

**STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION**



IN THE MATTER OF : *APPLICATION NOs.*
200900800, 200900801,
200900804, 200900805

CONNECTICUT MUNICIPAL ELECTRIC
ENERGY COOPERATIVE : *JULY 14, 2010*

PROPOSED FINAL DECISION

The Connecticut Municipal Electric Energy Cooperative (CMEEC/applicant) has applied to the Department of Environmental Protection (DEP/department) for permits to construct and operate four 2.5 megawatt (MW) peak generating diesel-fired generators at two locations in Norwich. Application numbers 200900800 and 200900801 apply to the two generators at the proposed facility at 145 Old Salem Road and numbers 200900804 and 200900805 apply to the two generators at the proposed facility at 57 Salem Turnpike. The department published its notice of tentative determination to approve the applications for the Old Salem Road location on September 17, 2009 and for the Salem Turnpike location on October 30, 2009. The department received petitions for hearings on the applications signed by at least twenty-five members of the public. At the start of the hearing process, it was decided to consolidate the applications into one hearing because the facilities are close in proximity and involve the use of the same equipment for peak electricity generation and pollution control.

Roberta Paro and Ernie Cohen (intervenors) each filed separate requests to intervene in the hearing process and were granted status as intervenors pursuant to Regs., Conn. State Agencies §22a-3a-6(k)(2). A hearing was held in Norwich on May 13, 2010 and the public was provided with an opportunity to comment on the record. The hearing was continued in Hartford on May 14, 2010 and the parties and intervenors presented witness testimony and evidence.¹

¹ The testimony and proceedings in this matter were recorded. No written transcript has been prepared. The audio recording of this hearing is on file with the Office of Adjudications and is the official record of this proceeding.

After the conclusion of the hearing, the applicant and DEP jointly submitted proposed findings of fact and conclusions of law for my consideration as part of this decision (Attachment 1) in response to the post-hearing directive issued on May 26, 2010.²

I have reviewed the record in this matter, including the documentary evidence, oral testimony, and the public comment. Following this review, I conclude that the applicant, through the presentation of substantial evidence, has demonstrated that the proposed activity, if conducted in accordance with the proposed draft permits, complies with the relevant statutory and regulatory requirements.

The intervenors presented evidence that: questioned the need for the proposed peak generating capacity given the availability of other methods to reduce the peak demand; calculated impacts from particulate matter; and discussed the overall health impacts from diesel particulate matter. Although the need for the peak generating capacity was outside the scope of the hearing, the applicant discussed its use of conservation, energy efficiency, and other demand-side management techniques, in addition to peak generation, to address the peak demand in a cost effective manner. Mr. Cohen's calculations of particulate matter impacts were not based on accepted methods required by current DEP guidance and regulations. These calculations and the general evidence presented on health impacts from diesel particulate matter failed to prove that the applications and proposed draft permits are inconsistent with the applicable statutory and regulatory standards.

The joint submission provided by DEP and the applicant is fully supported by the hearing record and provides the necessary factual findings and conclusions of law to support my conclusion. I adopt the proposed findings of fact and conclusions of law in Attachment 1 as part of this decision. The applicant has demonstrated that the construction and operation of the proposed facilities would comply with permit terms and conditions and would not adversely impact air quality. I therefore recommend issuance of the revised draft permits (Exhibit A to Attachment 1).



Kenneth M. Collette, Hearing Officer

² The intervenors were also allowed to submit a post-hearing memorandum, including proposed findings of fact and conclusions of law, but failed to do so.

SERVICE LIST

Proposed Final Decision

In the matter of **CT Municipal Electric Energy Cooperative**

Application Nos. 200900800, 200900801, 200900804, 200900805

PARTY

REPRESENTED BY

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STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

IN THE MATTER OF: : APPLICATION NOs. 200900800,
: 200900801, 200900804, 200900805
: :
CONNECTICUT MUNICIPAL ELECTRIC :
ENERGY COOPERATIVE :
: :
: :
June 11, 2010

JOINT SUBMISSION BY CMEEC AND THE DEP BUREAU OF AIR MANAGEMENT
OF PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

INTRODUCTION

Pursuant to § 22a-3a-6(x) of the Rules of Practice of the Connecticut Department of Environmental Protection (the "DEP"), the Applicant, Connecticut Municipal Electric Energy Cooperative ("CMEEC"), together with the DEP Bureau of Air Management, hereby respectfully submit this Proposed Findings of Fact and Conclusions of Law regarding the above-captioned matter. The proposed draft permits, submitted by the DEP Bureau of Air Management for the record as Exhibits DEP-OSR-25, DEP-OSR-26 and DEP-STpke-9, are acceptable to CMEEC and DEP and are attached hereto as **Exhibit A**.

