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STATE OF DELAWARE

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL  
CONTROL

DIVISION OF AIR QUALITY

STATE STREET COMMONS

100 W. WATER STREET, SUITE 6A

DOVER, DELAWARE 19904

ENGINEERING &  
COMPLIANCE

PHONE  
(302) 739-9402

March 24, 2021

Calpine Mid-Atlantic Generation, LLC  
C/O HREC  
198 Hay Road  
Wilmington, DE 19809

Certified Mail # 7011 3500 0003 2400 4938  
Return Receipt Requested

ATTENTION: Eric Graber  
Plant Manager

SUBJECT: Draft/Proposed Title V (7 DE Admin Code 1130) Permits  
Christiana Energy Center  
Draft/Proposed Permit: AQM-003/00317(Renewal 4)(Revision 1)  
West Energy Center  
Draft/Proposed Permit: AQM-003/00006(Renewal 4)(Revision 1)  
Delaware City Energy Center  
Draft/Proposed Permit: AQM-003/00005(Renewal 4)(Revision 1)

Dear Mr. Graber:

The Department has completed processing Calpine Mid-Atlantic Generation, LLC's (Calpine's) AQM-1001 series significant permit modifications to incorporate the Regional Greenhouse Gas Initiative (RGGI) pursuant to 7 DE Admin. Code 1130. The Department has reviewed the submitted information and has prepared the attached "Draft/Proposed" significant permit modifications satisfying the requirements of 7 DE Admin. Code 1130.

The attached "Draft/Proposed" significant permit modifications specifies the terms and conditions, Conditions 2 through 6, under which Calpine will be permitted to operate the emission units listed in Condition 1. In addition to the emission units listed in Condition 1, Calpine will be permitted to operate all activities with air emissions that are not listed in Condition 1 and that are designated as insignificant activities under 7 DE Admin. Code 1130 or designated as trivial activities under Appendix "A" of the Department's summary of the July 10, 1995, EPA "White Paper for Streamlined Development of Part 70 Permit Applications," notwithstanding 7 DE Admin. Code 1102.

The attached "Draft/Proposed" significant permit modifications covers only the operating permit requirements of 7 DE Admin. Code 1102 and 1130. The attached "Draft/Proposed" significant permit modifications does not satisfy future construction permit obligations. Prior to initiating any construction or modification activity Calpine must evaluate the applicability of, and, if required, secure necessary construction permit(s) pursuant to 7 DE Admin. Code 1102 or 1125, and/or initiate necessary permit revision procedures pursuant to 7 DE Admin. Code 1102 and 1130.

Draft/Proposed Title V Significant Permit Modifications  
Calpine Mid-Atlantic Generation, LLC - Calpine- Christiana, West, and Delaware City Energy Centers  
March 24, 2021  
Page 2

The Department will public notice the "Draft/Proposed" significant permit modifications as required by 7 DE Admin. Code 1130, Section 7.10 in the Sunday News Journal and the Delaware State News on Sunday, March 28, 2021. The public comment period will be no less than thirty (30) days in accordance with 7 DE Admin. Code 1130, Section 7.10.2. The public comment period ends April 27, 2021. Any comments should be brought to the Department's attention on or before April 27, 2021 and mailed to the following address:

State of Delaware - DNREC  
State Street Commons  
100 West Water Street  
Suite 6A  
Dover, DE 19904

The Department requests that you mail the original and one (1) copy if you submit comments.

**The "Draft/Proposed" permit is being submitted to EPA for concurrent processing.** Please note that the EPA can comment during the 30 day public notice period and can approve or deny the permit during the entire 45 day EPA review period.

**If the Department receives significant comments on the "Draft/Proposed" renewal permit, comments will be evaluated, responses will be prepared, and the renewal permit will be revised as necessary. The permit will then be submitted to you and the EPA as "Proposed" as a standard consecutive forty-five (45) day review period.**

Any questions concerning the attached "Draft/Proposed" significant permit modifications may be directed to J. Adam Whapham or me at (302)323-4542.

Sincerely,



Angela D. Marconi, P.E.  
Program Manager  
Engineering & Compliance Branch

ADM:KAM:JAW  
F:\EngAndCompliance\JAW\JAW21038

pc: Dover File

State of Delaware  
Department of Natural Resources and Environmental Control  
Division of Air Quality  
State Street Commons  
100 W. Water Street, Suite 6A  
Dover, DE 19904

7 DE Admin. Code 1130 (Title V) Operating Permit  
Facility I.D. Number: 1000300006  
Draft/Proposed Permit: AQM-003/00006(Renewal 4)(Revision 1)

Effective Date: Date                      Expiration Date: January 31, 2023  
Renewal Application Due Date: January 31, 2022

Pursuant to 7 Del. C., Chapter 60, Section 6003, 7 DE Admin. Code 1102 Section 2.0, and 7 DE Admin. Code 1130 Section 7.2, approval by the Department of Natural Resources and Environmental Control ("**Department**") is hereby granted to operate the emission units listed in Condition 1 of this permit subject to the terms and conditions of this permit.

This approval is granted to:

Permittee/Owner (hereafter referred to as "Company/Owner")	Operator (hereafter referred to as "Operator")
Calpine Mid-Atlantic Generation, LLC 500 Delaware Avenue, Suite 600 Wilmington, DE 19801  Responsible Official: Eric Graber Title: General Manager	Calpine Corporation 500 Delaware Avenue, Suite 600 Wilmington, DE 19801
Plant Site Location (hereafter referred to as "Facility") WEST ENERGY CENTER	Plant Mailing Address WEST ENERGY CENTER
1508 Newport Gap Pike Wilmington DE 19808	198 Hay Road Wilmington, DE 19809

The nature of business of the Facility is electrical power generation. The Standard Industrial Classification code is 4911. The North American Industry Classification System (NAICS) code is 221112.

\_\_\_\_\_  
J. Adam Whapham / Date  
Engineer  
Engineering & Compliance Branch  
(302) 323-4542

\_\_\_\_\_  
Angela D. Marconi, P.E. / Date  
Program Manager  
Engineering & Compliance Branch  
(302) 323-4542

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**Condition 1- Emission Unit Identification**

[Reference: 7 DE Admin. Code 1130 Section 3.3 dated 11/15/93]

a. Emission Units Information.

Emission Units	Emission Unit Description
W10	Distillate fuel fired combustion turbine, rated at 264 mmBTU/hr, designated Unit No. 10
W101	211,000 gallon fixed roof tank storing distillate fuel oil

b. 7 DE Admin Code 1102 Permit Identification.

This table identifies the underlying permits whose provisions have been incorporated into this Title V permit and specifies the reference number that will be used to identify the source of the underlying permit condition throughout this Title V permit.

Reference Number	Full Regulation No. 1102 Permit Designation
APC-80/0379	APC-80/0379-OPERATION dated January 7, 1980 for a 19 megawatt (nominal) Turbo Jet Power Pac combustion turbine fired on No. 2 fuel oil.

**Condition 2 - General Requirements**

a. Certification.

- Each document submitted to the Department/EPA as required by this permit shall be certified by a Responsible Official as to truth, accuracy, and completeness. Such certification shall be signed by a Responsible Official and shall contain the following language: **"I certify, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete."** [Reference: 7 DE Admin. Code 1130 Section 5.6 dated 11/15/93 and 6.3.1 dated 12/11/00]
- Any report of deviations required under Conditions 3(c)(2)(ii) or 3(c)(2)(iii) that must be submitted to the Department within ten calendar days of discovery of the deviation, may be submitted in the first instance without a certification provided a certification meeting the requirements of Condition 2(a)(1) is submitted to the Department within ten calendar days thereafter, together with any corrected or supplemental information required concerning the deviation. [Reference: 7 DE Admin. Code 1130 Section 6.1.3.3.4 dated 12/11/00]
- Each document submitted to the Department/EPA pursuant to this permit shall be sent to the following addresses except as noted in Condition 2(a)(4):

State of Delaware – DNREC Division of Air Quality State Street Commons 100 W. Water Street, Suite 6A Dover, DE 19904 ATTN: Division Director	United States Environmental Protection Agency Office of Air Enforcement and Compliance Assurance (3AP20) 1650 Arch Street Philadelphia, PA 19103-2023
No. of Originals: <u>1</u> & No. of Copies: <u>1</u>	No. of Copies: <u>1</u>

- In lieu of submitting a physical copy of the Compliance Certification report specified in Condition 3(c)(3) of this permit to the EPA, the Owner and/or Operator may, and is encouraged to, submit

Condition 2- Specific Requirements (Cont.)

an electronic copy of the report to [R3\\_APD\\_Permits@epa.gov](mailto:R3_APD_Permits@epa.gov) as a PDF document. The signed **original** annual General Certification report must be submitted to the Department at the address in **Condition 2(a)(3)**.

b. Compliance.

1. The Owner and/or Operator shall comply with all terms and conditions of this permit. Any noncompliance with this permit constitutes a violation of the applicable requirements under the Clean Air Act, and/or 7 DE Admin. Code 1100, and is grounds for an enforcement action; for permit termination, revocation, and reissuance or modification; or for denial of a permit renewal. *[Reference: 7 DE Admin. Code 1130 Section 6.1.7.1 dated 12/11/00]*
2.
  - i. For applicable requirements with which the source is in compliance, the Owner and/or Operator shall continue to comply with such requirements. *[Reference: 7 DE Admin. Code 1130 Sections 5.4.8.3.1 dated 11/15/93 and 6.3.3 dated 12/11/00]*
  - ii. For applicable requirements that will become effective during the term of this permit, the Owner and/or Operator shall meet such requirements on a timely basis unless a more detailed schedule is expressly required by the applicable requirement. *[Reference: 7 DE Admin. Code 1130 Sections 5.4.8.3.2 dated 11/15/93 and 6.3.3 dated 12/11/00]*
3. Nothing in Condition 2(b)(1) of this permit shall be construed to preclude the Owner and/or Operator from making changes consistent with Condition 2(m)(3) [Minor Permit Modifications] or Condition 4(a) [Operational Flexibility]. *[Reference: 7 DE Admin. Code 1130 Sections 6.8 dated 12/11/00 and 7.5.1.5 dated 12/11/00]*
4. The fact that it would have been necessary to halt or reduce an activity in order to maintain compliance with the terms and conditions of this permit shall not constitute a defense for the Owner and/or Operator in any enforcement action. Nothing in this permit shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in assessing penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continuing operations. *[Reference: 7 DE Admin. Code 1130 Section 6.1.7.2 dated 12/11/00]*
5. The Owner and/or Operator may seek to establish that noncompliance with a technology-based emission limitation under this permit was due to an emergency or malfunction if both the record keeping requirements in Condition 3(b)(2)(iii) and the reporting requirements in Condition 3(c)(2)(ii)(A) are satisfied. *[Reference: 7 DE Admin. Code 1130 Section 6.7.2 dated 12/11/00]*
6.
  - i. In any enforcement proceeding, the Owner and/or Operator seeking to establish the occurrence of an emergency or malfunction has the burden of proof. *[Reference: 7 DE Admin. Code 1130 Section 6.7.4 dated 12/11/00]*
  - ii. The provisions of 7 DE Admin. Code 1130 pertaining to Emergency/Malfunctions as defined in Conditions Nos. 2(b)(5); 2(b)(6); 3(b)(2)(iii); and 3(c)(2)(ii)(A) of this permit are in addition to any emergency or malfunction provision contained in any applicable requirement. *[Reference: 7 DE Admin. Code 1130 Section 6.7.5 dated 12/11/00]*
7. Reserved.

Condition 2- Specific Requirements (Cont.)

8. If required, the schedule of compliance in Condition 5 of this permit is supplemental to and shall not sanction noncompliance with the applicable requirements upon which it is based. *[Reference: 7 DE Admin. Code 1130 Section 5.4.8.3.3 dated 11/15/93]*
  9. Nothing in this permit shall be interpreted to preclude the use of any credible evidence to demonstrate noncompliance with any term of this permit. *[Reference: 62 FR 8314 dated 2/24/97]*
  10. All terms and conditions of this permit are enforceable by the Department and by the U.S. **Environmental Protection Agency ("EPA") unless specifically designated as "State Enforceable Only"** *[Reference: 7 DE Admin. Code 1130 Section 6.2.1 dated 12/11/00]*
- c. Confidentiality. The Owner and/or Operator may make a claim of confidentiality for any information or records submitted to the Department. However, by submitting a permit application, the Owner and/or Operator waives any right to confidentiality as to the contents of its permit, and the permit contents will not be entitled to protection under 7 Del. C., Ch 60, § 6014. *[Reference: 7 DE Admin. Code 1130 Sections 5.1.4 dated 11/15/93, 6.1.3.3.5 dated 12/11/00, and 6.1.7.5 dated 12/11/00]*
1. Confidential information shall meet the requirements of 7 Del. C., Ch 60, § 6014, and 29 Del. C., Ch 100. *[Reference: 7 DE Admin. Code 1130 Section 5.1.4 dated 11/15/93]*
  2. If the Owner and/or Operator submits information to the Department under a claim of confidentiality, the Owner and/or Operator shall also submit a copy of such information directly to the EPA, if the Department requests that the Owner and/or Operator do so. *[Reference: 7 DE Admin. Code 1130 Section 5.1.4 dated 11/15/93]*
- d. Construction, Installation, or Alteration. The Owner and/or Operator shall not initiate construction, installation, or alteration of any equipment or facility or air contaminant control device which will emit or prevent the emission of an air contaminant prior to submitting an application to the Department under 7 DE Admin. Code 1102, and, when applicable, 7 DE Admin. Code No. 1125, and receiving approval of such application from the Department; except as exempted in 7 DE Admin. Code 1102 Section 2.2. *[Reference: 7 DE Admin. Code 1102 Section 2.1 dated 6/1/97 and 7 DE Admin. Code 1130 Section 7.2.3 dated 12/11/00]*
- e. Definitions/Abbreviations. Except as specifically provided for below, for the purposes of this permit, terms used herein shall have the same meaning accorded to them under the applicable requirements of the Clean Air Act and 7 DE Admin. Code 1100.
1. **"Act" means the Clean Air Act, as amended by the Clean Air Act Amendments of November 15, 1990, 42 U.S.C. 7401 et seq.** *[Reference: 7 DE Admin. Code 1130 Section 2 dated 11/15/93]*
  2. **"AP-42" means the Compilation Of Air Pollutant Emission Factors, Fifth Edition, AP-42, dated January 15, 1995, as amended with Supplements and Updates.**
  3. **"CFR" means Code of Federal Regulations.**
  4. **"Emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the sources, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under this permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the**

