewal applications must be submitted at least 6 months in advance of the expiration of the acid rain portion of a title V permit, or such longer time as provided for under the title V permitting authority's operating permits regulation.

Submission Instructions

Submit this form to the appropriate title V permitting authority. If you have questions regarding this form, contact your local, State, or EPA Regional Acid Rain contact, or call EPA's Acid Rain Hotline at (202) 343-9620.

Paperwork Burden Estimate

The public reporting and record keeping burden for this collection of information is estimated to average 8 hours per response. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW., Washington, D.C. 20460. Include the OMB control number in any correspondence. **Do not send the completed form to this address.**

ATTACHMENT I

**COMPACT DISC CONTAINING
ELECTRONIC COPY OF THE APPLICATION**

Replacement for Title V Application Section 3B Form
Citation to and Description of Applicable Federally Enforceable Requirements

PSEG Keys Energy Center

Item No.	PTO Page (of 52)	PTO Condition	CPCN Page	Emission Unit	Pollutant	General Ref.	Oper. Limit	Description	Monitoring Ref.	Monitoring Description	Testing Ref.	Testing Description	Recordkeeping Ref.	Recordkeeping Description	Reporting Ref.	Reporting Description	Freq. of Compliance Demonstration	Qtr. Monitor.	Annual Compli. Cert.	Semi-Ann. Monitor.
1	4	Part B(1)(a) Part C1(9)	N/A	EU-1 & EU-2	CO2	NSPS Subpart TTTT 40 CFR 60.5520(a) 40 CFR 60.5520(b) Table 2		450 kg CO2/MWh of gross energy output	40 CFR 60.5535(c) 40 CFR 60.5535(d)	-Calculate hourly CO2 mass emissions in kg - Operate watt meters to continuously measure/record hourly gross electric output	See Monitoring Ref.	See Monitoring Desc.	40 CFR 60.5560 40 CFR 60.5565	- Maintain records as specified in §60.7(b) and (f). - Must follow applicable recordkeeping requirements and maintain records as required under Part 75 Subpart F - Keep records for 3 years after the date of conclusion of each compliance period.	40 CFR 60.5555(a)-(d)	Quarterly reporting using EPA Emissions Collection and Monitoring Plan System (ECMPS) Client Tool, and submit reports as required under Part 75 Subpart G	Quarterly	X	X	X
2	4	Part B(1)(c)-(d) Part C1(14) Part D1(8)	10	EU-1 & EU-2	NOx & SO2	CPCN 9297, B-IV-4 Acid Rain		All applicable terms, provisions, emissions standards, testing, monitoring, recordkeeping, and reporting requirements of 40 CFR Part 72 and 75.	---	---	---	---	---	---	---	---	Quarterly	X	X	X
3	5	Part B(1)(e) Part C1(15)	6	EU-1 & EU-2	NOx & SO2	CPCN 9297, B-III-1(j) CSAPR		All applicable terms, provisions, emissions standards, testing, monitoring, record keeping, and reporting requirements included in CSAPR NOx and SO2 Trading Programs promulgated under 40 CFR Part 97, Subparts AAAAA for TR NOx Annual Trading Program, BBBBB for TR NOx Ozone Season Trading Program, and CCCCC for TR SO2 Group 1 Trading Program.	---	---	---	---	---	---	---	---	Quarterly	X	X	X
4	11	Part B(2)(n)	5	EU-1 & EU-2	PM	CPCN 9297, B-III-1(d)		no particulate matter discharge in excess of 0.03 gr/SCFD (68.7 mg/dscm)	See Testing Ref.	See Testing Desc.	CPCN 9297, B-IV-8	PM testing initially and annually	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	Stack tests: CPCN 9297, B-IV-13	Final results within 60 days of test completion.	Per stack test		X	
5	11	Part B(2)(n)	5	EU-3	PM	CPCN 9297, B-III-1(d)		no particulate matter discharge in excess of 0.03 gr/SCFD (68.7 mg/dscm)	CPCN 9297, B-V-7(b)	Calculate PM emissions using fuel measurements and vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-2(d)	Annual emissions certification.			X	
6	12	Part B(2)(t)	11	EU-1 & EU-2	NH3	CPCN 9297, B-IV-7 CPCN 9297, Table B-1		5 ppmvd @ 15% O2	See Testing Ref.	See Testing Desc.	CPCN 9297, B-IV-8 CPCN 9297, Table B-1	Initial and once/5 years stack tests	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-IV-13	Final results within 60 days of test completion.	Per event.		X	
7	12	Part B(2)(t) Part C1(10) Part C1(13)	11	EU-1 & EU-2	NOx Normal Ops.	CPCN 9297, B-IV-5 (BACT) CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		2 ppmvd @ 15% O2	CPCN 9297, Table B-1	NOx CEMs	CPCN 9297, Table B-1	Initial and annual stack tests (conflicts with CPCN B-IV-8 that states initial and continuous compliance with NOx and CO emission limits demonstrated by CEMS.)	See Reporting Ref.	See Reporting Desc.	CEMs: CPCN 9297, B-IV-14, 15, 16 Stack tests: CPCN 9297, B-IV-13	Electronic quarterly to CAMD; Downtime, excess emissions, and quarterly CEMs summary Final results within 60 days of test completion.	Quarterly (CEMs)	X	X	X
8	12	Part B(2)(t) Part C1(10) Part C1(13)	11	EU-1 & EU-2	NOx Cold Startup	CPCN 9297, B-IV-5 (BACT) CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		245.2 lb/event	CPCN 9297, Table B-1	NOx CEMs	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	See Testing Ref.	Quarterly report.	Quarterly	X	X	X
9	12	Part B(2)(t) Part C1(10) Part C1(13)	11	EU-1 & EU-2	NOx Warm Startup	CPCN 9297, B-IV-5 (BACT) CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		82.9 lb/event	CPCN 9297, Table B-1	NOx CEMs	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	See Testing Ref.	Quarterly report.	Quarterly	X	X	X
10	12	Part B(2)(t) Part C1(10) Part C1(13)	11	EU-1 & EU-2	NOx Hot Startup	CPCN 9297, B-IV-5 (BACT) CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		71.4 lb/event	CPCN 9297, Table B-1	NOx CEMs	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	See Testing Ref.	Quarterly report.	Quarterly	X	X	X
11	12	Part B(2)(t) Part C1(10) Part C1(13)	11	EU-1 & EU-2	NOx Shutdown	CPCN 9297, B-IV-5 (BACT) CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		60 lb/event	CPCN 9297, Table B-1	NOx CEMs	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	See Testing Ref.	Quarterly report.	Quarterly	X	X	X
12	12	Part B(2)(u) Part B(2)(t)	9	EU-1 & EU-2	Opacity	CPCN 9297, B-IV-2(b) Table B-1		No visible emissions equal to or greater than 10 percent opacity. (Note: This is PTO condition B(2)(u), which is more stringent than the CPCN Table B-1 opacity limit of 20%.]	CPCN 9297, Table B-1	Visible observations per EPA Reference Method 22 at least once each calendar quarter.	CPCN 9297, Table B-1	Initial Method 9 for 1 hour within 180 days of initial startup	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
13	12	Part B(2)(t) Part C1(10)	26	EU-1 & EU-2	CO Normal Ops.	CPCN 9297, B-IV-5 (BACT) CPCN 9297, Table B-1		2.0 ppmvd at 15% O ₂	CPCN 9297, Table B-1	CO CEMs	CPCN 9297, Table B-1	Initial and annual stack tests (conflicts with CPCN B-IV-8 that states initial and continuous compliance with NOx and CO emission limits demonstrated by CEMS.)	See Reporting Ref.	See Reporting Desc.	CEMs: CPCN 9297, B-IV-14, 15, 16 Stack tests: CPCN 9297, B-IV-13	Electronic quarterly to CAMD; Downtime, excess emissions, and quarterly CEMs summary Final results within 60 days of test completion.	Quarterly (CEMs)	X	X	X
14	12	Part B(2)(t) Part C1(10)	26	EU-1 & EU-2	CO cold startup	CPCN 9297, B-IV-5 (BACT) CPCN 9297, Table B-1		1,064 lb/event	CPCN 9297, Table B-1	CO CEMs	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	See Testing Ref.	Quarterly report.	Quarterly	X	X	X
15	12	Part B(2)(t) Part C1(10)	26	EU-1 & EU-2	CO warm startup	CPCN 9297, B-IV-5 (BACT) CPCN 9297, Table B-1		311 lb/event	CPCN 9297, Table B-1	CO CEMs	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	See Testing Ref.	Quarterly report.	Quarterly	X	X	X

Replacement for Title V Application Section 3B Form
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PSEG Keys Energy Center