The issues for adjudication in this matter were limited in scope to a determination of whether the activities proposed in the applications and as authorized by the proposed draft permits comply with the stated goals and requirements of Conn. Gen. Stat. 22a-174 and the applicable regulations, Conn. Agencies Regs. 22a-174-1 *et. seq.*

SUMMARY

CMEEC applied to the DEP Bureau of Air Management for New Source Review Permits (the "Permits") to construct and operate a number of distributed generation projects throughout its service area. This proceeding involves two separate projects: one located at 145 Old Salem Road in Norwich ("Salem Road West" or "OSR"); and the second located at 57 Salem Turnpike in Norwich ("Salem Road East" or "STpke") (the two projects are collectively referred to as "the Projects"). The projects have been consolidated for hearing, since they are similar in nature and

the issues for each project are the same. Two diesel generators will be located at each of the two separate sites. Each diesel generator will have a nominal output of approximately 2.5 megawatts (MW) (collectively the generators are referred to as “the Generators”). CMEEEC requested permits that would allow construction of two Cummins QSK78-G6 engines at each of the sites. APP-1(STpke), APP-2(OSR), DEP-OSR-1. The applications were designated by DEP as 200900800, 200900801, 200900804, 200900805. DEP-OSR-4, DEP-STpke-2d.

DEP issued a tentative determination to approve the applications for 145 Old Salem Road on September 15, 2009 (DEP-OSR-12) and for 57 Salem Turnpike on October 26, 2009 (DEP-STpke-5). DEP received a petition for a public hearing regarding the tentative determination for Old Salem Road on October 19, 2009 and for Salem Turnpike on November 27, 2009. Two individuals, Roberta Paro and Ernie Cohen, filed requests to be Intervenors. The Hearing Officer ruled that they be recognized as Intervenors as provided for in Conn. Agencies Regs. 22a-3a-6(k)(2). Status Conference Summary, Ruling on Requests for Intervenor Status and Notice of Hearing and Prehearing Schedule, March 26, 2010.

Because there were two separate Notices of Tentative Determination, one for each location of the generators, DEP received two hearing petitions. The hearing was scheduled to cover all four applications and both project sites. Status Conference Summary, Ruling on Requests for Intervenor Status and Notice of Hearing and Prehearing Schedule, March 26, 2010.

Site visits and a hearing were held on May 13, 2010 to receive public comment on the proposed permits for the Generators. An evidentiary hearing was held on May 14, 2010 to present legal arguments and offer evidence to support each parties' positions. CMEEEC, DEP, and the Intervenors presented testimony and evidence at that Hearing.

The issues for adjudication in this matter were limited in scope to a determination of whether the activities proposed in the applications and as authorized by the proposed draft permits comply with the stated goals and requirements of Conn. Gen. Stat. 22a-174 and the applicable regulations, Conn. Agencies Regs. 22a-174-1 *et. seq.*. Ruling on Objections to Post-Hearing Evidence and Post-hearing Directive, May 26, 2010.

FINDINGS OF FACT

1. The Applicant, CMEEEC, is a not-for-profit municipal joint action electric agency. CMEEEC provides and is responsible for procuring the power supply requirements, at wholesale, of six municipal electric department participants with retail service territories in Connecticut (five of whom are members of CMEEEC) as well as several other Connecticut customers' purchasing power at wholesale.¹ APP-15.

2. The construction and operation of the Generators are part of CMEEEC's "50 in 5" program. This program involves the proposed installation of approximately 50 megawatts ("MW"), in aggregate, of peaking power electric generating capacity in five Connecticut cities or towns, using small (2.5 MW, nominal capacity rating each) diesel engine generators sited at ten, separate, geographically dispersed locations. The purpose of the "50 in 5" project is to provide peak shaving capacity to more economically meet the needs of its member systems. APP-15.