Condition 2- Specific Requirements (Cont.)

extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error. [Reference: 7 DE Admin. Code 1130 Section 6.7.1 dated 12/11/00]

5. **"Malfunction" means any sudden and unavoidable failure of air pollution control equipment or of a process to operate in a normal or usual manner, and that causes the source to exceed a technology-based emission limitation under this permit, due to unavoidable increases in emissions attributable to the malfunction. A malfunction shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.** [Reference: 7 DE Admin. Code 1130 Section 6.7.1 dated 12/11/00]
  6. **"Number 2 fuel oil" and "No. 2 fuel oil" means distillate oil.**
  7. **"Reg." and "Regulation" mean the regulations covered under 7 DE Admin. Code 1100.**
  8. **"Regulations Governing the Control of Air Pollution" means the codification of those regulations enacted by the Delaware Department of Natural Resources and Environmental Control, in accordance with 7 Del. C., Ch 60, § 6010.**
- f. Duty to Supplement.
1. Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the Owner and/or Operator shall promptly submit to the Department such supplementary facts or corrected information. [Reference: 7 DE Admin. Code 1130 Section 5.2 dated 11/15/93]
  2. The Owner and/or Operator shall promptly submit to the Department information as necessary to address any requirements that become applicable to the source after the date it filed a complete application but prior to the release of a corresponding draft permit. [Reference: 7 DE Admin. Code 1130 Section 5.2 dated 11/15/93]
  3. The Owner and/or Operator shall furnish to the Department, upon receipt of a written request and within a reasonable time specified by the Department:
    - i. Any information that the Department determines is reasonably necessary to evaluate or take final action on any permit application submitted in accordance with Condition 2(l) or 2(m) of this permit. The Owner and/or Operator may request an extension to the deadline the Department may impose on the response for such information. [Reference: 7 DE Admin. Code 1130 Section 5.1.2.3 dated 11/15/93]
    - ii. Any information that the Department requests to determine whether cause exists to modify, terminate, or revoke this permit, or to determine compliance with the terms and conditions of this permit. [Reference: 7 DE Admin. Code 1130 Section 6.1.7.5 dated 12/11/00]
    - iii. Copies of any records required to be kept by this permit. [Reference: 7 DE Admin. Code 1130 Section 6.1.7.5.7 dated 12/11/00]
- g. Emission Trading. No permit revision shall be required under any approved economic incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for in the permit. [Reference: 7 DE Admin. Code 1130 Section 6.1.9 dated 12/11/00]



Condition 2- Specific Requirements (Cont.)

- h. Fees. The Owner and/or Operator shall pay fees to the Department consistent with the fee schedule established by the Delaware General Assembly. *[Reference: 7 DE Admin. Code 1130 Section 6.1.8 dated 12/11/00 and Section 9.0 dated 11/15/93]*
- i. Inspection and Entry Requirements. Upon presentation of identification, the Owner and/or Operator shall allow authorized officials of the Department to perform the following:
1. **Enter upon the Owner and/or Operator's premises where a source is located or an emissions-related activity is conducted, or where records that must be kept under the terms and conditions of this permit are located.** *[Reference: 7 DE Admin. Code 1130 Section 6.3.2.1 dated 12/11/00]*
  2. Have access to and copy, at reasonable times, any records that must be kept under the terms and conditions of this permit. *[Reference: 7 DE Admin. Code 1130 Section 6.3.2.2 dated 12/11/00]*
  3. Inspect, at reasonable times and using reasonable safety practices, any facility, equipment (including monitoring and air pollution control equipment), practice, or operation regulated or required under this permit. *[Reference: 7 DE Admin. Code 1130 Section 6.3.2.3 dated 12/11/00]*
  4. Sample or monitor, at reasonable times, any substance or parameter for the purpose of assuring compliance with this permit or any applicable requirement. *[Reference: 7 DE Admin. Code 1130 Section 6.3.2.4 dated 12/11/00]*
- j. Permit and Application Consultation. The Owner and/or Operator is encouraged to consult with Department personnel before submitting an application or, at any other time, concerning the operation, construction, expansion, or modification of any installation, or concerning the required pollution control devices or system, the efficiency of such devices or system, or the pollution problem related to the installation. *[Reference: 7 DE Admin. Code 1130 Section 5.1.1.7 dated 11/15/93]*
- k. Permit Availability. The Owner and/or Operator shall have available at the facility at all times a copy of this permit and shall provide a copy of this permit to the Department upon request. *[Reference: 7 DE Admin. Code 1102 Section 8.1 dated 6/1/97]*
- l. Permit Renewal. This permit expires on January 31, 2023 except as provided in Condition 2(l)(4) below. *[Reference: 7 DE Admin. Code 1130 Section 6.1.2 dated 12/11/00]*
1. Applications for permit renewal shall be subject to the same procedural requirements, including those for public participation, affected state comment, and EPA review, that apply to initial permit issuance under 7 DE Admin. Code 1130 Section 7.1, except that an application for permit renewal may address only those portions of the permit that the Department determines require revision, supplementing, or deletion, incorporating the remaining permit terms by Reference: from the previous permit. The Department may similarly, in issuing a draft renewal permit or proposed renewal permit, specify only those portions that will be revised, supplemented, or deleted, incorporating the remaining permit terms by Reference. *[Reference: 7 DE Admin. Code 1130 Section 7.3.1 dated 12/11/00]*
  2. **The Owner and/or Operator's right to operate shall cease upon the expiration date unless a timely and complete renewal application has been submitted to the Department by January 31, 2022.** *[Reference: 7 DE Admin. Code 1130 Section 7.3.2 dated 12/11/00]*

Condition 2- Specific Requirements (Cont.)

3. The Department shall review each application for completeness and shall inform the applicant within 60 days of receipt if the application is incomplete. Unless the Department requests additional information or otherwise notifies the applicant of incompleteness within 60 days of an application, an application will be deemed complete if it contains the information required by the application form and 7 DE Admin. Code 1130 Section 5.4. *[Reference: 7 DE Admin. Code 1130 Section 5.1.2.1 dated 11/15/93]*
4. If a timely and complete application for a permit renewal is submitted to the Department pursuant to 7 DE Admin. Code 1130, Section 5.1.2.4 (dated 11/15/93) and Section 7.3.1 (dated 12/11/00) and the Department, through no fault of the Owner and/or Operator, fails to take final action to issue or deny the renewal permit before the end of the term of this permit, then this permit shall not expire until the renewal permit has been issued or denied, and any permit shield granted for the permit shall continue in effect during that time. *[Reference: 7 DE Admin. Code 1130 Section 7.3.3 dated 12/11/00]*

m. Permit Revision and Termination.

1.
  - i. This permit may be modified, revoked, reopened, and reissued, or terminated for cause. *[Reference: 7 DE Admin. Code 1130 Section 6.1.7.3 dated 12/11/00]*
  - ii. **Except as provided under Condition 2(m)(3) ["Minor Permit Modification"], the filing of a request by the Owner and/or Operator for a permit modification, revocation and reissuance, or termination, or of a modification of planned changes or anticipated noncompliance does not stay any term or condition of this permit.** *[Reference: 7 DE Admin. Code 1130 Section 6.1.7.3 dated 12/11/00 and 7.5.1.5 dated 12/11/00]*
2. **"Administrative Permit Amendment." When required, the Owner and/or Operator shall submit to the Department a request for an administrative permit amendment in accordance with 7 DE Admin. Code 1130 Section 7.4.** *[Reference: 7 DE Admin. Code 1130 Section 7.4 dated 12/11/00]*
3. **"Minor Permit Modification." When required, the Owner and/or Operator shall submit to the Department an application for a minor permit modification in accordance with 7 DE Admin. Code 1130 Section 7.5.1 and 7.5.2.** *[Reference: 7 DE Admin. Code 1130 Section 7.5.1 dated 12/11/00 and 7.5.2 dated 12/11/00]*
  - i. For a minor permit modification, during the period of time between the time the Owner and/or Operator makes the change or changes proposed in the minor permit modification application and the time that the Department takes action on the application, the Owner and/or Operator shall comply with both the applicable requirements governing the change and the proposed permit terms and conditions. During this period the Owner and/or Operator, at its own risk, need not comply with the existing terms and conditions of this permit that it seeks to modify. *[Reference: 7 DE Admin. Code 1130 Section 7.5.1.5 dated 12/11/00 and 7.5.2.5 dated 12/11/00]*
  - ii. If the Owner and/or Operator fail to comply with its proposed permit terms and conditions during this time period, the existing terms and conditions of this permit may be enforced against the Owner and/or Operator. *[Reference: 7 DE Admin. Code 1130 Section 7.5.1.5 dated 12/11/00 and 7.5.2.5 dated 12/11/00]*

Condition 2- Specific Requirements (Cont.)

4. **"Significant Permit Modification."** When required, the Owner and/or Operator shall submit to the Department an application for a significant permit modification in accordance with 7 DE Admin. Code 1130 Section 7.5.3. *[Reference: 7 DE Admin. Code 1130 Section 7.5.3 dated 12/11/00]*
5.
  - i. When the Owner and/or Operator is required to meet the requirements under Section 112(g) of the Act or to obtain a preconstruction permit under 7 DE Admin. Code 1100, the Owner and/or Operator shall file a complete application to revise this permit within 12 months of commencing operation of the construction or modification. *[Reference: 7 DE Admin. Code 1130 Section 5.1.1.4 dated 11/15/93]*
  - ii. When the Owner and/or Operator is required to obtain a preconstruction permit, the Owner and/or Operator may submit an application to revise this permit for concurrent processing. The revision request for this permit when submitted for concurrent processing shall be submitted **to the Department with the Owner and/or Operator's preconstruction review** application or at such later time as the Department may allow. Where this permit would prohibit such construction or change in operation, the Owner and/or Operator shall obtain a permit revision before commencing operation. *[Reference: 7 DE Admin. Code 1102 Sections 11.2.10, 11.5 and 12.4, dated 6/11/06, and 7 DE Admin. Code 1130 Section 5.1.1.4 dated 11/15/93]*
  - iii. Where an application is not submitted for concurrent processing, the Owner and/or Operator shall obtain an operating permit under 7 DE Admin. Code 1100 prior to commencing operation of the construction or modification to cover the period between the date operation is commenced and until such time as operation is approved under 7 DE Admin. Code 1130. *[Reference: 7 DE Admin. Code 1102 Section 2.1 dated 6/11/06]*
6. **"Permit Termination."** The Owner and/or Operator may at any time apply for termination of this permit in accordance with 7 DE Admin. Code 1130 Section 7.8.4 or Section 7.8.5. *[Reference: 7 DE Admin. Code 1130 Sections 7.8.4 dated 12/11/00 and 7.8.5 dated 12/11/00]*
- n. Permit Transfer.
  1. A change in ownership or operational control of this facility shall be treated as an administrative permit amendment where the Department has determined that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new owner has been submitted to the Department. *[Reference: 7 DE Admin. Code 1130 Section 7.4.1.4 dated 12/11/00]*
  2. In addition to any written agreement submitted by the Owner and/or Operator in accordance with Condition 2(n)(1), the Owner and/or Operator shall have on file at the Department a statement meeting the requirements of 7 Del. C., Ch 79, Section 7902. *This permit condition is state enforceable only. [Reference: 7 Del. C., Ch 79 Section 7902 dated 8/28/2007]*
  3. The written agreement required in Condition 2(n)(1) of this permit shall be provided to the Department within a minimum of 30 calendar days prior to the specific date for transfer and shall indicate that the transfer is agreeable to both the current and new owner. *[Reference: 7 DE Admin. Code 1102 Section 7.1 dated 6/1/97]*
- o. Property Rights. This permit does not convey any property rights of any sort, or any exclusive privilege. *[Reference: 7 DE Admin. Code 1130 Section 6.1.7.4 dated 12/11/00]*

Condition 2- Specific Requirements (Cont.)

p. Risk Management Plan Submissions.

1. In the event this stationary source, as defined in the State of Delaware 7 DE Admin. Code 1201 **"Accidental Release Prevention Regulation" Section 4.0, is subject to or becomes subject to** Section 5.0 of 7 DE Admin. Code 1201 (as amended March 11, 2006), the owner or operator **shall submit a risk management plan (RMP) to the Environmental Protection Agency's RMP Reporting Center** by the date specified in Section 5.10 and required revisions as specified in Section 5.190. A certification statement shall also be submitted as mandated by Section 5.185. *[Reference: 7 DE Admin. Code 1130 Section 6.1.4 dated 12/11/00, 7 DE Admin. Code 1201 as amended March 11, 2006 and Delaware: Approval of Accidental Release Prevention Program, Federal Register Vol. 6, No. 11 pages 30818-22 dated June 8, 2001]*
2. If this stationary source, as defined in 7 DE Admin. Code 1201 Section 4.0, is not subject to Section 5.0 but is subject or becomes subject to Section 6.0 (as amended March 11, 2006), the owner or operator shall submit a Delaware **RMP to the State of Delaware's Accidental Release Prevention group** by the date as specified in Section 6.6.10 and required revisions as specified by Section 6.6.1. *Note: State enforceable only. [Reference: 7 DE Admin. Code 1201 as amended March 11, 2006 ]*

q. Protection of Stratospheric Ozone.