Item No.	PTO Page (of 52)	PTO Condition	CPCN Page	Emission Unit	Pollutant	General Ref.	Oper. Limit	Description	Monitoring Ref.	Monitoring Description	Testing Ref.	Testing Description	Recordkeeping Ref.	Recordkeeping Description	Reporting Ref.	Reporting Description	Freq. of Compliance Demonstration	Qtr. Monitor.	Annual Compli. Cert.	Semi-Ann. Monitor.
16	12	Part B(2)(t) Part C1(10)	26	EU-1 & EU-2	CO hot startup	CPCN 9297, B-IV-5 (BACT) CPCN 9297, Table B-1		269 lb/event	CPCN 9297, Table B-1	CO CEMS	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	See Testing Ref.	Quarterly report.	Quarterly	X	X	X
17	12	Part B(2)(t) Part C1(10)	26	EU-1 & EU-2	CO shutdown	CPCN 9297, B-IV-5 (BACT) CPCN 9297, Table B-1		60 lb/event	CPCN 9297, Table B-1	CO CEMS	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	See Testing Ref.	Quarterly report.	Quarterly	X	X	X
18	12	Part B(2)(t) Part C1(10)	27	EU-1 & EU-2	GHG (as CO ₂)	CPCN 9297, B-IV-5 (BACT) CPCN 9297, Table B-1		869 lb CO ₂ /MW-hr (gross)	CPCN 9297, Table B-1	Monitor CO2 emissions using a certified CO2 CEMS. The total generation (MW) shall be monitored to calculate the emission rate of CO2 (lb/MW-hr), determined each month.	CPCN 9297, Table B-1	Initial and annual performance test for CO2	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	See Monitoring Ref.	See Monitoring Desc.	12-month rolling		X	
19	12	Part B(2)(t) Part C1(10)	11	EU-1 & EU-2	PM (filterable) without duct firing	CPCN 9297, B-IV-5 (BACT) CPCN 9297, Table B-1		8.8 lb/hr	See Testing Ref.	See Testing Desc.	CPCN 9297, Table B-1	Initial and annually	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-IV-13	Final results within 60 days of test completion.	Per event.		X	
20	12	Part B(2)(t) Part C1(10)	11	EU-1 & EU-2	PM (filterable) with duct firing	CPCN 9297, B-IV-5 (BACT) CPCN 9297, Table B-1		12.2 lb/hr	See Testing Ref.	See Testing Desc.	CPCN 9297, Table B-1	Initial and annually	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-IV-13	Final results within 60 days of test completion.	Per event.		X	
21	12	Part B(2)(t) Part C1(10)	11	EU-1 & EU-2	PM10 (filt + cond) without duct firing	CPCN 9297, B-IV-5 (BACT) CPCN 9297, Table B-1		11.0 lb/hr	See Testing Ref.	See Testing Desc.	CPCN 9297, Table B-1	Initial and annually	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-IV-13	Final results within 60 days of test completion.	Per event.		X	
22	12	Part B(2)(t) Part C1(10)	11	EU-1 & EU-2	PM10 (filt + cond) with duct firing	CPCN 9297, B-IV-5 (BACT) CPCN 9297, Table B-1		15.0 lb/hr	See Testing Ref.	See Testing Desc.	CPCN 9297, Table B-1	Initial and annually	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-IV-13	Final results within 60 days of test completion.	Per event.		X	
23	12	Part B(2)(t) Part C1(13)	11	EU-1 & EU-2	VOC without duct firing normal ops.	CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		1.0 ppmvd at 15% O ₂	CPCN 9297, Table B-1	CO CEMS data shall be used as a surrogate for VOC emissions. A correlation shall be developed between CO and VOC emissions based on an initial stack test. The emission correlation shall be verified annually by stack test or a new correlation established.	CPCN 9297, B-IV-8 CPCN 9297, Table B-1	Initial and annually	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-IV-13	Final results within 60 days of test completion.	Per event.		X	
24	12	Part B(2)(t) Part C1(13)	11	EU-1 & EU-2	VOC with duct firing normal ops.	CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		2.0 ppmvd at 15% O ₂	See Testing Ref.	CO CEMS data shall be used as a surrogate for VOC emissions. A correlation shall be developed between CO and VOC emissions based on an initial stack test. The emission correlation shall be verified annually by stack test or a new correlation established.	CPCN 9297, Table B-1	Initial and annually	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-IV-13	Final results within 60 days of test completion.	Per event.		X	
25	12	Part B(2)(t) Part C1(13)	11	EU-1 & EU-2	VOC cold startup	CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		164 lb/event	CPCN 9297, B-1	Vendor-provided VOC emissions factors during cold startup applied to number of cold startups used to calculate monthly VOC emissions, to demonstrate compliance with the facility-wide VOC emissions limit in Condition B-III-3.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
26	12	Part B(2)(t) Part C1(13)	11	EU-1 & EU-2	VOC warm startup	CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		63 lb/event	CPCN 9297, B-1	Vendor-provided VOC emissions factors during warm startup applied to number of warm startups used to calculate monthly VOC emissions, to demonstrate compliance with the facility-wide VOC emissions limit in Condition B-III-3.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
27	12	Part B(2)(t) Part C1(13)	11	EU-1 & EU-2	VOC hot startup	CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		52.6 lb/event	CPCN 9297, B-1	Vendor-provided VOC emissions factors during hot startup applied to number of hot startups used to calculate monthly VOC emissions, to demonstrate compliance with the facility-wide VOC emissions limit in Condition B-III-3.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	

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PSEG Keys Energy Center

Item No.	PTO Page (of 52)	PTO Condition	CPCN Page	Emission Unit	Pollutant	General Ref.	Oper. Limit	Description	Monitoring Ref.	Monitoring Description	Testing Ref.	Testing Description	Recordkeeping Ref.	Recordkeeping Description	Reporting Ref.	Reporting Description	Freq. of Compliance Demonstration	Qtr. Monitor.	Annual Compli. Cert.	Semi-Ann. Monitor.
28	12	Part B(2)(t) Part C1(13)	11	EU-1 & EU-2	VOC shutdown	CPCN 9297, B-IV-6 (LAER) CPCN 9297, Table B-1		12 lb/event	CPCN 9297, B-1	Vendor-provided VOC emissions factors during shutdown applied to number of shutdowns used to calculate monthly VOC emissions, to demonstrate compliance with the facility-wide VOC emissions limit in Condition B-III-3.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
29	13	Part B(2)(w)	10	EU-1 & EU-2	NOx Normal Ops.	CPCN 9297, B-IV-2(c) COMAR 26.11.09.08G(2) CPCN 9297, Table B-1		42 ppmvd @ 15% O2 (or PSD BACT, whichever more restrictive) Normal Ops.	COMAR 26.11.09.08B(2)	NOx CEMs	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-IV-17 COMAR 26.11.09.08K(3)	Records on site for at least 3 years	COMAR 26.11.09.08K(1)	Quarterly reporting.	Quarterly	X	X	X
30	13	Part B(2)(y)	14	EU-3	Opacity	CPCN 9297, B-V-1(c)		No visible emissions equal to or greater than 10 percent opacity. (Note: This is PTO condition B(2)(v), which is more stringent than the CPCN Table B-1 opacity limit of 20%.]	CPCN 9297, B-V-8	Visible observations per EPA Reference Method 22 at least once each calendar quarter	CPCN 9297, B-V-8	Initial Method 9 within 180 days of startup of the boiler	CPCN 9297, B-4-8	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
31	14	Part B(2)(z)(2) Part D2(2)(c)	14	EU-3	N/A	CPCN 9297, B-V-1(a)(i)	X	Annual combustion analysis	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-V-14(b)	Maintain the results of the combustion analysis at the site for at least two years and make this data available to MDE-ARMA and the EPA upon request	See Recordkeeping Ref.	See Recordkeeping Desc.	Annual		X	
32	14	Part B(2)(z)(4)	14	EU-3	N/A	CPCN 9297, B-V-1(a)(ii)	X	Train operators at least once every three years on combustion optimization	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-V-14(c)	Prepare and maintain a record of training program attendance for each operator at the site, and make these records available to MDE-ARMA upon request.	See Recordkeeping Ref.	See Recordkeeping Desc.	Every 3 years		X	
33	14	Part B(2)(z)(2)	18	EU-4 & EU-5	N/A	CPCN 9297, B-VI-1(e)	X	Annual combustion analysis	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-VI-13(b)	Results of the combustion analysis at the site for at least two years and make this data available to MDE-ARMA and the EPA upon request;	See Recordkeeping Ref.	See Recordkeeping Desc.	Annual		X	
34	14	Part B(2)(z)(4)	18	EU-4 & EU-5	N/A	CPCN 9297, B-VI-1(e)	X	Train operators at least once every three years on combustion optimization	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-VI-13(c)	Records of training program attendance for each operator at the site, and make these records available to MDE-ARMA upon request.	See Recordkeeping Ref.	See Recordkeeping Desc.	Every 3 years		X	
35	14	Part B(2)(aa)(2)	17	EU-4 & EU-5	Opacity	CPCN 9297, B-VI-1(a)		Operating at idle: no visible emissions equal to or greater than 10 percent opacity.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.			X	
36	14	Part B(2)(aa)(3)	18	EU-4 & EU-5	Opacity	CPCN 9297, B-VI-1(b)		Operating at other than idle: no visible emissions equal to or greater than 40 percent opacity.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.			X	
37	15	Part B(2)(bb)	18	EU-4 & EU-5	N/A	CPCN 9297, B-VI-1(d)	X	Fuel cannot contain sulfur content in excess of 0.3 percent.	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-VI-12	Maintain fuel supplier certifications for each fuel delivery that documents the sulfur content of the ULSD	See Recordkeeping Ref.	See Recordkeeping Desc.			X	
38	17	Part C(4)	6	Facility-wide	PM Filterable	CPCN 9297, B-III-3		77.2 tpy	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4(e)	Quarterly report that summarizes the monthly and consecutive rolling 12-month total emissions.	Quarterly	X	X	
39	17	Part C(4)	6	Facility-wide	PM10 Filterable and Condensable	CPCN 9297, B-III-3		94.4 tpy	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4(e)	Quarterly report that summarizes the monthly and consecutive rolling 12-month total emissions.	Quarterly	X	X	
40	17	Part C(4)	6	Facility-wide	NO _x	CPCN 9297, B-III-3		156.0 tpy	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4(e)	Quarterly report that summarizes the monthly and consecutive rolling 12-month total emissions.	Quarterly	X	X	
41	17	Part C(4)	6	Facility-wide	CO	CPCN 9297, B-III-3		203.4 tpy	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4(e)	Quarterly report that summarizes the monthly and consecutive rolling 12-month total emissions.	Quarterly	X	X	
42	17	Part C(4)	6	Facility-wide	VOC	CPCN 9297, B-III-3		56.2 tpy	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4(e)	Quarterly report that summarizes the monthly and consecutive rolling 12-month total emissions.	Quarterly	X	X	
43	17	Part C(4)	6	Facility-wide	CO ₂ e	CPCN 9297, B-III-3		2,467,793 tpy	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4(e)	Quarterly report that summarizes the monthly and consecutive rolling 12-month total emissions.	Quarterly	X	X	
44	17	Part C(5)	6	Facility-wide	PM _{2.5}	CPCN 9297, B-III-1(k)		100 tpy	CTs and duct burners: CPCN 9297, B-III-8(a)(ii) Aux boiler: CPCN 9297, B-III-8(b) Emergency generator and fire pump engine: CPCN 9297, B-III-8(c)	CTs and duct burners: Monitor fuel usage in MMscf continuously Aux boiler: Monthly heat input (coupled with 0.0075 lb/MMBtu emission factor or lower tested. Emergency generator and fire pump engine: Monthly operating hours coupled with an emission factor	CTs and duct burners: CPCN 9297, B-III-8(a)(i)	CTs and duct burners: Initial and annual performance tests	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4(e)	Quarterly report that summarizes the monthly and consecutive rolling 12-month total emissions.	Quarterly	X	X	