3. The construction and operation of the Generators are part of CMEEEC's overall comprehensive load management program that includes conservation and load management, base load management, peak shaving and the evaluation and deployment of renewable energy sources. The units are installed, where possible, in locations with existing utility infrastructure. All of the units will be installed with both Selective Catalytic Reduction ("SCR") and Diesel Particulate Filters ("DPF") to significantly reduce emissions. These emission control devices will provide greater than a 90% reduction in nitrogen oxides (NO_x) emissions, and an 85% reduction in particulate matter (PM) emissions. APP-13, APP-15.

4. The sites for the Generators were chosen because there were able to accommodate the generators' electrical output, were located in existing utility infrastructure locations so as to have minimal disruption and were expected to pass review by permitting and regulatory entities. Other sites were considered for these projects but were determined to not be suitable. APP-15.

¹ Specifically, CMEEEC provides power supply service to members: the City of Norwich Public Utilities, the City of Groton Department of Utilities, the Borough of Jewett City Department of Public Utilities, South Norwalk Electric and Water, the Third Taxing District of the City of Norwalk Electric Department; and to a participant: the Town of Wallingford Department of Public Utilities – Electric Division; and to customers: the Bozrah Light & Power Company (owned by the City of Groton Department of Utilities) and the Mohegan Tribal Utility Authority.

5. CMEEC submitted the applications to obtain NSR permits for the Generators to DEP on March 17, 2009. APP-1(STpke), APP-2(OSR). The applications were deemed sufficient on April 29, 2009. DEP-STpke-2d, DEP-OSR-4. During the course of the technical review of the applications, several changes were made to the original applications. CMEEC submitted revised permit application materials including a revised Best Available Control Technology (BACT) analysis, replacement of supplemental application forms and additional information on control equipment on August 21, 2009 (DEP-OSR-6, DEP-STpke-2e, APP-1(STpke), APP-2(OSR)) and on September 4, 2009 (DEP-OSR-8).

6. Neither of the Projects is a major stationary source, nor is either Project an electric generating facility producing greater than 10 MW; therefore, CMEEC was not required to submit an Environmental Justice Public Participation Plan. Conn. Gen. Stat. 22a-20, DEP-OSR-1. However, prior to the submittal of the NSR applications to DEP, CMEEC, with Norwich Public Utilities (“NPU”) held meetings to inform the public of these projects at the Norwich Sewer Treatment Plant on December 4 and 5, 2009. APP-5, APP-15, Testimony of John Bilda. Notice of these meetings was published in the Norwich Bulletin and was mailed directly to abutting property owners and state and city of Norwich public officials. NPU also issued a press release regarding the open houses. Approximately, twenty five people attended these sessions at which a presentation was made about the Generators. APP-5.

7. A presentation was made, both in visual and written format, explaining the “50 in 5” program. Specifically, CMEEC explained how the Generators worked as an additional step in the overall energy saving and cost reduction program being advanced by CMEEC for the benefit of its member utilities. The presentation included materials on how the installation of these Generators will benefit the environment by displacing the use of older, less clean, peaking generation facilities, how they will employ state of the art SCR and DPF emission control equipment, as well as consume ultra low sulfur distillate (“ULSD”) fuel oil. CMEEC provided a chart and other materials discussing the costs of meeting peak energy usage currently, how addressing the peak energy usage reduces costs to electric energy users, and how reduction of peak energy usage is an additional alternative energy measure. APP-5.

8. In addition, CMEEC and NPU representatives met on numerous occasions with a variety of City of Norwich departments, and the City of Norwich Inlands Wetlands Commission

with respect to the siting of the electric generators at Salem Turnpike and Old Salem Road. Mr. John Bilda of NPU also met informally with the Intervenors and discussed the projects and alternative sites with them. Testimony of John Bilda. They discussed locating the engines at the Bean Hill Substation, but it was determined to be a flood plain that was not useable as a location for the generators. Testimony of John Bilda, APP-15. They also discussed placement of generators at the Norwich Landfill, but Mr. Cohen continued to object to this site, so evaluation of the site was terminated. Testimony of John Bilda, APP-15.