When applicable, this Facility shall comply with the following requirements: *[Reference: 40 CFR Part 82 "Protection of Stratospheric Ozone" revised as of 7/1/97 and 7 DE Admin. Code 1130 Section 2.0 dated 11/15/93]*

1. The permittee shall comply with the standards for labeling of products using ozone-depleting substances pursuant to 40 CFR Part 82, Subpart E:
  - i. All containers in which a class I or class II substance is stored or transported, all products containing a class I substance, and all products directly manufactured with a process that uses a class I substance must bear the required warning statement if it is being introduced into interstate commerce pursuant to §82.106.
  - ii. The placement of the required warning statement must comply with the requirements pursuant to §82.108.
  - iii. The form of the label bearing the required warning statement must comply with the requirements pursuant to §82.110.
  - iv. No person may modify, remove, or interfere with the required warning statement except as described in §82.112.
2. Any person servicing, maintaining, or repairing appliances, except for motor vehicles, shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F, except as provided for Motor Vehicle Air Conditioners (MVACs) in Subpart B. In addition, Subpart F applies to refrigerant reclaimers, appliance owners, and manufacturers of appliances and recycling and recovery equipment.
  - i. Persons owning appliances for maintenance, service, repair, or disposal must comply with the prohibitions and required practices pursuant to §82.154 and §82.156.

Condition 2- Specific Requirements (Cont.)

- ii. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to §82.158.
  - iii. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to §82.161.
  - iv. Persons performing maintenance, service, repair, or disposal of appliances must certify with the Administrator pursuant to §82.158 and §82.162.
  - v. Persons disposing of small appliances, MVACs, and MVAC-like appliances must comply with **record keeping requirements pursuant to §82.166. ("MVAC-like appliance" as defined at §82.152)**
  - vi. Persons owning commercial or industrial process refrigeration equipment must comply with the leak repair requirements pursuant to §82.156.
3. Owners/Operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to 40 CFR Part 82, Subpart F §82.166.
  4. If the permittee manufactures, transforms, destroys, imports, or exports a class I or class II substance, the permittee is subject to all the requirements as specified in 40 CFR Part 82, **Subpart A, "Production and Consumption Controls"**.
  5. If the permittee performs a service on motor (fleet) vehicles when this service involves ozone-depleting substance refrigerant (or regulated substitute substance) in the MVAC, the permittee **is subject to all the applicable requirements as specified in 40 CFR Part 82, Subpart B, "Servicing of Motor Vehicle Air Conditioners"**.
    - i. **The term "motor vehicle" as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed. The term "MVAC" as used in Subpart B does not include the air-tight sealed refrigeration system used as refrigerated cargo, or system used on passenger buses using HCFC-22 refrigerant. These systems are regulated under 40 CFR Part 82, Subpart F.**
  6. The permittee shall be allowed to switch from any ozone-depleting substance to any alternative that is listed as acceptable in the Significant New Alternatives Program (SNAP) promulgated pursuant to 40 CFR Part 82, Subpart G, Significant New Alternatives Policy Program.
- r. Severability.  
The provisions of this permit are severable. If any part of this permit is held invalid, the application of such part to other persons or circumstances and the remainder of this permit shall not be affected thereby and shall remain valid and in effect. *[Reference: 7 DE Admin. Code 1130 Section 6.1.6 dated 12/11/00]*

Condition 3- Specific Requirements

- a. Emission Limitations Emission Standards, Operational Limitations, and Operational Standards. The Owner and/or Operator shall comply with the limitations and standards detailed in Condition 3 – Table 1 of this permit. *[Reference: 7 DE Admin. Code 1130 Section 6.1.1 dated 12/11/00]*

Condition 3- Specific Requirements (Cont.)

- b. Compliance Determination Methodology (Monitoring, Testing, OA/OC Procedures, and Record Keeping). The Owner and/or Operator shall maintain records of all required monitoring data and support information for a period of at least five years from the date of the monitoring sample, measurement, report, or application. Support information includes all original strip-chart recordings, where appropriate, for continuous monitoring instrumentation, and copies of all reports required by the permit. Where appropriate, the permit may specify that records may be maintained in computerized form. *[Reference: 7 DE Admin. Code 1130 Section 6.1.3.2.2 dated 12/11/00]*
1.
    - i. Specific Requirements. The Owner and/or Operator shall comply with the operational limitations, monitoring, testing, and record keeping requirements detailed in Condition 3 – Table 1 which are in addition to those in Conditions 3(b)(1)(ii) and 3(b)(2) of this permit. *[Reference: 7 DE Admin. Code 1130 Sections 6.1.1 dated 12/11/00, 6.1.3.1 dated 12/11/00, and 6.1.10 dated 12/11/00]*
    - ii. General Testing Requirements. Upon written request of the Department, the Owner and/or **Operator shall, at the Owner and/or Operator's expense, sample the emissions of, or fuel** used by, an air contaminant emission source, maintain records, and submit reports to the Department on the results of such sampling. *[Reference: 7 DE Admin. Code 1117 Section 2.2 dated 7/17/84]*
  2. General Record Keeping Requirements. The Owner and/or Operator shall record, at a minimum, all of the following information:
    - i. If required, for each operating scenario identified in Condition 3 – Table 1 of this permit, a log that indicates the operating scenario under which each particular emission unit is operating. The Owner and/or Operator shall, contemporaneously with changing from one operating scenario to another, record in this log the time at which the operating scenario under which it is operating is changed. *[Reference: 7 DE Admin. Code 1130 Section 6.1.10 dated 12/11/00]*
    - ii. The following information to the extent specified in Condition 3 – Table 1 of this permit. *[Reference: 7 DE Admin. Code 1130 Section 6.1.3.2.1 dated 12/11/00]*
      - A. The date, place, and time of the sampling or measurements. *[Reference: 7 DE Admin. Code 1130 Section 6.1.3.2.1.1 dated 12/11/00]*
      - B. The dates analyses were performed. *[Reference: 7 DE Admin. Code 1130 Section 6.1.3.2.1.2 dated 12/11/00]*
      - C. The Owner and/or Operator or entity that performed the analyses. *[Reference: 7 DE Admin. Code 1130 Section 6.1.3.2.1.3 dated 12/11/00]*
      - D. The analytical techniques or methods used. *[Reference: 7 DE Admin. Code 1130 Section 6.1.3.2.1.4 dated 12/11/00]*
      - E. The results of such analyses. *[Reference: 7 DE Admin. Code 1130 Section 6.1.3.2.1.5 dated 12/11/00]*

Condition 3- Specific Requirements (Cont.)

- F. The operating conditions as existing at the time of sampling or measurement. *[Reference: 7 DE Admin. Code 1130 Section 6.1.3.2.1.6 dated 12/11/00]*
- iii. If the Owner and/or Operator is claiming the affirmative defense of emergency or malfunction as provided in Condition 2(b)(5); a properly signed, contemporaneous operating logs, or other relevant evidence which indicates that: *[Reference: 7 DE Admin. Code 1130 Section 6.7.3 dated 12/11/00]*
- A. An emergency or malfunction occurred and the causes of the emergency or malfunction. *[Reference: 7 DE Admin. Code 1130 Section 6.7.3.1 dated 12/11/00]*
- B. The facility was at the time of the emergency or malfunction being operating in a prudent and professional manner and in compliance with the generally accepted industry operations and maintenance procedures. *[Reference: 7 DE Admin. Code 1130 Section 6.7.3.2 dated 12/11/00]*
- C. During the period of the emergency or malfunction the Owner and/or Operator took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements of this permit. *[Reference: 7 DE Admin. Code 1130 Section 6.7.3.3 dated 12/11/00]*
- iv. A copy of the written notice required by Condition 3(c)(2)(iii) for each change made under Condition 4(c) [Operational Flexibility] of this permit shall be maintained with a copy of this permit. *[Reference: 7 DE Admin. Code 1130 Section 6.8.1 dated 12/11/00]*
- c. Reporting and Compliance Certification Requirements.
1. Specific Reporting/Certification Requirements. The Owner and/or Operator shall comply with the Reporting/Certification Requirements detailed in Condition 3– Table 1 of this permit, which are in addition to those of Conditions 3(c)(2) and 3(c)(3) of this permit. Each report that contains any deviations from the terms of Condition 3– Table 1 shall identify the probable cause of the deviations and any corrective actions or preventative measures taken. *[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.3 dated 12/11/00, 6.1.3.3.3 dated 12/11/00, and 6.1.3.3.4 dated 12/11/00]*
2. General Reporting Requirements.
- i. The Owner and/or Operator shall submit to the Department a report of any required monitoring not later than the first day of August (covering the period from January 1 through June 30 of the current calendar year) and the first day of February (covering the period July 1 through December 31 of the previous calendar year) of each calendar year. Each report shall identify any deviations from the monitoring, record keeping, and reporting requirements under this permit; and the probable cause of the deviations; and any corrective actions or preventative measures taken. If no deviations have occurred, such shall be stated in the report. *[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.3.1 dated 12/11/00, 6.1.3.3.2 dated 12/11/00, and 6.1.3.3.3.4 dated 12/11/00]*
- ii. In addition to the semiannual monitoring reports required under Condition 3(c)(2)(i), the Owner and/or Operator shall submit to the Department supplemental written reports and/or notices identifying all deviations from permit conditions, probable cause of the deviations, and any corrective actions or preventative measures as follows: *[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.3.3.3 dated 12/11/00 and 6.1.3.3.3.4 dated 12/11/00]*

Condition 3- Specific Requirements (Cont.)

- A. If the Owner and/or Operator is claiming the affirmative defense of emergency or malfunction as provided in Condition 2(b)(5) of this permit, a notice of any deviation resulting from emergency or malfunction conditions shall be reported to the Department within two working days of the time when the technology-based emission limitations were exceeded. Such notice shall contain a description of the emergency or malfunction, any steps taken to mitigate emissions, and any corrective actions taken. *[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.3.3.1 dated 12/11/00 and 6.7.3.4 dated 12/11/00]*
- B. Emissions in excess of any permit condition or emissions which create a condition of air pollution shall be reported to the Department immediately upon discovery and after activating the appropriate site emergency plan, in the following manner: *[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.3.3.3 dated 12/11/00 and 6.1.3.3.3.2 dated 12/11/00]*
1. Emissions that pose an imminent and substantial danger to public health, safety or the **environment must be reported by calling the Department's Environmental Emergency Notification and Complaint number (800) 662-8802.** *[Reference: 7 DE Admin. Code No 1130, Section 6.1.3.3.3.2 dated 12/11/2000]*
  2. Emissions in excess of any permit condition or emissions which create a condition of air pollution but do not pose an imminent and substantial danger to public health, safety or the environment must either be called in to the Environmental Emergency Notification and Complaint number (800) 662-8802 or faxed to (302) 739-2466. The ability to fax notifications to the Department may be revoked by the Department upon written notice to the **Company and at the Department's sole discretion.** *[Reference: 7 DE Admin. Code No 1130, Section 6.1.3.3.3.2 dated 12/11/2000]*
- C. All emissions in excess of any permit condition or emissions which create a condition of air pollution shall be reported to the Department in a written report pursuant to Condition 3(c)(2)(1) and/or the specific reporting requirements listed in Condition 3 – Table 1 of this permit. *[Reference: 7 DE Admin. Code 1130 Sections 6.1.3.3.3.3 dated 12/11/00 and 6.1.3.3.3.4 dated 12/11/00]*
- D. Discharges to the atmosphere in excess of any quantity specified in the 7 DE Admin. Code 1203 ("Reporting of a Discharge of a Pollutant or an Air Contaminant") shall be reported, immediately upon discovery and after activating the appropriate site emergency plan, either in person or to the **Department's 24-hour Environmental Emergency Notification and Complaint line (1-800-662-8802).** Discharges in compliance with this permit and excess emissions previously reported under Condition 3(c)(2)(ii)(B) of this permit are exempt from this reporting requirement. *[Reference: 7 DE Admin. Code 1130 Section 6.1.3.3.3.5 dated 12/11/00 and 7 DE Admin. Code 1203]*
- iii. Prior to making a change as provided in Condition 4 [Operational Flexibility] of this permit the Owner and/or Operator shall give written notice to the Department and EPA at least seven calendar days before the change is to be made. *[Reference: 7 DE Admin. Code 1130 Section 6.8.1 dated 12/11/00]*
- A. The seven day period may be shortened or eliminated as necessary for a change that must be implemented more quickly to address unanticipated conditions posing a significant health, safety, or environmental hazard. *[Reference: 7 DE Admin. Code 1130 Section 6.8.1 dated 12/11/00]*



Condition 3- Specific Requirements (Cont.)