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45	18	Part C1(2)	10	EU-1 & EU-2	NO _x Normal Ops.	CPCN 9297, Table B-1 40 CFR §60.4320(a) Table 1 to Subpart KKKK of Part 60		15 ppm @ 15% O ₂ or 54 ng/J of useful output (0.43 lb/MWh)	CPCN 9297, B-IV-3 40 CFR §60.4340(b)	NO _x CEMs	CPCN 9297, Table B-1 40 CFR §60.4400(a)	Initial and annual stack tests (conflicts with CPCN B-IV-8 that states initial and continuous compliance with NO _x and CO emission limits demonstrated by CEMS.)	See Reporting Ref.	See Reporting Desc.	40 CFR §60.4375	CEMs: Submit reports of excess emissions and monitor downtime, in accordance with §60.7(c) Stack test: Submit a written report before the close of business on the 60th day following test completion	Semiannually (CEMs) and per stack test.		X	X
46	18	Part C1(1)	9	EU-1 & EU-2	N/A	CPCN 9297, B-IV-1	X	CTs and duct burners limited to pipeline quality natural gas.	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
47	19	Part C1(3)(b) Part C1(7) Part B(2)(t)	31	EU-1 & EU-2	SO ₂	CPCN 9297, Table B-1 40 CFR 60.4330(a)(2)		Cannot burn fuel which contains total potential sulfur emissions in excess of 0.060 lb SO ₂ /MMBtu	See Testing Ref.	See Testing Desc.	CPCN 9297, B-IV-8 CPCN 9297, Table B-1 40 CFR 60.4415(a)(1) 40 CFR 60.4365(a)	Exempt from monitoring sulfur content in fuel. Use the fuel quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the fuel, specifying that the total sulfur content for natural gas is <= 20 gr/100 scf.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	See Testing Ref.	See Testing Desc.	By contract		X	
48	23	Part C2(1)	15	EU-3	N/A	CPCN 9297, B-V-3	X	Auxiliary boiler limited to pipeline quality natural gas.	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
49	23	Part C2(3) Part C2(2) Part D2(4)	15	EU-3	N/A	CPCN 9297, B-V-4	X	Heat input: 372,000 MMBtu in any 12-month rolling period.	CPCN 9297, B-V-9	Continuously monitor the fuel flow.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-V-9 CPCN 9297, B-V-12 40 CFR 60.48c(g)(2)	The fuel usage shall be recorded at least on a monthly basis. Maintain records of natural gas fuel usage on a monthly basis.	CPCN 9297, B-III-4(d)	Quarterly report .	Quarterly	X	X	
50	23	Part C2(4)(a)	15	EU-3	NO _x	CPCN 9297, B-V-5(a)(BACT)		0.01 lb/MMBtu	CPCN 9297, B-V-7(b)	Calculate NO _x emissions using fuel measurements and vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
51	23	Part C2(4)(b)	15	EU-3	CO	CPCN 9297, B-V-5(b)(BACT)		0.080 lb/MMBtu	CPCN 9297, B-V-7(b)	Calculate CO emissions using fuel measurements and vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
52	23	Part C2(4)(c)	15	EU-3	PM	CPCN 9297, B-V-5(c)(BACT)		0.0075 lb/MMBtu	CPCN 9297, B-V-7(b)	Calculate PM emissions using fuel measurements and vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
53	23	Part C2(4)(d)	15	EU-3	PM ₁₀	CPCN 9297, B-V-5(d)(BACT)		0.0075 lb/MMBtu	CPCN 9297, B-V-7(b)	Calculate PM ₁₀ emissions using fuel measurements and vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
54	23	Part C2(4)(e)	15	EU-3	GHG	CPCN 9297, B-V-5(b)(BACT)		Contribution to Facility-Wide GHG	CPCN 9297, B-V-7(c) & (d)	Annual combustion analysis on the auxiliary boiler. CO ₂ , CH ₄ and N ₂ O emissions calculated in accordance with 40 CFR 98, Subpart C. Calculate emissions on a monthly basis.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4 CPCN 9297, B-V-7(c)	Quarterly Report Results of the combustion analysis shall be provided to MDE-ARMA within 45 days of its completion.	Quarterly	X	X	
55	24	Part C2(5)(a)	15	EU-3	NO _x	CPCN 9297, B-V-6(a)(LAER)		0.01 lb/MMBtu	CPCN 9297, B-V-7(b)	Calculate NO _x emissions using fuel measurements and vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
56	24	Part C2(5)(b)	15	EU-3	VOC	CPCN 9297, B-V-6(b)(LAER)		0.002 lb/MMBtu	CPCN 9297, B-V-7(b)	Calculate VOC emissions using fuel measurements and vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
57	24	Part C3(1)	19	EU-4 & EU-5	N/A	CPCN 9297, B-VI-5	X	The auxiliary generator and fire water pump engine shall be fueled with ultra-low sulfur diesel fuel only	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-I-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
58	24	Part C3(2) Part C3(14)	21	EU-4	N/A	40 CFR 60.4209(a) CPCN 9297, B-VI-8(e)	X	The emergency generator shall be equipped with a non-resettable hour meter	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-I-8	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4(d)	Quarterly report.	Quarterly	X	X	
59	24	Part C3(4)(a)	19	EU-4	NO _x + NMHC	40 CFR 60.4205(b) 40 CFR 60.4202(a)(2) 40 CFR 89.112(a)(Table 1) CPCN 9297, B-VI-3(a)		6.4 g/kW-hr (4.8 g/hp-hr)	CPCN 9297, B-VI-9(a)	Calculate NO _x + NMHC emissions using vendor guaranteed emission rates.	40 CFR 60.4211(c)	Certified to the emissions standards in §60.4205(b), as applicable. The generator must be installed and configured according to the manufacturer's specifications.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	

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60	24	Part C3(4)(b)	19	EU-4	CO	40 CFR 60.4205(b) 40 CFR 60.4202(a)(2) 40 CFR 89.112(a)(Table 1) CPCN 9297, B-VI-3(a)		3.5 g/kW-hr (2.6 g/hp-hr)	CPCN 9297, B-VI-9(a)	Calculate CO emissions using vendor guaranteed emission rates.	40 CFR 60.4211(c)	Certified to the emissions standards in §60.4205(b), as applicable. The generator must be installed and configured according to the manufacturer's specifications.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
61	24	Part C3(4)(c)	19	EU-4	PM	40 CFR 60.4205(b) 40 CFR 60.4202(a)(2) 40 CFR 89.112(a)(Table 1) CPCN 9297, B-VI-3(a)		0.2 g/kW-hr (0.15 g/hp-hr)	CPCN 9297, B-VI-9(a)	Calculate PM emissions using vendor guaranteed emission rates.	40 CFR 60.4211(c)	Certified to the emissions standards in §60.4205(b), as applicable. The generator must be installed and configured according to the manufacturer's specifications.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
62	24	Part C3(5)(a)	19	EU-4	Opacity During Acceleration Mode	40 CFR 60.4205(b) 40 CFR 60.4202(a)(2) 40 CFR 89.113(a)		20 percent	See Testing Ref.	See Testing Desc.	40 CFR 89.113(b)	Opacity levels are to be measured and calculated as set forth in 40 CFR part 86, subpart I.	See Testing Ref.	See Testing Desc.	See Testing Ref.	See Testing Desc.			X	
63	24	Part C3(5)(b)	19	EU-4	Opacity During Lugging Mode	40 CFR 60.4205(b) 40 CFR 60.4202(a)(2) 40 CFR 89.113(a)		15 percent	See Testing Ref.	See Testing Desc.	40 CFR 89.113(b)	Opacity levels are to be measured and calculated as set forth in 40 CFR part 86, subpart I.	See Testing Ref.	See Testing Desc.	See Testing Ref.	See Testing Desc.			X	
64	24	Part C3(5)(c)	19	EU-4	Opacity During Peaks	40 CFR 60.4205(b) 40 CFR 60.4202(a)(2) 40 CFR 89.113(a)		50 percent	See Testing Ref.	See Testing Desc.	40 CFR 89.113(b)	Opacity levels are to be measured and calculated as set forth in 40 CFR part 86, subpart I.	See Testing Ref.	See Testing Desc.	See Testing Ref.	See Testing Desc.			X	
65	25	Part C3(7)	20	EU-4	N/A	CPCN 9297, B-VI-8(c) 40 CFR 60.4211(f)(2)(i)	X	Generator may be operated for the purpose of maintenance checks and readiness testing no more than 100 hours per year, provided that those tests are recommended by Federal, State, or local government; the manufacturer; the vendor; or the insurance company associated with the engine.	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4(d)	Report summarizes, among other things, operating hours of emergency generator	Quarterly	X	X	
66	25	Part C3(8)(a)	19	EU-5	NO _x + NMHC	40 CFR 60.4205(c) 40 CFR Part 60, Subpart IIII, Table 4 CPCN 9297, B-VI-3(b)		4.0 g/kW-hr (3.0 g/hp-hr)	CPCN 9297, B-VI-9(a)	Calculate NO _x + NMHC emissions using vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
67	25	Part C3(8)(b)	19	EU-5	CO	40 CFR 60.4205(c) 40 CFR Part 60, Subpart IIII, Table 4 CPCN 9297, B-VI-3(b)		3.5 g/kW-hr (2.6 g/hp-hr)	CPCN 9297, B-VI-9(a)	Calculate CO emissions using vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
68	25	Part C3(8)(c)	19	EU-5	PM	40 CFR 60.4205(c) 40 CFR Part 60, Subpart IIII, Table 4 CPCN 9297, B-VI-3(b)		0.20 g/kW-hr (0.15 g/hp-hr)	CPCN 9297, B-VI-9(a)	Calculate PM emissions using vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
69	25	Part C3(10)(a) Part C3(15)	19	EU-4 & EU-5	N/A	40 CFR 60.4207(b) 40 CFR 80.510(b) CPCN 9297, B-VI-3 CPCN 9297, B-VI-5	X	Sulfur Content 15 ppm maximum	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-VI-12	Maintain fuel supplier certifications for each fuel delivery that documents the sulfur content of the ULSD	See Recordkeeping Ref.	See Recordkeeping Desc.			X	
70	25	Part C3(10)(b)(i)	19	EU-4 & EU-5	N/A	40 CFR 60.4207(b) 40 CFR 80.510(b) CPCN 9297, B-VI-3	X	Cetane Index 40 minimum	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-VI-12	Maintain fuel supplier certifications for each fuel delivery that documents the sulfur content of the ULSD	See Recordkeeping Ref.	See Recordkeeping Desc.			X	
71	25	Part C3(10)(b)(iii)	19	EU-4 & EU-5	N/A	40 CFR 60.4207(b) 40 CFR 80.510(b) CPCN 9297, B-VI-3	X	Aromatic Content 35 volume percent maximum	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-VI-12	Maintain fuel supplier certifications for each fuel delivery that documents the sulfur content of the ULSD	See Recordkeeping Ref.	See Recordkeeping Desc.			X	
72	26	Part C3(14)	21	EU-5	N/A	40 CFR 60.4209(a) CPCN 9297, B-VI-8(e)	X	The fire pump engine shall be equipped with a non-resettable hour meter	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-I-8	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4(d)	Quarterly report.	Quarterly	X	X	
73	26	Part C3(12)(b)	20	EU-4	PM10 (filterable and condensable)	CPCN 9297, B-VI-6(a)(ii)		0.18 g/hp-hour	CPCN 9297, B-VI-9(a)	Calculate PM10 emissions using vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
74	26	Part C3(13)(b)	20	EU-5	PM10 (filterable and condensable)	CPCN 9297, B-VI-6(b)(ii)		0.18 g/hp-hour	CPCN 9297, B-VI-9(a)	Calculate PM10 emissions using vendor guaranteed emission rates.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly report.	Quarterly	X	X	
75	27	Part C4(1)	22	EU-6	N/A	CPCN 9297, B-VII-1	X	Implementation of an Audio, Visual, and Olfactory (AVO) Program on file at power plant site. In accordance with an AVO program Plan, the AVO inspections shall be documented, leaks identified from the AVO assessment shall be repaired within five days of discovery, repairs documented, and associated repair records maintained.	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-VII-1	Document repairs and maintain records.	CPCN 9297, B-VII-3	These data shall be readily available for inspection by representatives of MDE-ARMA.	Inspections as required by AVO		X	

Replacement for Title V Application Section 3B Form
Citation to and Description of Applicable Federally Enforceable Requirements