- B. If less than seven calendar days notice is provided because of a need to respond more quickly to such unanticipated conditions, the Owner and/or Operator shall provide notice to the Department and EPA as soon as possible after learning of the need to make the change, together with the reasons why advance notice could not be given. *[Reference: 7 DE Admin. Code 1130 Section 6.8.1 dated 12/11/00]*
- C. The written notice shall include all of the following information: *[Reference: 7 DE Admin. Code 1130 Section 6.8.1 dated 12/11/00]*
1. The identification of the affected emission units and a description of the change to be made.
  2. The date on which the change will occur.
  3. Any changes in emissions.
  4. Any permit terms and conditions that are affected, including any new applicable requirements.
- iv. The Owner and/or Operator shall submit to the Department an annual emissions statement in accordance with 7 DE Admin. Code 1117 Section 7.0 not later than April 30 of each year, or other date as established by the Department, unless an extension by the Department is granted. Such emissions statement shall cover the preceding calendar year. *[Reference: 7 DE Admin. Code 1117 Section 7.0 dated 1/11/93]*
- v. If required, the Owner and/or Operator shall submit to the Department a progress report for applicable requirements identified in Condition 5 – Table 1 of this permit. Such reports shall be submitted not later than the first day of August (covering the period from January 1 through June 30 of the current calendar year) and the first day of February (covering the period July 1 through December 31 of the previous calendar year) of each calendar year. Each progress report shall include the following: *[Reference: 7 DE Admin. Code 1130 Sections 5.4.8 dated 11/15/93 and 6.3.4 dated 12/11/00]*
- A. Dates for achieving the activities, milestones, or compliance required in the schedule of compliance, and dates when such activities, milestones or compliance *were achieved*. *[Reference: 7 DE Admin. Code 1130 Section 6.3.4.1 dated 12/11/00]*
  - B. An explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted. *[Reference: 7 DE Admin. Code 1130 Section 6.3.4.2 dated 12/11/00]*
- vi. Nothing herein shall relieve the Owner and/or Operator from any reporting requirements under federal, state, or local laws. *[Reference: 7 DE Admin. Code 1130 Section 6.1.3.3.3.5 dated 12/11/00]*
3. General Compliance Certification Requirements.
- i. Compliance with terms and conditions of this permit shall be certified to the Department not later than the first day of February of each year unless the terms or conditions in Condition 3– Table 1 of this permit require compliance certifications to be submitted more frequently. Such certification shall cover the previous calendar year and shall be submitted on

Condition 3- Specific Requirements (Cont.)

Form AQM-1001BB. The Compliance Certification shall include the following information:

*[Reference: 7 DE Admin. Code 1130 Section 6.3.5.1 dated 12/11/00]*

- A. The identification of each term or condition of the permit that is the basis of the certification. *[Reference: 7 DE Admin. Code 1130 Section 6.3.5.3.1 dated 12/11/00]*
- B. **The Owner and/or Operator's current compliance status, as shown by monitoring data** and other information reasonably available to the Owner and/or Operator. *[Reference: 7 DE Admin. Code 1130 Section 6.3.5.3.2 dated 12/11/00]*
- C. Such certification shall indicate whether compliance was continuous or intermittent during the covered period. *[Reference: 7 DE Admin. Code 1130 Section 6.3.5.3.3 dated 12/11/00]*
- D. The methods used for determining the compliance status of the Owner and/or Operator, currently and over the reporting period as required by the monitoring, record keeping, and reporting required under Condition 3. *[Reference: 7 DE Admin. Code 1130 Section 6.3.5.3.4 dated 12/11/00]*
- E. Such other facts as the Department may require to determine the compliance status of the source. *[Reference: 7 DE Admin. Code 1130 Section 6.3.5.3.5 dated 12/11/00]*
- ii. Each compliance certification shall be submitted to the Department and EPA and shall be certified in accordance with Condition 2(a) of this permit. *[Reference: 7 DE Admin. Code 1130 Section 6.3.5.4 dated 12/11/00]*
- iii. Any additional information possessed by the Owner and/or Operator that demonstrates non-compliance with any applicable requirement must also be used as the basis for compliance certifications. *[Reference: 62 FR 8314 dated 2/24/97]*

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
a. <u>Emission Unit W10 - Distillate fuel fired Turbine Unit</u>		
1. <u>Criteria Pollutants</u>		
<p>i. <u>Emission Standards</u></p> <p>A. The Company shall not cause or allow the emission of particulate matter in excess of 0.3 lb/mmBTU heat input, maximum 2-hour average. [Reference: 7 DE Admin Code 1104 Section 2.1 dated 1/11/17]</p> <p>B. The Company shall not cause or allow the emission of visible air contaminants and/or smoke from any emission unit, the shade or appearance which is greater than twenty percent (20%) opacity for an aggregate of more than three (3) minutes in any one (1) hour period or more than fifteen (15) minutes in any twenty-four (24) hour period. [Reference: 7 DE Admin Code 1114 Section 2.1 dated 11/11/13]</p> <p>C. The Company shall not offer for sale, sell, deliver, or purchase distillate fuel oil having sulfur content greater than 15 ppm by weight. [Reference: 7 DE Admin. Code 1108 Section 2.3.1 dated 7/11/13]</p> <p>D. The provisions of Condition 3 -Table 1(a)(1)(i)(B) do not apply to the start-up or shut down of equipment as defined below: [Reference: 7 DE Admin. Code 1114 Section 1.3 dated 11/11/13; 7 DE Admin. Code 1130 Section 6.1.1 dated 12/11/00]</p>	<p>v. <u>Compliance Methods</u>                  [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]</p> <p>A. Compliance with the standards and limitations will be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements.</p> <p>B. Compliance with Particulate emissions outlined by Condition 3-Table 1(a)(1)(i)(A) shall be calculated by using appropriate AP-42 emission factor when firing No. 2 oil.</p> <p>C. Compliance with visible emissions monitoring outlined by Condition 3-Table 1(a)(1)(i)(B) shall be demonstrated by proper operation and maintenance of the emission units , monitoring annual visible emissions, and record keeping.</p> <p>D. Compliance with start-up or shut down provisions will be based on record keeping requirements of this condition.</p> <p>E. Compliance with sulfur content in fuel outlined by Condition 3-Table 1(a)(1)(i)(C) shall be demonstrated by sampling and analysis of the distillate fuel oil using acceptable ASTM methods and fuel</p>	<p>x. <u>Reporting</u>                  That required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit. [Reference: 7 DE Admin Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00].</p> <p>xi. <u>Certification</u>                  That required by Condition 3(c)(3) of this permit. [Reference: 7 DE Admin Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</p>

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p>1. A "start-up" is defined as the time period from initiation of a start signal from the control system operator, through the ignition, speed ramp-up, synchronization of the turbine and the base load of the unit to produce power to the electric grid.</p> <p>2. A "shut down" is when the operator sends a stop signal, and the megawatt de-loading, flame off, and rotor coastdown process occur.</p> <p>3. Start-ups and shut downs of the combustion turbine shall last no longer than 20 minutes.</p> <p>ii. <u>Emission Limitations</u> None</p> <p>iii. <u>Operational Standard</u></p> <p>A. Each emission unit shall operate during the month of November to the end of March and shall operate less than five percent (5%) of its capacity factor from April 1 thru October 31. [Reference: 7 DE Admin. Code 1112, Section 4.6 dated 11/24/93]</p> <p>OR</p> <p>B. Each emission unit shall operate less than five percent (5%) of its capacity factor on an annual basis, except that</p>	<p>supplier certification and/or record keeping of this condition.</p> <p>F. <b>Compliance with unit's capacity factor</b> requirements outlined by Condition 3-Table 1(a)(1)(iii)(A) &amp; (B) shall be demonstrated by calculating capacity factor shown in Attachment A of this permit.</p> <p>vi. <u>Monitoring</u> The Company shall monitor the following: [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00].</p> <p>A. Type of fuel burned on the units.</p> <p>B. Actual operating hours.</p> <p>C. The amount of fuel combusted.</p> <p>D. The measured load for each unit and the capacity factors.</p> <p>E. Annual visible emissions.</p> <p>F. The occurrence and duration of any start-up, shut-down or malfunction of each unit.</p> <p>G. All maintenance performed on the units.</p> <p>vii. <u>Testing</u> In addition to that required by Condition 3(b)(1)(ii) and Condition 3-Table 1(a)(2)(vii) of this permit, the Company shall conduct the following: [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00; 7 DE Admin. Code 1117 Section 2 dated 7/17/84]</p>	

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p>three months following any calendar year during which the capacity factor is 5% or greater, the source shall be subject to the applicable provisions of Section 3 of 7 DE Admin. Code 1112, except the compliance date shall be two years after approval by the Department. <i>[Reference: 7 DE Admin. Code 1112, Section 4 dated 11/24/93]</i></p> <p>iv. <u>Operational Limitations</u>  <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]</i></p> <p>A. The combustion turbine shall be equipped with a generation meter used to measure the load on that unit and recorded in a log book or computer database.</p> <p>B. Distillate fuel oil shall be the only fuel fired in this unit.</p>	<p>A. When combustion turbine is in operation during the day light hours, conduct visual emissions observation at least once in each calendar year. As practicable, the visible emission observations for the previous and the current calendar years should not be conducted within 180 days. In accordance with Subsection 1.5.3 of 7 DE Admin. Code 1120, conduct visual emission observations at fifteen-second intervals for a period of not less than one hour except that the observations may be discontinued whenever a violation of the standard is recorded. The additional procedures, qualification and testing to be used for visually determining the opacity shall be those specified in Sections 2 and 3 (except for Section 2.5 and the second sentence of Section 2.4) of Reference Method 9 set forth in Appendix A, 40 CFR, Part 60, revised July 1, 2001. <i>[Reference: 7 DE Admin. Code 1120 Section 1.5.3 dated 12/7/88]</i></p> <p>B. The method used to determine the sulfur concentration in the distillate oil must be one of the following ASTM methods: D129-91, D1552-90, D2622-92, or D4294-90. <i>[Reference: 7 DE Admin. Code 1108 Section 2.4 dated 7/11/13 and DAWM Policy for Alternate Testing Methods dated 9/17/97]</i></p>	

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
	<p>viii. <u>Quality Assurance/Quality Control</u> None.</p> <p>ix. <u>Recordkeeping</u>                      In addition to the requirements of Conditions 3(b)(1)(ii) and 3(b)(2) of this permit, the Company shall maintain the following records for a period of 5 years and made these records available to the Department upon request:  <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.2 dated 12/11/00]</i></p> <ul style="list-style-type: none"> <li>A. Type of fuel burned on the combustion turbine.</li> <li>B. Actual operating hours of combustion unit.</li> <li>C. The monthly and rolling 12-month total amount of fuel combusted on each combustion unit.</li> <li>D. The occurrence and duration of any start-up, shut-down or malfunction of each unit.</li> <li>E. The measured load for each unit and the calculated capacity factors.</li> <li>F. Annual visible emissions monitoring.</li> <li>G. Fuel supplier certification for each fuel oil shipment received at the facility. Such certification shall indicate:                             <ul style="list-style-type: none"> <li>1. The name of the fuel supplier;</li> </ul> </li> </ul>	

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
	<p><u>2.</u> Date delivered;</p> <p><u>3.</u> Type of fuel;</p> <p><u>4.</u> Amount delivered;</p> <p><u>5.</u> The sulfur concentration of the fuel oil;</p> <p><u>6.</u> The method used to determine the sulfur concentration.</p> <p>H. All maintenance performed on combustion unit.</p>	
<p><u>2. 7 DE Admin Code 1148 requirements for Emission Unit W10 Distillate fuel fired Turbine Unit</u></p>		
<p>i. <u>Emission Standard</u>                      The facility must adhere to the department approved emissions control plans for unit W10. [Reference: 7 DE Admin. Code 1148, Sections 4.3.1 and 4.3.2 dated 7/11/07]</p> <p>ii. <u>Emission Limitation</u>                      NO<sub>x</sub> emissions shall not exceed 88 ppmv corrected to 15% O<sub>2</sub> dry basis during the following periods:</p> <p>A. Ozone season (May 1 through September 30). [Reference: 7 DE Admin. Code 1148, Section 4.1 dated 7/11/07]</p> <p>B. April 1 through April 30 and October 1 through October 31 (state enforceable only). [Reference: 7 DE Admin Code 1130, Section 6.1.1 dated 12/11/00]</p>	<p>v. <u>Compliance Method</u>                      Compliance shall be demonstrated in accordance with emissions controls plans (which includes the logic control system) outlined by Condition 3-Table 1 (a)(2)(ii), and through compliance with the monitoring, testing and recordkeeping of this section. [Reference: 7 DE Admin. Code 1130 Section 6.3.1; 7 DE Admin. Code 1148, Section 4.3.1 dated 7/11/07]</p> <p>vi. <u>Monitoring</u>                      The owner or operator shall monitor the following each hour when operating: [Reference: 7 DE Admin Code 1130, Section 6.1.1 dated 12/11/00]</p> <p>A. The desired water injection rate calculated from the equation in the facility's emission</p>	<p>x. <u>Reporting</u>                      In addition to that required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit, the Company shall: [Reference: 7 DE Admin Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00; 7 DE Admin Code 1117 Section 2.2 dated 7/17/84]</p> <p>A. Notify the Department prior to scheduling compliance stack sampling in order to schedule observation of the test, and a completed source sampling survey and test protocol shall be submitted to the Department at least 30 days prior to actual testing.</p> <p>B. Submit to the Department the final results of the testing within sixty (60) days of the test completion. The final results of the</p>

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p>iii. <u>Operational Standard</u> None.</p> <p>iv. <u>Operational Limitation</u></p> <p>A. Water shall be injected into the burner area at a rate necessary to achieve the NO<sub>x</sub> emission limitations outlined in Condition 3 - Table 1 (a)(2)(ii) of this condition during the following periods:</p> <ol style="list-style-type: none"> <li>1. Ozone season (May 1 through September 30) <i>[Reference: 7 DE Admin. Code 1148, Section 4.1 dated 7/11/07]</i></li> <li>2. April 1 through April 30 and October 1 through October 31 (state enforceable only) <i>[Reference: 7 DE Admin Code 1130, Section 6.1.1 dated 12/11/00]</i></li> </ol> <p>B. A logic control system that monitors and records operating information necessary to verify compliance with NO<sub>x</sub> emissions standards outlined by Condition 3-Table 1 (a)(2)(i) and to provide applicable alarms should operation issues be discovered shall be in operation whenever the water injection system is being used. <i>[Reference: 7 DE Admin Code 1130, Section 6.1.1 dated 12/11/00]</i></p> <p>C. Water shall be injected into the burners at a rate derived from the equation in</p>	<p>control plan dated September 30, 2020 and Appendix B.</p> <p>B. Actual water flow.</p> <p>C. Percent deviation of actual water flow versus desired water flow.</p> <p>D. Unit load in megawatts.</p> <p>E. Total hours of operations.</p> <p>vii. <u>Testing</u> In addition to that required by Condition 3(b)(1)(ii), the facility must conduct a stack test to demonstrate compliance with emission limitation outlined by Condition 3-Table 1(a)(2)(ii) on or before May 22, 2019 and subsequent performance testing should be conducted every 5 years thereafter. <i>[Reference: 7 DE Admin Code 1130 Section 6.1.3 dated 12/11/00; 7 DE Admin Code 1148 Section 5.1 dated 7/11/07]</i></p> <p>viii. <u>Quality Assurance/Quality Control</u> None.</p> <p>ix. <u>Recordkeeping</u></p> <p>A. The owner or operator shall record the following each month and maintain them for a minimum of five (5) years. <i>[Reference: 7 DE Admin. Code 1130 Section 6.3.1 &amp; 7 DE Admin. Code 1148, Section 4.3.1 dated 7/11/07]</i></p>	<p>testing shall be submitted to the Department within sixty (60) days of the test completion. One (1) original and two (2) copies of the test report shall be submitted to the addresses below:</p> <p><u>Original and One (1) Copy to:</u>                      Engineering &amp; Compliance Branch                      Attn: Permitting Engineer                      State Street Commons                      100 W. Water Street, Suite 6A                      Dover, DE 19904</p> <p><u>One (1) Copy to:</u>                      Engineering &amp; Compliance Branch                      Attn: Surveillance Engineer                      715 Grantham Lane                      New Castle, DE 19720</p> <ol style="list-style-type: none"> <li>1. The final report shall include the emissions test report (including raw data from the test) as well as a summary of the results and statement of compliance or non-compliance with permit conditions.</li> <li>2. The report shall be supplemented with a summary of results that includes the following information:                             <ol style="list-style-type: none"> <li>(a) A statement that the owner or operator has reviewed the report from the emissions testing firm and agrees with the findings.</li> </ol> </li> </ol>



Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p>appendix A and not exceed a deviation of 20% or greater. [Reference: 7 DE Admin Code 1130, Section 6.1.1 dated 12/11/00]</p> <p>D. The Company shall operate and maintain the water injection systems in accordance <b>with Calpine’s maintenance protocol as</b> submitted the Department on March 3, 2021 and in Appendix C. [Reference: 7 DE Admin Code 1130, Section 6.1.1 dated 12/11/00]</p>	<p><u>1.</u> Actual start-up and shutdown times.</p> <p><u>2.</u> Hours of operation on for the following periods:</p> <p>(a) Month;</p> <p>(b) Ozone season (May 1 through September 30);</p> <p>(c) April 1 through April 30 and October 1 through October 31 (state enforceable only);</p> <p>(d) And 12-month rolling.</p> <p><u>3.</u> The gross-electrical megawatt-hours generated.</p> <p><u>4.</u> The type of fuel and amount consumed.</p> <p><u>5.</u> The monitoring requirements of Condition 3-Table 1 (a)(2)(vi) and any period of noncompliance of Condition 3-Table 1 (a)(2)(iv).</p> <p>B. The owner or operator of a stationary combustion turbine electric generating unit subject to 7 DE Admin. Code 1148 shall maintain, for a period of at least five years, copies of all measurements, tests, reports, operating logs, and other information required by this regulation. This</p>	<p>(b) Permit numbers and conditions which are the basis for the compliance evaluation.</p> <p>(c) Summary of results with respect to each permit condition.</p> <p>(d) Statement of compliance or non-compliance with each permit condition.</p> <p>C. Submit to the Department an annual report no later than February 1 of the following year that includes: [Reference: 7 DE Admin. Code 1148, Section 5.6 dated 7/11/2007]</p> <p><u>1.</u> Actual start-up and shutdown times.</p> <p><u>2.</u> Hours of operation on for the following periods:</p> <p>a) Month;</p> <p>b) Ozone season (May 1 through September 30);</p> <p>c) April 1 through April 30 and October 1 through October 31 (state enforceable only);</p> <p>d) And 12-month rolling.</p> <p><u>3.</u> The gross-electrical megawatt-hours generated</p>

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
	information shall be provided to the Department upon request at any time. <i>[Reference: 7 DE Admin. Code 1148, Section 6 dated 7/11/07]</i>	<p><u>4.</u> The type of fuel and amount consumed.</p> <p><u>5.</u> The monitoring requirements of Condition 3-Table 1 (a)(2)(vi) and any period of noncompliance of Condition 3-Table 1 (a)(2)(iv).</p> <p>xi. <u>Certification</u>                      That required by Condition 3(c)(3) of this permit. <i>[Reference: 7 DE Admin Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p>
<p><b>b. <u>Emission Unit W 101 - 211,000 Gallon Distillate Fuel Oil Storage Tank</u></b></p>		
<p><b>1. <u>Standards</u></b></p>		
<p>i. <u>Emission Standard</u> None.</p> <p>ii. <u>Emission Limitation</u> None.</p> <p>iii. <u>Operational Standard</u> The Company shall store petroleum liquids in this fixed roof storage tank that have a maximum true vapor pressure less than 10.5 kPa (1.5 psia), provided that records are maintained consistent with Condition 3-Table 1(b)(1)(ix). <i>[Reference: 7 DE Admin. Code 1124, Sections 31.1.2.3 and 31.5 dated 11/29/94]</i></p> <p>iv. <u>Operational Limitation</u> None</p>	<p>v. <u>Compliance Method</u> Compliance shall be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3 and 6.3 dated 12/11/00]</i></p> <p>vi. <u>Monitoring</u> The Company shall monitor the type of petroleum liquid stored, the period of storage, and the maximum true vapor pressure of that liquid during the respective storage period. <i>[Reference: 7 DE Admin. Code 1124 Section 31.5.2 dated 11/29/94]</i></p> <p>vii. <u>Testing</u> That required by Condition 3(b)(1)(ii) of this permit.</p>	<p>x. <u>Reporting</u> That required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii) and 3(c)(2) of this permit. <i>[Reference : 7 DE Admin Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p> <p>xi. <u>Certification</u> That required by Condition 3(c)(3) of this permit. <i>[Reference: 7 DE Admin Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p>

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
	<p>viii. <u>Quality Assurance/Quality Control</u> None.</p> <p>ix. <u>Recordkeeping</u> In addition to the requirements of Conditions 3(b)(1)(ii) and 3(b)(2) of this permit the Company shall maintain the records of the following: <i>[Reference: 7 DE Admin. Code 1124, Sections 31.5.1 and 31.5 dated 11/29/94; 7 DE admin. Code 1130 Section 6.1.3.2 dated 12/11/00]</i></p> <p>A. Types of volatile petroleum liquids stored in this tank.</p> <p>B. The maximum true vapor pressure of the liquid as stored.</p> <p>C. Information on routine inspection and maintenance.</p>	
c. <u>Facility Wide</u>		
1. <u>Visible Emissions</u>		
<p>i. <u>Emission Standard</u> Visible emissions shall be no greater than 20% opacity for an aggregate of more than 3 minutes in any 1 hour period or more than 15 minutes in any 24 hour period. <i>[Reference: 7 DE Admin. Code 1114 Section 2.1 dated 11/11/13]</i></p> <p>ii. <u>Emission Limitation</u> None.</p>	<p>v. <u>Compliance Method</u> Compliance with the standards and limitations will be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements. <i>[Reference: 7 DE Admin. Code 1130 Section 6.3 dated 12/11/00]</i></p> <p>vi. <u>Monitoring</u> Except as required in Condition 3 - Table 1(c)(1)(i), there is no additional visible periodic monitoring requirement for this Facility</p>	<p>x. <u>Reporting</u> That required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit. <i>[Reference: 7 DE Admin Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p> <p>xi. <u>Certification</u> That required by Condition 3(c)(3) of this permit. <i>[Reference: 7 DE Admin Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p>

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
iii. <u>Operational Standard</u> None.  iv. <u>Operational Limitation</u> None.	providing the Company is in compliance with the operation/maintenance requirements of Condition 3 -Table 1(c)(2). <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]</i>  vii. <u>Testing</u> In addition to that required by Condition 3(b)(1)(ii) of this permit testing of visible emissions shall be completed as outlined by Condition 3-Table 1(a)(1)(vii)(A).  viii. <u>Quality Assurance/Quality Control</u> None.  ix. <u>Recordkeeping</u> In addition to the requirements of Conditions 3(b)(1)(ii) and 3(b)(2) of this permit, the Company shall maintain records of the information outlined by Condition 3 - Table 1(c)(1)(v) & (vi). <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]</i>	
<u>2. Operations/Maintenance</u>		
i. <u>Emission Standard</u> None.  ii. <u>Emission Limitation</u> None.  iii. <u>Operational Standard</u> A. All structural and mechanical components of the equipment covered by this permit shall be maintained in proper operating condition and such equipment shall be	v. <u>Compliance Method</u> Compliance with the operational standards of Condition 3 - Table 1(c)(2)(iii) shall be demonstrated by adherence to good engineering operations and work practices, and based upon record keeping for the proper operation and maintenance of the equipment covered by this permit. <i>[Reference: 7 DE Admin. Code 1130 Section 6.3.1 dated 12/11/00]</i>	x. <u>Reporting</u> That required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit. <i>[Reference: 7 DE Admin Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i>  xi. <u>Certification</u> That required by Condition 3(c)(3) of this permit. <i>[Reference: 7 DE Admin Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i>

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<p>operated at all times in a manner consistent with good air pollution control practice. [Reference: 7 DE Admin. Code 1101 Section 3 dated 2/1/81; 7 DE Admin. Code 1102 Section 11.6 dated 6/1/97]</p> <p>B. At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any applicable source including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Secretary which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. [Reference: 7 DE Admin. Code 1120 Section 1.5.5 dated 12/07/88, 40 CFR Part 60 Section 60.11(d)]</p> <p>iv. <u>Operational Limitation</u> None.</p>	<p>vi. <u>Monitoring</u> Each month, the Company shall monitor: [Reference: 7 DE Admin. Code 1130 Section 6.1.3 dated 12/11/00]</p> <p>A. If the structural and mechanical components of the equipment covered by this permit are maintained in proper operating condition.</p> <p>B. The occurrence and duration of any startup, shutdown, and malfunction in the operation.</p> <p>vii. <u>Testing</u> That required by Condition 3(b)(1)(ii) of this permit.</p> <p>viii. <u>Quality Assurance/Quality Control</u> None.</p> <p>ix. <u>Recordkeeping</u> In addition to the requirements of Condition 3(b)(1)(ii) and 3(b)(2) of this permit, the Company shall maintain records of the information monitored as per Condition 3 - Table 1(c)(2)(vi). [Reference: 7 DE Admin. Code 1130 Section 6.1.3.2 dated 12/11/00]</p>	

Condition 3 – Table 1: Specific Requirements (continued)

Emission Limitations, Emission Standards, Operational Limitations, and Operational Standards	Compliance Determination Methodology (Monitoring, Testing, QA/QC Procedures, and Record Keeping)	Reporting and Compliance Certification
<b>3. <u>Odors (State Enforceable Only)</u></b>		
<p>i. <u>Emission Standard</u>                      The Company shall not cause or allow the emission of an odorous air contaminant such as to cause a condition of air pollution. <i>[Reference: 7 DE Admin. Code 1119 Section 2 dated 2/1/81]</i></p> <p>ii. <u>Emission Limitation</u>                      None.</p> <p>iii. <u>Operational Standard</u>                      None.</p> <p>iv. <u>Operational Limitation</u>                      None.</p>	<p>v. <u>Compliance Method</u>                      Compliance with the standard will be demonstrated by adherence to the appropriate monitoring, testing, QA/QC, and recordkeeping requirements. <i>[Reference: 7 DE Admin. Code 1130 Sections 6.1.3 and 6.3.1 dated 12/11/00]</i></p> <p>vi. <u>Monitoring</u>                      None.</p> <p>vii. <u>Testing</u>                      That required by Condition 3(b)(1)(ii) of this permit.</p> <p>viii. <u>Quality Assurance/Quality Control</u>                      None.</p> <p>ix. <u>Recordkeeping</u>                      That required by Conditions 3(b)(1)(ii) and 3(b)(2) of this permit. <i>[Reference: 7 DE Admin. Code 1130 Section 6.1.3.2 dated 12/11/00]</i></p>	<p>x. <u>Reporting</u>                      That required by Conditions 2(a), 2(b)(9), 2(f)(3), 3(b)(1)(ii), and 3(c)(2) of this permit. <i>[Reference: 7 DE Admin Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p> <p>xi. <u>Certification</u>                      That required by Condition 3(c)(3) of this permit. <i>[Reference: 7 DE Admin Code 1130 Sections 6.1.3.2.3 and 6.2.1 dated 12/11/00]</i></p>