PSEG Keys Energy Center

Item No.	PTO Page (of 52)	PTO Condition	CPCN Page	Emission Unit	Pollutant	General Ref.	Oper. Limit	Description	Monitoring Ref.	Monitoring Description	Testing Ref.	Testing Description	Recordkeeping Ref.	Recordkeeping Description	Reporting Ref.	Reporting Description	Freq. of Compliance Demonstration	Qtr. Monitor.	Annual Compli. Cert.	Semi-Ann. Monitor.
76	27	Part C5(1)	23	EU-7	N/A	CPCN 9297, B-VIII-1	X	Circuit breaker leaks detected shall be repaired within five days of discovery; repairs documented, and associated repair records maintained.	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-VIII-3	PSEG Keys shall maintain all records of monitoring and repair associated with the circuit breakers at the Facility for at least five years after the completion of the calendar year in which they were collected.	CPCN 9297, B-VIII-3	These data shall be readily available for inspection by representatives of MDE-ARMA.	Leaks repaired as needed		X	
77	27	Part C4(2)	22	EU-6	GHG	CPCN 9297, B-VII-2		Contribution to Facility-Wide GHG	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-8	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-5	Quarterly Report	Quarterly	X	X	
78	27	Part C5(2)	23	EU-7	GHG	CPCN 9297, B-VIII-2		Contribution to Facility-Wide GHG	See Reporting Ref.	See Reporting Desc.	See Reporting Ref.	See Reporting Desc.	CPCN 9297, B-1-9	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-6	Quarterly Report	Quarterly	X	X	
79	28	Part C6(2)	24	EU-8	VOC	CPCN 9297, B-IX-2(LAER)		0.1 tpy (through periodic maintenance)	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-IX-3	PSEG Keys shall maintain records of periodic maintenance performed on the tanks for at least five years.	CPCN 9297, B-IX-3	These data shall be readily available for inspection by representatives of MDE-ARMA.	Per MDE request.		X	
80	28	Part C7	24	EU-9	PM and PM ₁₀	CPCN 9297, B-X-1(BACT)	X	Minimize PM and PM ₁₀ emissions from onsite roadways by taking reasonable precautions to prevent particulate matter from becoming airborne by sweeping or water application dust control, as needed.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.	MDE to prescribe.			X	
81	30	Part D1(5)	12	EU-1 & EU-2	N/A	CPCN 9297, B-IV-10	X	Install a fuel flow meter and continuously monitor the fuel flow for each CT/HRSG and duct burner. The total fuel usage per month shall be recorded.	CPCN 9297, B-IV-10	Continuously monitor the fuel flow.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-IV-18(d)	Keep records for monthly and consecutive rolling 12-month total fuel use and hours of operation for each CT and duct burner	CPCN 9297, B-III-4(d)	Quarterly report .	Quarterly	X	X	
82	38	Part E2(7)	17	EU-3	N/A	CPCN 9297, B-V-16	X	Maintenance on auxiliary boiler.	See Recordkeeping Ref.	See Recordkeeping Desc.	See Recordkeeping Ref.	See Recordkeeping Desc.	CPCN 9297, B-V-16 40 CFR 60.48c(i)	Maintain records of any maintenance performed on the auxiliary boiler for 2 years from the date of record.	See Recordkeeping Ref.	See Recordkeeping Desc.	N/A		X	
83	43	Part B(2)(t)	28	EU-1 & EU-2	N/A	CPCN 9297, Table B-1	X	6,802 Btu/kWh (net) (LHV)	See Testing Ref.	See Testing Desc.	CPCN 9297, Table B-1	Initial compliance demonstrated using ASME PTC 46 test method. Annual thermal efficiency test conducted according to ASME PTC-46 (or approved alternative) and compare results to design thermal efficiency value.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	See Testing Ref.	See Testing Desc.	Annual		X	
84	N/A	None	21	EU-4	GHG	CPCN 9297, B-VI-9(b)		Contribution to Facility-Wide GHG	CPCN 9297, B-VI-9(b)	CO ₂ , CH ₄ and N ₂ O emissions calculated in accordance with 40 CFR 98, Subpart C. Calculate emissions on a monthly basis.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly Report	Quarterly	X	X	
85	N/A	None	21	EU-5	GHG	CPCN 9297, B-VI-9(b)		Contribution to Facility-Wide GHG	CPCN 9297, B-VI-9(b)	CO ₂ , CH ₄ and N ₂ O emissions calculated in accordance with 40 CFR 98, Subpart C. Calculate emissions on a monthly basis.	See Monitoring Ref.	See Monitoring Desc.	CPCN 9297, B-1-7	All records and logs required by CPCN kept for at least five years	CPCN 9297, B-III-4	Quarterly Report	Quarterly	X	X	

**KEC HAPs PTE
Facility Long Term**

HAP	CAS#	Clean Air Act HAP	POM (PAH)	Reporting Threshold (tpy)	CT (x2) Emissions (tpy)	DB (x2) Emissions (tpy)	AB Emissions (tpy)	EDG Emissions (tpy)	Fire Pump Emissions (tpy)	Facility Emissions (tpy)
2-Methylnaphthalene	91-57-6	Yes			0.00E+00	9.13E-05	4.38E-06	0.00E+00	0.00E+00	9.57E-05
3-Methylcholanthrene	56-49-5	Yes			0.00E+00	6.85E-06	3.28E-07	0.00E+00	0.00E+00	7.18E-06
7,12-Dimethylbenz(a)anthracene	57-97-6	Yes			0.00E+00	6.09E-05	2.92E-06	0.00E+00	0.00E+00	6.38E-05
Acenaphthene	83-32-9	Yes	Yes	0.01	0.00E+00	6.85E-06	3.28E-07	3.56E-06	1.28E-07	1.09E-05
Acenaphthylene	203-96-8	Yes	Yes	0.1	0.00E+00	6.85E-06	3.28E-07	7.01E-06	4.55E-07	1.46E-05
Anthracene	120-12-7	Yes	Yes	0.01	0.00E+00	9.13E-06	4.38E-07	9.35E-07	1.68E-07	1.07E-05
Benz(a)anthracene	56-55-3	Yes	Yes	0.001	0.00E+00	6.85E-06	3.28E-07	4.73E-07	1.51E-07	7.80E-06
Benzene	71-43-2	Yes		0.1	2.45E-01	7.99E-03	3.83E-04	5.90E-04	8.40E-05	2.54E-01
Benzo(a)pyrene	50-32-8	Yes	Yes	0.0001	0.00E+00	4.57E-06	2.19E-07	1.95E-07	1.69E-08	5.00E-06
Benzo(b)fluoranthene	205-99-2	Yes	Yes	0.001	0.00E+00	6.85E-06	3.28E-07	8.44E-07	8.92E-09	8.03E-06
Benzo(g,h,i)perylene	191-24-2	Yes	Yes	0.01	0.00E+00	4.57E-06	2.19E-07	4.23E-07	4.40E-08	5.25E-06
Benzo(k)fluoranthene	207-08-9	Yes	Yes	0.01	0.00E+00	6.85E-06	3.28E-07	1.66E-07	1.40E-08	7.36E-06
Butane	106-97-8				0.00E+00	7.99E+00	3.83E-01	0.00E+00	0.00E+00	8.37E+00
Chrysene	218-01-9	Yes	Yes	0.01	0.00E+00	6.85E-06	3.28E-07	1.16E-06	3.18E-08	8.37E-06
Dibenzo(a,h)anthracene	53-70-3	Yes	Yes	0.0001	0.00E+00	4.57E-06	2.19E-07	2.63E-07	5.25E-08	5.10E-06
1,4-Dichlorobenzene(P)	106-46-7	Yes		0.1	0.00E+00	4.57E-03	2.19E-04	0.00E+00	0.00E+00	4.78E-03
Ethane	74-84-0				0.00E+00	1.18E+01	5.65E-01	0.00E+00	0.00E+00	1.24E+01
Fluoranthene	206-44-0	Yes	Yes	0.1	0.00E+00	1.14E-05	5.47E-07	3.06E-06	6.85E-07	1.57E-05
Fluorene	86-73-7	Yes	Yes	0.01	0.00E+00	1.07E-05	5.11E-07	9.73E-06	2.63E-06	2.35E-05
Formaldehyde	80-00-0	Yes		0.01	1.96E+00	2.85E-01	1.37E-02	6.00E-05	1.06E-04	2.26E+00
Hexane	110-54-3	Yes		10	0.00E+00	6.85E+00	3.28E-01	0.00E+00	0.00E+00	7.18E+00
Indeno(1,2,3-cd)pyrene	193-39-5	Yes	Yes	0.001	0.00E+00	6.85E-06	3.28E-07	3.15E-07	3.38E-08	7.52E-06
Naphthalene	91-20-3	Yes	Yes	1	2.65E-02	2.32E-03	1.11E-04	9.88E-05	7.63E-06	2.91E-02
Pentane	109-66-0				0.00E+00	9.89E+00	4.74E-01	0.00E+00	0.00E+00	1.04E+01
Phenanthrene	85-01-8	Yes	Yes	0.01	0.00E+00	6.47E-05	3.10E-06	3.10E-05	2.65E-06	1.01E-04
Propane	74-98-6				0.00E+00	6.09E+00	2.92E-01	0.00E+00	0.00E+00	6.38E+00
Pyrene	129-00-0	Yes	Yes	0.01	0.00E+00	1.90E-05	9.12E-07	2.82E-06	4.30E-07	2.32E-05
Toluene	108-88-3	Yes		10	2.65E+00	1.29E-02	6.20E-04	2.14E-04	3.68E-05	2.67E+00
Arsenic	7440-38-2	Yes		0.0001	0.00E+00	7.61E-04	3.65E-05	0.00E+00	0.00E+00	7.97E-04
Barium	7440-39-3				0.00E+00	1.67E-02	8.02E-04	0.00E+00	0.00E+00	1.75E-02
Beryllium	7440-41-7	Yes		0.0001	0.00E+00	4.57E-05	2.19E-06	0.00E+00	0.00E+00	4.78E-05
Cadmium	7440-43-9	Yes		0.0001	0.00E+00	4.19E-03	2.01E-04	0.00E+00	0.00E+00	4.39E-03
Chromium (Elemental) Compounds	7440-47-3	Yes		0.01	0.00E+00	5.33E-03	2.55E-04	0.00E+00	0.00E+00	5.58E-03
Cobalt	7440-48-4	Yes		0.001	0.00E+00	3.20E-04	1.53E-05	0.00E+00	0.00E+00	3.35E-04
Copper	7440-50-8			0.01	0.00E+00	3.23E-03	1.55E-04	0.00E+00	0.00E+00	3.39E-03
Manganese	7439-96-5	Yes		0.01	0.00E+00	1.45E-03	6.93E-05	0.00E+00	0.00E+00	1.52E-03
Mercury	7439-97-6	Yes		0.001	0.00E+00	9.89E-04	4.74E-05	0.00E+00	0.00E+00	1.04E-03
Molybdenum	7439-98-7				0.00E+00	4.19E-03	2.01E-04	0.00E+00	0.00E+00	4.39E-03
Nickel	7440-02-0	Yes		0.001	0.00E+00	7.99E-03	3.83E-04	0.00E+00	0.00E+00	8.37E-03
Selenium	7782-49-2	Yes		0.01	0.00E+00	9.13E-05	4.38E-06	0.00E+00	0.00E+00	9.57E-05
Vanadium	7440-62-2				0.00E+00	8.75E-03	4.19E-04	0.00E+00	0.00E+00	9.17E-03
Zinc	7440-66-6			0.1	0.00E+00	1.10E-01	5.29E-03	0.00E+00	0.00E+00	1.16E-01
1,3-Butadiene	106-99-0	Yes		0.001	8.78E-03	0.00E+00	0.00E+00	0.00E+00	3.52E-06	8.78E-03
Acetaldehyde	75-07-0	Yes		0.1	8.16E-01	0.00E+00	0.00E+00	1.92E-05	6.90E-05	8.17E-01
Acrolein	107-02-8	Yes		0.01	1.31E-01	0.00E+00	0.00E+00	5.99E-06	8.33E-06	1.31E-01
Ethylbenzene	100-41-4	Yes			6.53E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.53E-01
PAH	—	Yes			4.49E-02	0.00E+00	0.00E+00	1.61E-04	1.51E-05	4.51E-02
Propylene Oxide	75-56-9	Yes		0.1	5.92E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.92E-01
Xylenes	1330-20-7	Yes		10	1.31E+00	0.00E+00	0.00E+00	1.47E-04	2.57E-05	1.31E+00