### Condition 4- Operational Flexibility

- a. In addition to the operational flexibility specifically provided in the terms and conditions detailed in Condition 3 – Table 1 of this permit, the Owner and/or Operator is authorized to make any changes within the facility which contravenes the terms and conditions of this permit without a permit revision if the change:
1. Is not a modification or otherwise prohibited under any provision of Title I of the Act or the State Implementation Plan (SIP); and *[Reference: 7 DE Admin. Code 1130 Section 6.8 dated 12/11/00]*
  2. Does not involve a change in any compliance schedule date; and *[Reference: 7 DE Admin. Code 1130 Section 6.8 dated 12/11/00]*
  3. Does not result in a level of emissions exceeding the emissions allowable under this permit, whether expressed herein as a rate of emissions or in terms of total emissions. *[Reference: 7 DE Admin. Code 1130 Section 6.8 dated 12/11/00]*
- b. Before making a change under the provisions of Condition 4(a) of this permit, the Owner and/or Operator shall provide advance written notice to the Department and to the EPA in accordance with Condition 3(c)(2)(iii) of this permit. *[Reference: 7 DE Admin. Code 1130 Section 6.8.1 dated 12/11/00]*
- c. The Owner and/or Operator shall keep records of any changes made under Condition 4 of this permit in accordance with Condition 3(b)(2)(iv) of this permit. *[Reference: 7 DE Admin. Code 1130 Section 6.8.1 dated 12/11/00]*

### Condition 5- Compliance Schedule

This permit does not contain a compliance schedule. *[Reference: 7 DE Admin. Code 1130 Section 6.3.3 dated 12/11/00]*

### Condition 6. Permit Shield.

- a. Permit Shield: Compliance with the terms and conditions of this permit shall constitute compliance with 7 Del. C. Ch 60 for the discharge of any air contaminant specifically identified in the permit application as of the day of permit issuance. However, nothing in this permit shield shall in any way limit or affect the following:
1. The provisions of section 303 (Emergency Orders) of the Act, including the authority of the Administrator under that section; or
  2. The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance; or
  3. The applicable requirements of the acid rain program consistent with section 408(a) of the Act; or
  4. The ability of EPA to obtain information from a source pursuant to section 114 of the Act. *[Reference: 7 DE Admin. Code 1130 Sections 6.6.4 dated 12/11/00]*
- b. The permit shield granted in Condition 6 of this permit shall not extend to any changes made pursuant to Condition 2(m)(3) [Minor Permit Modifications] or Condition 4 [Operational Flexibility] of this permit. *[Reference: 7 DE Admin. Code 1130 Sections 6.8.2, 7.5.1.6, and 7.5.2.6 dated 12/11/00]*

Attachment A  
Turbine Capacity Factor

The capacity factor (%) is calculated based on the following calculations:

$$CF\% = \frac{AvgL}{RF} \times 100$$

Where:

CF% = Capacity Factor Percentage

AvgL = Sum of the hourly load on the unit, in MW, from April 1 thru October 31 divided by 5136 hours (April 1 thru October 31)

RF = Rated capacity of the unit (in MW)

or

$$CF\% = \frac{AvgAL}{RF} \times 100$$

Where:

CF% = Capacity Factor Percentage

AvgAL = Sum of the hourly load on the unit, in MW, for the calendar year divided by the hours in that year

RF = Rated capacity of the unit (in MW)

Attachment B  
Desired Water Injection Rate

The desired water injection rate (gpm) is calculated based on the following equations

$$gpm = 0.05(TT7 - 800) - 0.5 + 0.08(90 - Tamb)$$

Where:

TT7 = Turbine exhaust temperature (°F)

Tamb = Ambient temperature (°F)



Attachment C  
 Water Injection Maintenance Protocol

**CALPINE**  
**Northern Peaking Units**  
**Christiana EC, Delaware City EC, West EC**  
**Water Injection System Maintenance Protocol**

Permit ID: Christiana EC AQM-003/0317  
 Delaware City EC AQM-003/00005  
 West EC AQM 003/00006

PM	PM Title	System	Location	Estimated Next Due	Earliest Next Due	Plant Condition	Status	Site	Frequency
115772	West sub cooling water and water injection system inspections and Demin tank rental <i>Delaware City</i>	CTG	WS-10				ACTIVE	HR	Semi Annual
115773	(DC 10) cooling water and water injection system inspections and Demin tank rental <i>Christiana</i>	CTG	DC-10				ACTIVE	HR	Semi Annual
33721	(CH 11 & 14) cooling water and water injection system inspections and Demin tank rental <i>Christiana</i>	CTG	CH-14				ACTIVE	HR	Semi Annual

  

Description		Long descriptions of PM tasks	
115772	This PM is performed on a semiannual basis. We perform in the Spring to inspect systems and set up Demin water tanks for summer runs. Will perform inspections in the fall to remove Demin rental tanks, drain systems and set up for winter availability	Perform System Inspections: All inspections to be performed on a semi annual basis. We would perform the inspections in the spring to verify operation of the below systems and set up our Demin tank rentals for summer run. Another inspection would be performed in the fall to inspect all systems, drain water and winterize, as well as removal of Demin tanks.	
115773	This PM is performed on a semiannual basis. We perform in the Spring to inspect systems and set up Demin water tanks for summer runs. Will perform inspections in the fall to remove Demin rental tanks, drain systems and set up for winter availability	1) Perform cooling water system inspection. 2) Perform exhaust plenum inspections as needed. Will need unit in an outage to perform this work. 3) Perform inlet plenum inspection. Will need unit in outage to perform this work as well. 4) Perform evaporative cooler and inlet filter system inspections. 5) Perform Nox water Injection nozzle inspections. 6) Clean and inspect NOx water strainer. 7) Set up and or take down of rental demin water tanks.	
33721	This PM is performed on a semiannual basis. We perform in the Spring to inspect systems and set up Demin water tanks for summer runs. Will perform inspections in the fall to remove Demin rental tanks, drain systems and set up for winter availability		

Prepared: 02/2021

Attachment D  
Revision History

<u>Date</u>	<u>Revision Type</u>	<u>Description</u>	<u>Pages Revised</u>
1/25/99	N/A	Original Title V permit issued	-
1/25/03	Renewal	Title V-Renewal 1 issued	All
2/12/08	Renewal	Title V-Renewal 2 issued; incorporated conditions for H <sub>2</sub> O injection system to control seasonal NO <sub>x</sub> .	All
5/26/09	Administrative	Responsible Official (RO) change	1
3/22/10	Administrative	Responsible Official Change	1
7/01/10	Administrative	Change of company name and RO	1
7/22/10	Administrative	Department Address Change	1, 3
12/08/10	Administrative	Change of RO and account representative	1
1/01/13	Renewal	Renewal 3 issued	All
2/1/18	Renewal	TV Permit Renewal 4 Issued	All
DATE	Revision	Added requirements to meet the Reginal Haze.	Condition (1)(a)(2)

ADM:KAM:JAW

F:\EngAndCompliance\JAW\JAW21034

pc:     Dover Title V File  
        EPA Region III (Electronic copy)

MEMORANDUM

TO: Angela D. Marconi, P.E. *ADM*

THROUGH: Karen A. Mattio, P.E. *KAM*

FROM: J. Adam Whapham *Jaw*

SUBJECT: Calpine Mid-Atlantic Generation, LLC – Peaking Stations  
*Draft/Proposed* 7 DE Admin. Code 1130 Significant Permit Modification  
Center, West Energy Center  
Draft/Proposed Permit: AQM-003/00317(Renewal 4)(Revision 1)  
Christiana Energy  
Draft/Proposed Permit: AQM-003/00006(Renewal 4)(Revision 1)  
Delaware City Energy Center  
Draft/Proposed Permit: AQM-003/00005(Renewal 4)(Revision 1)

DATE: March 24, 2021

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BACKGROUND

As part of its Regional Haze SIP, Delaware has been considering emission reduction measures identified by Class I states as being necessary to make reasonable progress in any Class I area. Delaware is part of the Mid-Atlantic Northeast Visibility Union (MANE-VU), a regional planning organization in which member states work collaboratively to develop emission control strategies to address visibility impairment in Class I areas and meet MANE-VU's proposed six (6) emission management strategies to reach the 2028 reasonable progress goal for regional haze.

In April 2019, the Department requested additional information from Calpine Mid-Atlantic Generation, LLC (Calpine) on year-round NO<sub>x</sub> controls, among which included utilizing water injection outside the already required ozone season. Calpine agreed to extend the use of water injection beyond the ozone season but pointed out that using water injection year-round would not be feasible as the cold weather would cause the water to freeze, and insulating the system would not be cost-effective with the peaking stations rarely operating. In a letter dated July 23, 2020, from Calpine's Manager Environmental Health and Safety, James Klickovich, the Department's proposal to extend the use of water injection to include the months adjacent to the ozone season (April and October) was accepted.

In addition to the new water injection requirements, Calpine inquired about a few additional changes to the Christiana permit. First, they asked to remove the capacity factor limit from the diesel startup engines. The condition could not be removed, however, as it exempted them from the requirements of 7 De Admin. Code 1112. A compromise was made, allowing Calpine to calculate the diesel engines' capacity factor using the horsepower and hours of operation instead of megawatts generated. The second change was to reduce the visible opacity reading time of the diesel engine's stacks. The current condition requires them to record the visible emission readings from the stacks for a one-hour period annually, but the engines are only used to start the turbines. Meaning they are only run for 6-7 minutes at a time. This request was accepted, and the appropriate changes were made to the permit.

MEMORANDUM

Calpine Mid-Atlantic Generation, LLC – Peaking Stations Christiana Energy Center, West Energy Center, and Delaware City Energy Center

Draft/Proposed Permit: AQM-003/00317(Renewal 4)(Revision 1)

Draft/Proposed Permit: AQM-003/00006(Renewal 4)(Revision 1)

Draft/Proposed Permit: AQM-003/00005(Renewal 4)(Revision 1)

March 24, 2021

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CORRESPONDENCE CHRONOLOGY

Date/Correspondence	Subject
April 30, 2019 – Letter from the Department	The letter request information regarding year-round controls to reduce NOx.
June 14, 2019 – Letter from Calpine's Plant Manager Eric Graber.	Calpine submitted a letter in response to the Department's request for information.
June 26, 2020 – Letter from the Department	The Department requested more information on the water injection system to understand better how it could be used outside the ozone season.
July 23, 2020 – Letter from Calpine's Manager Environmental Health and Safety, James Klickovich	Calpine's response to the Department's June 26, 2020 letter accepting to voluntarily operate water injection during the months adjacent to the ozone season ( April and October).
December 8, 2020 – Email from the Department's Adam Whapham	The Department sent draft permit language for the Facility to review.
December 23, 2020 – Email from Calpine's Environmental Manager, Greg Pikul	Calpine submitted a document with comments on the draft permit conditions and requested modification to permit language for Christiana.
December 30, 2020 – Email from the Department January 1, 2021 – Email from Calpine	Emails from both the Department and Calpine discussing the proposed permit language.
February 10, 2021 – Email from the Department February 23, 2021 – Email from Calpine	The Department proposed using a maintenance protocol instead of the manufacturer's recommendations. And email from Calpine agreeing to the proposed language.
March 4, 2021 – Email from Calpine's Environmental Manager, Greg Pikul	Mr. Pikul submitted a maintenance protocol to be referenced in the permits.

EMISSION POINTS IDENTIFICATION AND INSIGNIFICANT ACTIVITIES

The following have been identified as emission points and insignificant activities units subject to the Title V operating program:

Christiana Energy Center	
Emission Unit	Description
CH11	Distillate fuel-fired combustion turbine, rated at 391 mmBTU/hr, designated Unit No. 11.
CH14	Distillate fuel-fired combustion turbine, rated at 391 mmBTU/hr, designated Unit No. 14.
Insignificant Activities	
CH101	845,000 gallon fixed roof tank storing distillate fuel oil.
CH102	Start-up diesel engine
CH103	Start-up diesel engine

MEMORANDUM

Calpine Mid-Atlantic Generation, LLC – Peaking Stations Christiana Energy Center, West Energy Center, and Delaware City Energy Center

Draft/Proposed Permit: AQM-003/00317(Renewal 4)(Revision 1)

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Draft/Proposed Permit: AQM-003/00005(Renewal 4)(Revision 1)

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West Energy Center	
Emission Unit	Description
W10	Distillate fuel-fired combustion turbine, rated at 264 mmBTU/hr, designated Unit No. 10.
Insignificant Activities	
W101	211,000 gallon fixed roof tank storing distillate fuel oil.

Delaware City Energy Center	
Emission Unit	Description
DC10	Distillate fuel-fired combustion turbine, rated at 270 mmBTU/hr, designated Unit No. 10.
Insignificant Activities	
DC101	424,316 Gallon fixed roof tank storing distillate fuel oil.

EXISTING 7 DE Admin. Code 1102 PERMITS

Christiana Energy Center Permit	
Reference Number	Designation
APC-1982/0774	<u>APC-82/0774-OPERATION(Amendment 2)</u> dated October 17, 1984 for a 29 megawatt (nominal) combustion turbine with 22.3 megawatts (MW) peak nameplate rating, designated Unit No. 11, fired on No. 2 fuel oil.
APC-1982/0775	<u>APC-82/0775-OPERATION(Amendment 2)</u> dated October 17, 1984 for a 29 MW (nominal) combustion turbine with 22.3 MW peak nameplate rating, designated Unit No. 14, fired on No. 2 fuel oil.
APC-2009/0074	CO <sub>2</sub> Budget Trading Program Permit: <u>APC-2009/0074-O(CO<sub>2</sub>)(Amendment 1)</u> , dated 7/31/2009, for a 29 MW (nominal) combustion turbine with 22.3 MW peak nameplate rating, designated Unit No. 11, fired on No. 2 fuel oil.
APC-2009/0075	CO <sub>2</sub> Budget Trading Program Permit: <u>APC-2009/0075-O(CO<sub>2</sub>)(Amendment 1)</u> , dated 7/31/2009, for a 29 MW (nominal) combustion turbine with 22.3 MW peak nameplate rating, designated Unit No. 14, fired on No. 2 fuel oil.