Total CAA HAPs = 16.0 tons/year
Max Indiv. HAP (hexane) = 7.2 tons/year

**KEC HAPs PTE
CT**

HAP	CAS#	Emission Factor (lb/MMscf)	Emission Factor (lb/MMBtu)	Emissions for 1 CT (lb/hr)	Emissions for 1 CT (tpy)	POM (PAH)
2-Methylnaphthalene	91-57-6			0.00E+00	0.00E+00	
3-Methylcholanthrene	56-49-5			0.00E+00	0.00E+00	
7,12-Dimethylbenz(a)anthracene	57-97-6			0.00E+00	0.00E+00	
Acenaphthene	83-32-9			0.00E+00	0.00E+00	Yes
Acenaphthylene	203-96-8			0.00E+00	0.00E+00	Yes
Anthracene	120-12-7			0.00E+00	0.00E+00	Yes
Benz(a)anthracene	56-55-3			0.00E+00	0.00E+00	Yes
Benzene	71-43-2		1.20E-05	2.80E-02	1.22E-01	
Benzo(a)pyrene	50-32-8			0.00E+00	0.00E+00	Yes
Benzo(b)fluoranthene	205-99-2			0.00E+00	0.00E+00	Yes
Benzo(g,h,i)perylene	191-24-2			0.00E+00	0.00E+00	Yes
Benzo(k)fluoranthene	207-08-9			0.00E+00	0.00E+00	Yes
Butane	106-97-8			0.00E+00	0.00E+00	
Chrysene	218-01-9			0.00E+00	0.00E+00	Yes
Dibenzo(a,h)anthracene	53-70-3			0.00E+00	0.00E+00	Yes
1,4-Dichlorobenzene(P)	106-46-7			0.00E+00	0.00E+00	
Ethane	74-84-0			0.00E+00	0.00E+00	
Fluoranthene	206-44-0			0.00E+00	0.00E+00	Yes
Fluorene	86-73-7			0.00E+00	0.00E+00	Yes
Formaldehyde	80-00-0		9.6E-05	2.24E-01	9.80E-01	
Hexane	110-54-3			0.00E+00	0.00E+00	
Indeno(1,2,3-cd)pyrene	193-39-5			0.00E+00	0.00E+00	Yes
Naphthalene	91-20-3		1.30E-06	3.03E-03	1.33E-02	Yes
Pentane	109-66-0			0.00E+00	0.00E+00	
Phenanthrene	85-01-8			0.00E+00	0.00E+00	Yes
Propane	74-98-6			0.00E+00	0.00E+00	
Pyrene	129-00-0			0.00E+00	0.00E+00	Yes
Toluene	108-88-3		1.30E-04	3.03E-01	1.33E+00	
Arsenic	7440-38-2			0.00E+00	0.00E+00	
Barium	7440-39-3			0.00E+00	0.00E+00	
Beryllium	7440-41-7			0.00E+00	0.00E+00	
Cadmium	7440-43-9			0.00E+00	0.00E+00	
Chromium	7440-47-3			0.00E+00	0.00E+00	Chromium (Elemental) Compounds
Cobalt	7440-48-4			0.00E+00	0.00E+00	
Copper	7440-50-8			0.00E+00	0.00E+00	
Manganese	7439-96-5			0.00E+00	0.00E+00	
Mercury	7439-97-6			0.00E+00	0.00E+00	
Molybdenum	7439-98-7			0.00E+00	0.00E+00	
Nickel	7440-02-0			0.00E+00	0.00E+00	
Selenium	7782-49-2			0.00E+00	0.00E+00	
Vanadium	7440-62-2			0.00E+00	0.00E+00	
Zinc	7440-66-6			0.00E+00	0.00E+00	
1,3-Butadiene	106-99-0		4.30E-07	1.00E-03	4.39E-03	
Acetaldehyde	75-07-0		4.00E-05	9.32E-02	4.08E-01	
Acrolein	107-02-8		6.40E-06	1.49E-02	6.53E-01	
Ethylbenzene	100-41-4		3.20E-05	7.46E-02	3.27E-01	
POM(PAH)	—		2.20E-06	5.13E-03	2.25E-02	
Propylene Oxide	75-56-9		2.90E-05	6.76E-02	2.96E-01	
Xylenes	1330-20-7		6.40E-05	1.49E-01	6.53E-01	

Heating value of natural gas: 1,020 Btu/scf
Heat input to combustion turbine: 2,330 MMBtu/hr - HHV
Hours of operation: 8,760 hours/year

Based on MACT 91 ppb standard. Factor from 7/3/2014 ERD, Appendix B.
n-Hexane

Also included in PAH value below.

All emission factors (except formaldehyde) from AP-42 Table 3.1-3

**KEC HAPs PTE
DB**

HAP	CAS#	Emission Factor (lb/MMscf)	Emission Factor (lb/MMBtu)	Emissions for 1 DB (lb/hr)	Emissions for 1 DB (tpy)	POM (PAH)
2-Methylnaphthalene	91-57-6	2.40E-05	2.35E-08	1.04E-05	4.57E-05	
3-Methylcholanthrene	56-49-5	1.80E-06	1.76E-09	7.82E-07	3.42E-06	
7,12-Dimethylbenz(a)anthracene	57-97-6	1.60E-05	1.57E-08	6.95E-06	3.04E-05	
Acenaphthene	83-32-9	1.80E-06	1.76E-09	7.82E-07	3.42E-06	Yes
Acenaphthylene	203-96-8	1.80E-06	1.76E-09	7.82E-07	3.42E-06	Yes
Anthracene	120-12-7	2.40E-06	2.35E-09	1.04E-06	4.57E-06	Yes
Benz(a)anthracene	56-55-3	1.80E-06	1.76E-09	7.82E-07	3.42E-06	Yes
Benzene	71-43-2	2.10E-03	2.06E-06	9.12E-04	3.99E-03	
Benzo(a)pyrene	50-32-8	1.20E-06	1.18E-09	5.21E-07	2.28E-06	Yes
Benzo(b)fluoranthene	205-99-2	1.80E-06	1.76E-09	7.82E-07	3.42E-06	Yes
Benzo(g,h,i)perylene	191-24-2	1.20E-06	1.18E-09	5.21E-07	2.28E-06	Yes
Benzo(k)fluoranthene	207-08-9	1.80E-06	1.76E-09	7.82E-07	3.42E-06	Yes
Butane	106-97-8	2.10E+00	2.06E-03	9.12E-01	3.99E+00	
Chrysene	218-01-9	1.80E-06	1.76E-09	7.82E-07	3.42E-06	Yes
Dibenzo(a,h)anthracene	53-70-3	1.20E-06	1.18E-09	5.21E-07	2.28E-06	Yes
1,4-Dichlorobenzene(P)	106-46-7	1.20E-03	1.18E-06	5.21E-04	2.28E-03	
Ethane	74-84-0	3.10E+00	3.04E-03	1.35E+00	5.90E+00	
Fluoranthene	206-44-0	3.00E-06	2.94E-09	1.30E-06	5.71E-06	Yes
Fluorene	86-73-7	2.80E-06	2.75E-09	1.22E-06	5.33E-06	Yes
Formaldehyde	80-00-0	7.50E-02	7.35E-05	3.26E-02	1.43E-01	
Hexane	110-54-3	1.80E+00	1.76E-03	7.82E-01	3.42E+00	n-Hexane
Indeno(1,2,3-cd)pyrene	193-39-5	1.80E-06	1.76E-09	7.82E-07	3.42E-06	Yes
Naphthalene	91-20-3	6.10E-04	5.98E-07	2.65E-04	1.16E-03	Yes
Pentane	109-66-0	2.60E+00	2.55E-03	1.13E+00	4.95E+00	
Phenanthrene	85-01-8	1.70E-05	1.67E-08	7.38E-06	3.23E-05	Yes
Propane	74-98-6	1.60E+00	1.57E-03	6.95E-01	3.04E+00	
Pyrene	129-00-0	5.00E-06	4.90E-09	2.17E-06	9.51E-06	Yes
Toluene	108-88-3	3.40E-03	3.33E-06	1.48E-03	6.47E-03	
Arsenic	7440-38-2	2.00E-04	1.96E-07	8.69E-05	3.80E-04	
Barium	7440-39-3	4.40E-03	4.31E-06	1.91E-03	8.37E-03	
Beryllium	7440-41-7	1.20E-05	1.18E-08	5.21E-06	2.28E-05	
Cadmium	7440-43-9	1.10E-03	1.08E-06	4.78E-04	2.09E-03	
Chromium	7440-47-3	1.40E-03	1.37E-06	6.08E-04	2.66E-03	Chromium (Elemental) Compounds
Cobalt	7440-48-4	8.40E-05	8.24E-08	3.65E-05	1.60E-04	
Copper	7440-50-8	8.50E-04	8.33E-07	3.69E-04	1.62E-03	
Manganese	7439-96-5	3.80E-04	3.73E-07	1.65E-04	7.23E-04	
Mercury	7439-97-6	2.60E-04	2.55E-07	1.13E-04	4.95E-04	
Molybdenum	7439-98-7	1.10E-03	1.08E-06	4.78E-04	2.09E-03	
Nickel	7440-02-0	2.10E-03	2.06E-06	9.12E-04	3.99E-03	
Selenium	7782-49-2	2.40E-05	2.35E-08	1.04E-05	4.57E-05	
Vanadium	7440-62-2	2.30E-03	2.25E-06	9.99E-04	4.38E-03	
Zinc	7440-66-6	2.90E-02	2.84E-05	1.26E-02	5.52E-02	

Heating value of natural gas: 1,020 Btu/scf
Heat input: 443 MMBtu/hr
Hours of operation: 8,760 hours/year

All emission factors from AP-42 Table 1.4-3 and Table 1.4-4

KEC HAPs PTE

AB

HAP	CAS#	Emission Factor (lb/MMscf)	Emission Factor (lb/MMBtu)	Emissions (lb/hr)	Emissions (tpy)	POM (PAH)
2-Methylnaphthalene	91-57-6	2.40E-05	2.35E-08	2.05E-06	4.38E-06	
3-Methylcholanthrene	56-49-5	1.80E-06	1.76E-09	1.54E-07	3.28E-07	
7,12-Dimethylbenz(a)anthracene	57-97-6	1.60E-05	1.57E-08	1.37E-06	2.92E-06	
Acenaphthene	83-32-9	1.80E-06	1.76E-09	1.54E-07	3.28E-07	Yes
Acenaphthylene	203-96-8	1.80E-06	1.76E-09	1.54E-07	3.28E-07	Yes
Anthracene	120-12-7	2.40E-06	2.35E-09	2.05E-07	4.38E-07	Yes
Benz(a)anthracene	56-55-3	1.80E-06	1.76E-09	1.54E-07	3.28E-07	Yes
Benzene	71-43-2	2.10E-03	2.06E-06	1.79E-04	3.83E-04	
Benzo(a)pyrene	50-32-8	1.20E-06	1.18E-09	1.02E-07	2.19E-07	Yes
Benzo(b)fluoranthene	205-99-2	1.80E-06	1.76E-09	1.54E-07	3.28E-07	Yes
Benzo(g,h,i)perylene	191-24-2	1.20E-06	1.18E-09	1.02E-07	2.19E-07	Yes
Benzo(k)fluoranthene	207-08-9	1.80E-06	1.76E-09	1.54E-07	3.28E-07	Yes
Butane	106-97-8	2.10E+00	2.06E-03	1.79E-01	3.83E-01	
Chrysene	218-01-9	1.80E-06	1.76E-09	1.54E-07	3.28E-07	Yes
Dibenzo(a,h)anthracene	53-70-3	1.20E-06	1.18E-09	1.02E-07	2.19E-07	Yes
1,4-Dichlorobenzene(P)	106-46-7	1.20E-03	1.18E-06	1.02E-04	2.19E-04	
Ethane	74-84-0	3.10E+00	3.04E-03	2.65E-01	5.65E-01	
Fluoranthene	206-44-0	3.00E-06	2.94E-09	2.56E-07	5.47E-07	Yes
Fluorene	86-73-7	2.80E-06	2.75E-09	2.39E-07	5.11E-07	Yes
Formaldehyde	80-00-0	7.50E-02	7.35E-05	6.40E-03	1.37E-02	n-Hexane
Hexane	110-54-3	1.80E+00	1.76E-03	1.54E-01	3.28E-01	
Indeno(1,2,3-cd)pyrene	193-39-5	1.80E-06	1.76E-09	1.54E-07	3.28E-07	Yes
Naphthalene	91-20-3	6.10E-04	5.98E-07	5.21E-05	1.11E-04	Yes
Pentane	109-66-0	2.60E+00	2.55E-03	2.22E-01	4.74E-01	
Phenanthrene	85-01-8	1.70E-05	1.67E-08	1.45E-06	3.10E-06	Yes
Propane	74-98-6	1.60E+00	1.57E-03	1.37E-01	2.92E-01	
Pyrene	129-00-0	5.00E-06	4.90E-09	4.27E-07	9.12E-07	Yes
Toluene	108-88-3	3.40E-03	3.33E-06	2.90E-04	6.20E-04	
Arsenic	7440-38-2	2.00E-04	1.96E-07	1.71E-05	3.65E-05	
Barium	7440-39-3	4.40E-03	4.31E-06	3.76E-04	8.02E-04	
Beryllium	7440-41-7	1.20E-05	1.18E-08	1.02E-06	2.19E-06	
Cadmium	7440-43-9	1.10E-03	1.08E-06	9.39E-05	2.01E-04	Chromium (Elemental) Compounds
Chromium	7440-47-3	1.40E-03	1.37E-06	1.20E-04	2.55E-04	
Cobalt	7440-48-4	8.40E-05	8.24E-08	7.17E-06	1.53E-05	
Copper	7440-50-8	8.50E-04	8.33E-07	7.26E-05	1.55E-04	
Manganese	7439-96-5	3.80E-04	3.73E-07	3.24E-05	6.93E-05	
Mercury	7439-97-6	2.60E-04	2.55E-07	2.22E-05	4.74E-05	
Molybdenum	7439-98-7	1.10E-03	1.08E-06	9.39E-05	2.01E-04	
Nickel	7440-02-0	2.10E-03	2.06E-06	1.79E-04	3.83E-04	
Selenium	7782-49-2	2.40E-05	2.35E-08	2.05E-06	4.38E-06	
Vanadium	7440-62-2	2.30E-03	2.25E-06	1.96E-04	4.19E-04	
Zinc	7440-66-6	2.90E-02	2.84E-05	2.48E-03	5.29E-03	

Heating value of natural gas: 1,020 Btu/scf
Heat input: 87.1 MMBtu/hr
Initial PTO Permit Limit: 372,000 MMBtu/year [Part C2(3)]