West Energy Center Permit	
Reference Number	Designation
APC-80/0379	<u>APC-80/0379-OPERATION</u> , dated January 7, 1980 for 19 MW (nominal) Turbo Jet Power Pac combustion turbine fired on No. 2 fuel oil.

Delaware City Energy Center Permit	
Reference Number	Designation
APC-82/0141	<u>APC-82/0141-OPERATION</u> , dated October 21, 1981, for 20.4 MW maximum peak output combustion turbine with 14 MW base load rating, fired on No. 2 fuel oil.

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TECHNICAL REVIEW

Each combustion turbine is typically operated for providing electricity to the power grid during peak demands. These peaks usually occur during the winter and summer months with extreme temperatures when more power is needed to maintain comfortable living conditions in the public homes. The peaking stations are unmanned and are operated remotely, but can be fully operational with base loading and produce power to the electric grid within 20 minutes.

Christiana: Emission Units CH11 & CH14

Emission Units CH11 & CH14 are stationary two-stage combustion turbines, fired solely on distillate fuel oil, constructed in June 1973. Each unit is rated at 391 MMBtu/hr [29 MW (nominal)]. The startup of these units are facilitated by two 500 HP diesel startup engines.

West: Emission Unit W10 (also identified as WS10)

Emission Unit W10 is a stationary two-stage combustion turbine, fired solely on distillate fuel oil, constructed in June 1964. This unit is rated at 264 MMBtu/hr [19 MW (nominal)]. The startup of this unit is facilitated by a pneumatic starter.

Delaware City: Emission Unit DC10

Emission Unit DC10 is a stationary two-stage combustion turbine, fired solely on distillate fuel oil, constructed in April 1968. This unit is rated at 270 MMBtu/hr [20.4 MW (nominal)]. The startup of this unit is facilitated by a pneumatic starter.

Potential-to-Emit (PTE)

The potential to emit is based on a 5% capacity factor (on an annual basis) for each combustion turbine and AP-42 Section 3.1. emission factors. As all sites can operate the full 5% capacity factor outside the months where water injection is required, their potential to emit has not changed from the renewal. The table below displays the PTE from each turbine:

Pollutant	Emission factor (lbs/MMBTU)	Potential-to-emit, tpy based on 5% capacity factor			
		Christiana 11	Christiana 14	Delaware City 10	West 10
NOx	8.80x10 <sup>-1</sup>	75.4	75.4	52.03	50.9
CO	3.30x10 <sup>-3</sup>	0.3	0.3	0.19	0.2
SO2	3.03x10 <sup>-1</sup>	25.9	25.9	17.91	17.5
VOC	4.10x10 <sup>-4</sup>	0.04	0.04	0.02	0.02
PM <sub>total</sub>	1.20x10 <sup>-2</sup>	1.0	1.0	0.71	0.7

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Operating Hours

The peaking units are used for peak electricity demands along with the occasional maintenance and testing requirement. The operating hours for each turbine for the past four years are provided below:

Facility	Unit #	2017 Hours	2018 Hours*	2019 Hours	2020 Hours
Christiana Energy Center	11	5.75	30.37	8.97	2.39
Christiana Energy Center	14	5.33	36.92	8.00	1.43
West Energy Center	10	9.00	6.00	11.00	4.47
Delaware City Energy Center	10	3.00	47.00	6.00	2.72

\* Polar Vortex

Changes to Permits

Changes to all Permits							
Condition Number	Original Condition	New Condition	Comment				
(a)(2)(ii)	<p>Beginning <u>May 1, 2009</u>, no existing stationary combustion turbine electric generating unit subject to 7 DE Admin. Code 1148 shall exceed the NO<sub>x</sub> emissions limitations shown in Table I of this regulation during the ozone season, inclusive of any year:</p> <table border="1"> <thead> <tr> <th><u>Fuel type</u></th> <th><u>NO<sub>x</sub> emissions limits (ppmv*)</u></th> </tr> </thead> <tbody> <tr> <td>Liquid Fuel</td> <td>88</td> </tr> </tbody> </table> <p>*ppmv is defined as parts per million by volume, corrected to 15% O<sub>2</sub> dry basis. [Reference: 7 DE Admin. Code 1148, Section 4.1 dated 7/11/2007]</p>	<u>Fuel type</u>	<u>NO<sub>x</sub> emissions limits (ppmv*)</u>	Liquid Fuel	88	<p>NO<sub>x</sub> emissions shall not exceed 88 ppmv corrected to 15% O<sub>2</sub> dry basis during the following periods:</p> <p>A. Ozone season (May 1 through September 30) [Reference: 7 DE Admin. Code 1148, Section 4.1 dated 7/11/070]</p> <p>B. April 1 through April 30 and October 1 through October 31 (state enforceable only) [Reference: 7 DE Admin Code 1130, Section 6.1.1 dated 12/11/00]</p>	<p>This condition was changed to add the water injection requirement for April and October.</p>
<u>Fuel type</u>	<u>NO<sub>x</sub> emissions limits (ppmv*)</u>						
Liquid Fuel	88						
(a)(2)(iii)	N/A	<p>A. Water shall be injected into the burner area at a rate necessary to achieve the NO<sub>x</sub> emission limitations outlined in Condition 3 - Table 1 (a)(2)(ii) of this condition during the following periods:</p>	<p>Four conditions were added to implement more control over the water injection system and ensure it is operated properly.</p>				

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Changes to all Permits			
Condition Number	Original Condition	New Condition	Comment
		<p>1. Ozone season (May 1 through September 30)  <i>[Reference: 7 DE Admin. Code 1148, Section 4.1 dated 7/11/07]</i></p> <p>2. April 1 through April 30 and October 1 through October 31 (state enforceable only)  <i>[Reference: 7 DE Admin Code 1130, Section 6.1.1 dated 12/11/00]</i></p> <p>B. A logic control system that monitors and records operating information necessary to verify compliance with NO<sub>x</sub> emissions standards outlined by Condition 3-Table 1 (a)(2)(i) and to provide applicable alarms should operation issues be discovered shall be in operation whenever the water injection system is being used. <i>[Reference: 7 DE Admin Code 1130, Section 6.1.1 dated 12/11/00]</i></p> <p>C. Water shall be injected into the burners at a rate derived from the equation in appendix A and not exceed a deviation of 20% or greater. <i>[Reference: 7 DE Admin Code 1130, Section 6.1.1 dated 12/11/00]</i></p> <p>D. The Company shall operate and maintain the water injection systems in accordance with Calpine's maintenance protocol as</p>	



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Changes to all Permits			
Condition Number	Original Condition	New Condition	Comment
		submitted the Department on March 3, 2021. <i>Reference: 7 DE Admin Code 1130, Section 6.1.1 dated 12/11/00]</i>	
(a)(2)(v)	Compliance shall be demonstrated in accordance with emissions controls plans outlined by Condition 3-Table 1(a)(2)(i), proper operation and maintenance of the water injection system, and the stack testing requirement outlined by Condition 3-Table 1(a)(2)(vii). <i>[Reference: 7 DE Admin. Code 1130 Section 6.3.1; 7 DE Admin. Code 1148, Section 4.3.1 dated 7/11/2007]</i>	Compliance shall be demonstrated in accordance with emissions controls plans (which includes the logic control system) outlined by Condition 3-Table 1 (a)(2)(i), and through compliance with the monitoring, testing and recordkeeping of this section. <i>[Reference: 7 DE Admin. Code 1130 Section 6.3.1; 7 DE Admin. Code 1148, Section 4.3.1 dated 7/11/07]</i>	The condition was updated to meet compliance with the new emission and operating limits.
(a)(2)(vi)	N/A	The owner or operator shall monitor the following each hour when operating: <i>[Reference: 7 DE Admin Code 1130, Section 6.1.1 dated 12/11/00]</i>  A. The desired water injection rate calculated from the equation in the Facility's emission control plan dated September 30, 2020 and Appendix A.  B. Actual water flow.  C. Percent deviation of actual water flow versus desired water flow.  D. Unit load in megawatts.  E. Total hours of operations.	Added additional monitoring requirements for the water injection system.
(a)(2)(ix)	N/A	The owner or operator shall record the following each Month and maintain them for a minimum of five (5) years. <i>[Reference: 7 DE Admin. Code 1130 Section 6.3.1 &amp; 7 DE Admin.</i>	Added additional recordkeeping requirements for water injection.

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Changes to all Permits			
Condition Number	Original Condition	New Condition	Comment
		<p><i>Code 1148, Section 4.3.1 dated 7/11/07]</i></p> <ol style="list-style-type: none"> <li>1. Actual startup and shutdown times.</li> <li>2. Hours of operation on for the following periods:                             <ol style="list-style-type: none"> <li>(a) Monthly;</li> <li>(b) Ozone season (May 1 through September 30);</li> <li>(c) April 1 through April 30 and October 1 through October 31 (state enforceable only);</li> <li>(d) And 12-month rolling.</li> </ol> </li> <li>3. The gross-electrical megawatt-hours generated</li> <li>4. The type of fuel and amount consumed.</li> <li>5. The monitoring requirements of Condition 3-Table 1 (a)(2)(vi) and any period of noncompliance of Condition 3-Table 1 (a)(2)(iv).</li> </ol>	
(a)(2)(x)(C)		<p>Submit to the Department an annual report no later than February 1 of the following year that includes: <i>[Reference: 7 DE Admin. Code 1148, Section 5.6 dated 7/11/2007]</i></p> <ol style="list-style-type: none"> <li>1. Actual startup and shutdown times.</li> <li>2. Hours of operation on for the following periods:</li> </ol>	Added additional reporting requirements for water injection.

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Changes to all Permits			
Condition Number	Original Condition	New Condition	Comment
		(a) Monthly; (b) Ozone season (May 1 through September 30); (c) April 1 through April 30 and October 1 through October 31 (state enforceable only); (d) And 12-month rolling. 3. The gross-electrical megawatt-hours generated. 4. The type of fuel and amount consumed. 5. The monitoring requirements of Condition 3-Table 1 (a)(2)(vi) and any period of noncompliance of Condition 3-Table 1 (a)(2)(iv).	

Changes to Christiana Permit Only			
Condition Number	Original Condition	New Condition	Comment
(c)(1)(v)(D)	N/A	The Capacity Factor requirements as stated in Condition 3- Table 1(c)(1)(iii)(A) & (B) shall be demonstrated by the following equation: $CF = \frac{HP_A * Hr_A}{HP_P * Hr_P}$ Where: HP <sub>A</sub> = the actual horsepower, Hr <sub>A</sub> = the actual hours of operation, HP <sub>P</sub> = the potential horsepower,	This condition was added per request from the Company to calculate the capacity factor for the diesel startup engines by horsepower instead of megawatts.

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Changes to Christiana Permit Only			
Condition Number	Original Condition	New Condition	Comment
		Hr <sub>p</sub> = the potential hours of operation during the timeframe reviewed.	
(c)(1)(vii)(A)	In accordance with Subsection 1.5.3 of 7 DE Admin. Code 1120, conduct visual emission observations during the day light hours at fifteen-second intervals and as practicable, for a period of not less than one hour except that the observations may be discontinued whenever a violation of the standard is recorded. The visible emissions observation shall be conducted at least once in each calendar year. The additional procedures, qualification and testing to be used for visually determining the opacity shall be those specified in Sections 2 and 3 (except for Section 2.5 and the second sentence of Section 2.4) of Reference Method 9 set forth in Appendix A, 40 CFR, Part 60, revised July 1, 2001. [Reference: 7 DE Admin. Code 1120 Section 1.5.3 dated 12/7/1988]	In accordance with Subsection 1.5.3 of 7 DE Admin. Code 1120, conduct visual emission observations during the day light hours at fifteen-second intervals and as practicable, during startup, normal operation, and shutdown conditions except that the observations may be discontinued whenever a violation of the standard is recorded. The visible emissions observation shall be conducted at least once in each calendar year. The additional procedures, qualification and testing to be used for visually determining the opacity shall be those specified in Sections 2 and 3 (except for Section 2.5 and the second sentence of Section 2.4) of Reference Method 9 set forth in Appendix A, 40 CFR, Part 60, revised July 1, 2001. [Reference: 7 DE Admin. Code 1120 Section 1.5.3 dated 12/7/1988]	Change "from a period of not less than one hour" to "during startup, normal operation, and shutdown conditions" as the diesel startup engines do not run more than 15 minutes.