All emission factors from AP-42 Table 1.4-3 and Table 1.4-4

**KEC HAPs PTE
EDG**

HAP	CAS#	Emission Factor (lb/MMscf)	Emission Factor (lb/MMBtu)	Emissions (lb/hr)	Emissions (tpy)	POM (PAH)
2-Methylnaphthalene	91-57-6			0.00E+00	0.00E+00	
3-Methylcholanthrene	56-49-5			0.00E+00	0.00E+00	
7,12-Dimethylbenz(a)anthracene	57-97-6			0.00E+00	0.00E+00	
Acenaphthene	83-32-9		4.68E-06	7.11E-05	3.56E-06	Yes
Acenaphthylene	203-96-8		9.23E-06	1.40E-04	7.01E-06	Yes
Anthracene	120-12-7		1.23E-06	1.87E-05	9.35E-07	Yes
Benz(a)anthracene	56-55-3		6.22E-07	9.45E-06	4.73E-07	Yes
Benzene	71-43-2		7.76E-04	1.18E-02	5.90E-04	
Benzo(a)pyrene	50-32-8		2.57E-07	3.91E-06	1.95E-07	Yes
Benzo(b)fluoranthene	205-99-2		1.11E-06	1.69E-05	8.44E-07	Yes
Benzo(g,h,i)perylene	191-24-2		5.56E-07	8.45E-06	4.23E-07	Yes
Benzo(k)fluoranthene	207-08-9		2.18E-07	3.31E-06	1.66E-07	Yes
Butane	106-97-8			0.00E+00	0.00E+00	
Chrysene	218-01-9		1.53E-06	2.33E-05	1.16E-06	Yes
Dibenzo(a,h)anthracene	53-70-3		3.46E-07	5.26E-06	2.63E-07	Yes
1,4-Dichlorobenzene(P)	106-46-7			0.00E+00	0.00E+00	
Ethane	74-84-0			0.00E+00	0.00E+00	
Fluoranthene	206-44-0		4.03E-06	6.13E-05	3.06E-06	Yes
Fluorene	86-73-7		1.28E-05	1.95E-04	9.73E-06	Yes
Formaldehyde	80-00-0		7.89E-05	1.20E-03	6.00E-05	
Hexane	110-54-3			0.00E+00	0.00E+00	n-Hexane
Indeno(1,2,3-cd)pyrene	193-39-5		4.14E-07	6.29E-06	3.15E-07	Yes
Naphthalene	91-20-3		1.30E-04	1.98E-03	9.88E-05	Yes
Pentane	109-66-0			0.00E+00	0.00E+00	
Phenanthrene	85-01-8		4.08E-05	6.20E-04	3.10E-05	Yes
Propane	74-98-6			0.00E+00	0.00E+00	
Pyrene	129-00-0		3.71E-06	5.64E-05	2.82E-06	Yes
Toluene	108-88-3		2.81E-04	4.27E-03	2.14E-04	
Arsenic	7440-38-2			0.00E+00	0.00E+00	
Barium	7440-39-3			0.00E+00	0.00E+00	
Beryllium	7440-41-7			0.00E+00	0.00E+00	
Cadmium	7440-43-9			0.00E+00	0.00E+00	
Chromium	7440-47-3			0.00E+00	0.00E+00	
Cobalt	7440-48-4			0.00E+00	0.00E+00	
Copper	7440-50-8			0.00E+00	0.00E+00	
Manganese	7439-96-5			0.00E+00	0.00E+00	
Mercury	7439-97-6			0.00E+00	0.00E+00	
Molybdenum	7439-98-7			0.00E+00	0.00E+00	
Nickel	7440-02-0			0.00E+00	0.00E+00	
Selenium	7782-49-2			0.00E+00	0.00E+00	
Vanadium	7440-62-2			0.00E+00	0.00E+00	
Zinc	7440-66-6			0.00E+00	0.00E+00	
1,3-Butadiene	106-99-0			0.00E+00	0.00E+00	
Acetaldehyde	75-07-0		2.52E-05	3.83E-04	1.92E-05	
Acrolein	107-02-8		7.88E-06	1.20E-04	5.99E-06	
Ethylbenzene	100-41-4			0.00E+00	0.00E+00	
POM(PAH) (b)	—		2.12E-04	3.22E-03	1.61E-04	
Propylene Oxide	75-56-9			0.00E+00	0.00E+00	
Xylenes	1330-20-7		1.93E-04	2.93E-03	1.47E-04	
Propylene (Propene) (a)	115-07-1		2.79E-03	4.24E-02	2.12E-03	

Heat input: 15.2 MMBtu/hr
Hours of operation: 100 hours/year

(a) - Not a MDE TAP or a CAA HAP
(b) - Sum of individual PAHs emission factors above.

All emission factors from AP-42 Table 3.4-3 and Table 3.4-4

**KEC HAPs PTE
Fire Pump**

HAP	CAS#	Emission Factor (lb/MMscf)	Emission Factor (lb/MMBtu)	Emissions (lb/hr)	Emissions (tpy)	POM (PAH)
2-Methylnaphthalene	91-57-6			0.00E+00	0.00E+00	
3-Methylcholanthrene	56-49-5			0.00E+00	0.00E+00	
7,12-Dimethylbenz(a)anthracene	57-97-6			0.00E+00	0.00E+00	
Acenaphthene	83-32-9		1.42E-06	2.56E-06	1.28E-07	Yes
Acenaphthylene	203-96-8		5.06E-06	9.11E-06	4.55E-07	Yes
Anthracene	120-12-7		1.87E-06	3.37E-06	1.68E-07	Yes
Benz(a)anthracene	56-55-3		1.68E-06	3.02E-06	1.51E-07	Yes
Benzene	71-43-2		9.33E-04	1.68E-03	8.40E-05	
Benzo(a)pyrene	50-32-8		1.88E-07	3.38E-07	1.69E-08	Yes
Benzo(b)fluoranthene	205-99-2		9.91E-08	1.78E-07	8.92E-09	Yes
Benzo(g,h,i)perylene	191-24-2		4.89E-07	8.80E-07	4.40E-08	Yes
Benzo(k)fluoranthene	207-08-9		1.55E-07	2.79E-07	1.40E-08	Yes
Butane	106-97-8			0.00E+00	0.00E+00	
Chrysene	218-01-9		3.53E-07	6.35E-07	3.18E-08	Yes
Dibenzo(a,h)anthracene	53-70-3		5.83E-07	1.05E-06	5.25E-08	Yes
1,4-Dichlorobenzene(P)	106-46-7			0.00E+00	0.00E+00	
Ethane	74-84-0			0.00E+00	0.00E+00	
Fluoranthene	206-44-0		7.61E-06	1.37E-05	6.85E-07	Yes
Fluorene	86-73-7		2.92E-05	5.26E-05	2.63E-06	Yes
Formaldehyde	80-00-0		1.18E-03	2.12E-03	1.06E-04	
Hexane	110-54-3			0.00E+00	0.00E+00	
Indeno(1,2,3-cd)pyrene	193-39-5		3.75E-07	6.75E-07	3.38E-08	Yes
Naphthalene	91-20-3		8.48E-05	1.53E-04	7.63E-06	Yes
Pentane	109-66-0			0.00E+00	0.00E+00	
Phenanthrene	85-01-8		2.94E-05	5.29E-05	2.65E-06	Yes
Propane	74-98-6			0.00E+00	0.00E+00	
Pyrene	129-00-0		4.78E-06	8.60E-06	4.30E-07	Yes
Toluene	108-88-3		4.09E-04	7.36E-04	3.68E-05	
Arsenic	7440-38-2			0.00E+00	0.00E+00	
Barium	7440-39-3			0.00E+00	0.00E+00	
Beryllium	7440-41-7			0.00E+00	0.00E+00	
Cadmium	7440-43-9			0.00E+00	0.00E+00	
Chromium	7440-47-3			0.00E+00	0.00E+00	
Cobalt	7440-48-4			0.00E+00	0.00E+00	
Copper	7440-50-8			0.00E+00	0.00E+00	
Manganese	7439-96-5			0.00E+00	0.00E+00	
Mercury	7439-97-6			0.00E+00	0.00E+00	
Molybdenum	7439-98-7			0.00E+00	0.00E+00	
Nickel	7440-02-0			0.00E+00	0.00E+00	
Selenium	7782-49-2			0.00E+00	0.00E+00	
Vanadium	7440-62-2			0.00E+00	0.00E+00	
Zinc	7440-66-6			0.00E+00	0.00E+00	
1,3-Butadiene	106-99-0		3.91E-05	7.04E-05	3.52E-06	
Acetaldehyde	75-07-0		7.67E-04	1.38E-03	6.90E-05	
Acrolein	107-02-8		9.25E-05	1.67E-04	8.33E-06	
Ethylbenzene	100-41-4			0.00E+00	0.00E+00	
POM(PAH) (b)	—		1.68E-04	3.03E-04	1.51E-05	
Propylene Oxide	75-56-9			0.00E+00	0.00E+00	
Xylenes	1330-20-7		2.85E-04	5.13E-04	2.57E-05	
Propylene (Propene) (a)	115-07-1		2.58E-03	4.64E-03	2.32E-04	

Heat input: 1.8 MMBtu/hr
Hours of operation: 100 hours/year

n-Hexane

(a) - Not a MDE TAP or a CAA HAP
(b) - Sum of individual PAHs above.

All emission factors from AP-42 Table 3.3-2