REGULATORY REVIEW/TECHNICAL REVIEW/COMPLIANCE METHODOLOGY

❖ <u>7 DE Admin. Code 1102: Permits</u>	
<u>Applicable Units:</u>	All
<u>Requirements</u>	<p>Section 2.1 states: "No person shall initiate construction, install, alter or initiate operation of any equipment or facility or air contaminant device which will emit or prevent the emission of an air contaminant prior to receiving approval of his application from the Department."</p> <p>On November 14, 1972, Calpine Christiana Energy Center submitted an application for the construction of two combustion turbines (each turbine unit is rated at 29 megawatts (nominal) with 22.3 megawatts (MW) peak nameplate rating), both fired on No. 2 fuel oil and turbine units were constructed and approved on July 2, 1973. The applicable amended operating Permits: <u>APC-82/0774-</u></p>

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	<p><u>OPERATION(Amendment 2)</u> for Unit 11 and <u>APC-82/0775-OPERATION(Amendment 2)</u> for Unit 14 at Calpine Christiana Energy Center were issued on October 17, 1984.</p> <p>Calpine West Energy Center was issued an operation Permit: <u>APC-80/0379-OPERATION</u> for 19 megawatts (nominal) Turbo Jet Power Pac combustion turbine and fired on No. 2 fuel oil on January 7, 1980. Calpine Delaware City Energy Center was issued an operation Permit: <u>APC-82/0141-OPERATION</u> for a 20.4 MW maximum peak output combustion turbine with 14 MW baseload rating and fired on No. 2 fuel oil on October 21, 1981.</p>
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<b>❖ <u>7 DE Admin. Code 1104: Particulate Emissions from Fuel Burning Equipment</u></b>	
Applicable Units:	All
Requirements	<p><u>Section 2.0</u> states – "No person shall cause or allow the emission of particulate matter in excess of 0.3 pounds per million BTU heat input, maximum two-hour average, from any fuel-burning equipment."</p> <p>Table 3.1-2 of AP-42 lists the emission factor for particulate matter measured as PM<sub>10</sub> to be 0.061 lb/MMBtu (Solids &amp; Condensate)</p>

<b>❖ <u>7 DE Admin. Code 1108: Sulfur Dioxide Emissions from Fuel Burning Equipment</u></b>	
Applicable Units:	All
Requirements	<p><u>Section 2.3</u> states – On and after July 1, 2016, no person shall offer for sale, sell, deliver, or purchase any fuel having a sulfur content greater than 15 ppm by weight.</p> <p>Compliance shall be demonstrated based upon fuel supplier certification supplied with the shipment that includes the sulfur content in No. 2 fuel oil. The recordkeeping requirement for fuel supplier certification is included in the attached permits.</p>

<b>❖ <u>7 DE Admin. Code 1112: Control of Nitrogen Oxides Emissions</u></b>	
Applicable Units:	All
Requirements	<p><u>Section 1.1</u> states – "Except, as provided in 4.0 of this regulation, the provisions of this regulation are applicable to major stationary sources of nitrogen oxides (NOx)."</p> <p>All three of Calpines Peaking stations are a major source of NOx with the potential to emit more then 25 tons per year in New Castle County, as shown in potential to emit table in the technical review information.</p> <p><u>Section 4.6</u> states – "Any fuel burning equipment, gas turbine, or internal combustion engine with an annual capacity factor of less than 5%, except that three months following any calendar year during which the capacity factor is 5% or greater, the source shall be subject to the applicable provision of 3.0 of this regulation, except the compliance date shall be two years after approval of the schedule by the Department."</p>

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	<p>These units are operated with a "capacity factor" of 5% or less from April 1 through October 31 or with a "capacity factor" of less than 5% on an annual basis, thereby qualifying for exemption from this regulation under Sections 4.6. Calpine will use the following equations to show the units operate less than 5% of their capacity.</p> <p><u>Turbines</u></p> $CF\% = (AvgL/RF) * 100$ <p>Where:</p> <p>CF% = Capacity Factor Percentage          AvgL = Sum of the hourly load on the unit, in MW, from April 1 thru October 31 divided by 5136 hours (April 1 thru October 31)          RF = Rated capacity of the unit</p> <p>or</p> $CF\% = (AvgL/RF) * 100$ <p>Where:</p> <p>CF% = Capacity Factor Percentage          AvgL = Sum of the hourly load on the unit, in MW, for the calendar year divided by the hours in that year          RF = Rated capacity of the unit</p> <p><u>Christiana's Start-up Diesel Engines</u></p> $CF\% = (HP_A * Hr_A) / (HP_P * Hr_P)$ <p>Where:</p> <p>HP<sub>A</sub> = the actual horsepower,          Hr<sub>A</sub> = the actual hours of operation,          HP<sub>P</sub> = the potential horsepower,          Hr<sub>P</sub> = the potential hours of operation during the timeframe reviewed.</p>
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❖ <u>7 DE Admin. Code 1114: Visible Emissions</u>	
Applicable Units:	All
Requirements	<p><u>Section 2.1</u> states – "Emissions of visible air contaminants and/or smoke shall not be greater than 20% opacity for an aggregate of more than 3-minutes in any 1-hour or more than 15-minutes in any 24-hour period."</p> <p>Calpine will comply with this section via the following:</p> <ol style="list-style-type: none"> <li>1. Maintain records of all maintenance performed on each emission unit;</li> </ol>

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	2. Monitor, as needed, in accordance with Section 4.0 of this regulation; and 3. Maintaining all observation records.
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❖ <u>7 DE Admin. Code 1119: Control of Odorous Air Contaminants</u>	
Applicable Units:	All
Requirements	<p><u>Section 2.1</u> states: "No person shall cause or allow the emission of an odorous air contaminant such as to cause a condition of air pollution."</p> <p>If appropriately operated, this source has no potential of emitting an odorous air contaminant, thereby causing or creating a condition of air pollution. Compliance will be demonstrated through recordkeeping showing the equipment is well maintained, on-site inspections, and a satisfactory review of complaint history by the Department.</p>

❖ <u>7 DE Admin. Code 1124: Control of Volatile Organic Compound Emissions</u>	
Applicable Units:	All
Requirements	<p><u>Section 31 - Petroleum Liquid Storage in Fixed Roof Tanks</u> <u>Section 31.1.2.3</u> states that this regulation does not apply, except for records consistent with 31.5.2, if the storage tank contains a petroleum liquid with a maximum true vapor pressure of less than 1.5 psi.</p> <p>The records required in paragraph 31.5.2 do not apply if the petroleum liquid stored is less than 1.0 psi. Distillate oil, having a true vapor pressure of 0.009 psi, is the only petroleum liquid stored in this tank; therefore, there is nothing required of the Facility to show compliance with this section 31 of 7 DE Admin Code 1124.</p>

❖ <u>7 DE Admin. Code 1125: New Source Review (NSR)</u>	
Applicable Units:	All
Requirements	NSR was established as a result of the 1970 Clean Air Act and applied to new sources constructed after June 1, 1975. Since these peaking units were constructed before June 1, 1975 and the units have not undergone any modification (except water injection system to reduce seasonal NOx) or re-construction, these units are not subject to this regulation.

❖ <u>7 DE Admin. Code 1148: Control of Stationary Combustion Turbine Electric Generating Unit</u>	
Applicable Units:	All
Requirements	<p><u>Section 4.1</u> states – "Beginning May 1, 2009, no existing stationary combustion turbine electric generating unit, operated on liquid fuel, subject to this regulation shall exceed the NOx emissions limitations of 88 ppmv during the ozone season inclusive of any year."</p> <p><u>Section 5.1</u> states - For existing stationary combustion turbine electric generating units with an ozone season capacity factor of 10% or less for each of the five calendar years preceding July 11, 2007, compliance emissions testing acceptable to the Department shall be conducted by the owner or operator in the calendar years representing successive five-year intervals from the calendar year in which the initial compliance test was conducted in accordance with 4.3.3 of this regulation.</p>

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	<p>The following table summarizes the NOx ppm results of recent stack test for each turbine unit that use distillate oil and water injection system to meet NOx emissions limitations</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Units</th> <th>Date tested</th> <th>Test Results NOx ppm</th> </tr> </thead> <tbody> <tr> <td>Christiana-Unit-CH11</td> <td>06/12/14</td> <td>66.6</td> </tr> <tr> <td>Christiana-Unit-CH14</td> <td>6/14/19</td> <td>51.9</td> </tr> <tr> <td>West-W10</td> <td>05/21-22/14</td> <td>57.34</td> </tr> <tr> <td>Delaware City-DC10</td> <td>05/20/14</td> <td>62.34</td> </tr> </tbody> </table>	Units	Date tested	Test Results NOx ppm	Christiana-Unit-CH11	06/12/14	66.6	Christiana-Unit-CH14	6/14/19	51.9	West-W10	05/21-22/14	57.34	Delaware City-DC10	05/20/14	62.34
Units	Date tested	Test Results NOx ppm														
Christiana-Unit-CH11	06/12/14	66.6														
Christiana-Unit-CH14	6/14/19	51.9														
West-W10	05/21-22/14	57.34														
Delaware City-DC10	05/20/14	62.34														

❖ <u>40 CFR, Part 60 - New Source Performance Standard (NSPS)</u>	
Applicable Units:	All
Requirements	Subparts D, Da, Db, & Dc apply to "fossil fuel-fired steam generating unit". Subpart GG applies to "stationary gas turbines" constructed after October 3, 1977. These units are combustion turbines fired only on low-sulfur distillate fuel oil. Since these combustion turbines were constructed before 1977 and have not undergone any modifications or re-construction, the NSPS is not applicable.

❖ <u>40 CFR part 63 Subpart ZZZZ-National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE)</u>	
Applicable Units:	Christiana Start-up Diesel Engines
Requirements	<p>The two diesel engines are non-emergency 2 stroke lean burn (2SLB) compression ignition (CI) black-start units.</p> <p>The units are being used for up to 44 hours in any given year. As per stationary RICE at area source, there are no emission and operational limitations for 2SLB black-start non-emergency <b>≤500 hp engine. The demonstration of Initial Compliance</b> as per §63.6630 is not applicable to these units.</p> <p>To show compliance with the work practice standards, Calpine Christiana is required to:</p> <ol style="list-style-type: none"> <li>1. Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes. Note that the limited usage units are listed under Insignificant Activities, and they do not have non-startup emission limitations in the permit.</li> <li>2. Change oil and filter every 500 hours of operation or annually, whichever comes first.</li> <li>3. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first.</li> <li>4. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.</li> </ol>



## MEMORANDUM

Calpine Mid-Atlantic Generation, LLC – Peaking Stations Christiana Energy Center, West Energy Center, and Delaware City Energy Center

Draft/Proposed Permit: AQM-003/00317(Renewal 4)(Revision 1)

Draft/Proposed Permit: AQM-003/00006(Renewal 4)(Revision 1)

Draft/Proposed Permit: AQM-003/00005(Renewal 4)(Revision 1)

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## FACILITY WIDE REQUIREMENTS

### 1990 CAAA, Section 112(r)

The Facility has indicated that they are not subject to the requirements of Section 112(r) and is not registered with the State of Delaware "Regulation for the Management of Extremely Hazardous Substances".

### 1990 CAAA, Title VI

The Facility has indicated that they do not have air conditioners and/or refrigeration equipment that use CFC, HCFC, or other ozone-depleting substances. Therefore, Title VI is not applicable.

### Compliance Schedule

All facilities are currently in compliance with applicable regulations. Compliance certifications are signed by responsible official Mr. Eric Graber in Form AQM-1001BB and in all Title V Permit Renewal Applications for Christiana Energy Center, Delaware City Energy Center and West Energy Center of Calpine Corporation.

### Permit Shield

Calpine requests that the previous permit and permit shield continue in effect in accordance with Section 6.6 of 7 DE Admin Code 1130, and the permit shield for all peaking units at Christiana, Delaware City, and West energy center will remain the same as originally requested in Condition 6 in attached draft Permits.

### Compliance Assurance Monitoring (CAM) Rule (40 CFR Part 64)

For an emission unit to be subject to 40 CFR Part 64 (the CAM Rule) an emission unit must meet the following three (3) criteria:

- 1) The unit must be subject to an emission limitation or standard for the applicable regulated air pollutant,
- 2) The unit must use a control device to achieve compliance with any such emission limitation or standard; and
- 3) The unit must have potential pre-control device emissions of the applicable regulated air pollutant greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source.

The first step in investigating the CAM rule was to determine which emission units have a control device. The second step was to determine the potential pre-control emissions for that emission unit. The final step was to determine if the control device was inherent process equipment. The emission units with a control device, the regulated pollutant controlled, the potential pre-control emissions, and the inherent process equipment determination are presented in the following table.

MEMORANDUM

Calpine Mid-Atlantic Generation, LLC – Peaking Stations Christiana Energy Center, West Energy Center, and Delaware City Energy Center

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CAM Applicability Determination

EU #	EU Name	Control Device	Pollutant	Applicable Requirement	Pre-Control Emissions	Inherent Process Equipment?	CAM Applicable?
CH11	Turbine	Water Injection	NOx	7 DE Admin Code 1148	75.4 TPY	Yes	No
CH14	Turbine	Water Injection	NOx	7 DE Admin Code 1148	75.4 TPY	Yes	No
DC10	Turbine	Water Injection	NOx	7 DE Admin Code 1148	52.0 TPY	Yes	No
W10	Turbine	Water Injection	NOx	7 DE Admin Code 1148	50.9 TPY	Yes	No

Applicable Monitoring and Reporting Requirements:

Compliance Assurance Monitoring (CAM: 40 CFR Part 64) does not apply to these facilities since, except for limited time usage of the water injection system to reduce seasonal NO<sub>x</sub>, the emission units (turbines) do not use control devices to achieve compliance.

The combustions turbines (CTs) are subject to monitoring requirements for the water injection control systems, and the Company is complying with presumptively acceptable monitoring and recordkeeping through continuous monitoring of water and fuel flows and conduct performance testing every five years as discussed in Section 4.1 for emission standard and Section 5.1 for monitoring and reporting requirements of 7 DE Admin Code 1148.

RECOMMENDATION

It is recommended that the attached "Draft/Proposed" Significant Permit Modifications be advertised for public and submitted by email to the EPA for review on March 28, 2021. The public has thirty (30) days to submit comments or request a public hearing. The EPA has forty-five (45) days to either approve or deny the "Draft/Proposed" Significant Permit Modifications.

ADM:KAM:JAW

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pc: Dover Title V File