9. In connection with the proposed siting of the Generators, on March 18, 2009, CMEEC applied for a declaratory ruling from the Connecticut Siting Council that the siting of the generators on the Norwich property would not have a substantial adverse environmental effect and that, as a result, the Projects would not need Certificates of Environmental Compatibility and Public Need. In connection with its application, the Connecticut Siting Council held a noticed public hearing on the application on April 23, 2009 at the Connecticut Siting Council offices in New Britain. There was no opposition expressed at the Connecticut Siting Council hearing and on April 27, 2009, the Connecticut Siting Council issued a declaratory ruling finding that the Projects will not need a Certificate of Environmental Compatibility and Public Need as they would not have a substantial adverse environmental effect. APP-5, APP-6, APP-7, APP-15.

10. DEP issued a tentative determination to approve the applications for 145 Old Salem Road on September 15, 2009 (DEP-OSR-12) and for 57 Salem Turnpike on October 26, 2009 (DEP-STpke-5). Public notice of the tentative determination was published in the Norwich Bulletin on September 17, 2009 for Old Salem Road (DEP-OSR-14 and 14a) and on October 30, 2009 for Salem Turnpike (DEP-STpke-5). DEP received a petition for a public hearing regarding the tentative determination for Old Salem Road on October 19, 2009 and for Salem Turnpike on November 27, 2009.

11. A Notice of Public Hearing was published in the Norwich Bulletin on April 10, 2010 (DEP-OSR-20, DEP-OSR-24, DEP-OSR-24a) notifying the public that site visits and a hearing to receive public comment regarding the Generators was scheduled for May 13, 2010 with an evidentiary portion of the hearing scheduled for May 14, 2010. Notice of the Public Hearing was

also sent to the appropriate State Senator, State Representative and the Mayor. DEP-OSR-21, DEP-OSR-22, DEP-23.

12. Two individuals, Roberta Paro and Erwin Cohen, filed requests to be Intervenors. The Hearing Officer ruled that Ms. Paro and Mr. Cohen would be recognized as Intervenors as provided for in Conn. Agencies Regs. 22a-3a-6(k)(2). Status Conference Summary, Ruling on Requests for Intervenor Status and Notice of Hearing and Prehearing Schedule, March 26, 2010.

13. The site visits and hearing to receive public comment were held on May 13, 2010 and the evidentiary portion of the hearing was held on May 14, 2010.

14. At the evidentiary hearing, CMEEC and DEP presented testimony and exhibits in support of the issuance of the permits for the Generators by DEP.

15. At the evidentiary hearing, the Intervenors presented testimony and exhibits. The Hearing Officer admitted some of Mr. Cohen's exhibits (E. Cohen 1 through 6, 8, 22, 23, 24, and 25). The remainder of Mr. Cohen's exhibits and all of Ms. Paro's exhibits were not admitted but left marked for identification. The Hearing Officer further informed the Intervenors that they have the burden of arguing that the evidence presented is relevant in any post-hearing memorandum. Ruling on Objections to Post-Hearing Evidence and Post-Hearing Directive, May 26, 2010.

16. The Hearing Officer allowed the record to remain open for additional written comments from members of the public until May 20, 2010. No additional public comments were received. Ruling on Objections to Post-Hearing Evidence and Post-Hearing Directive, May 26, 2010.

Project Description

17. CMEEC applied to DEP for NSR permits to construct and operate two diesel generators at two separate sites in Norwich, Connecticut. One site is located at 57 Salem Turnpike and the other is located at 145 Old Salem Road. Each diesel generator will have an output of less than approximately 2.5 megawatts (MW). Although CMEEC had originally proposed the use of either Caterpillar 3516C or Cummins QSK78-G6 generator sets, CMEEC

chose the Cummins engines and requested Permits that would allow construction of two Cummins QSK78-G6 engines at each site. APP-1(STpke) and APP-2(OSR).

18. The engines at each site will be located inside separate enclosures on a concrete pad and will exhaust through a stack with a minimum height of 30 feet. APP-1(STpke), APP-2(OSR), DEP-STpke-9, DEP-OSR-25 and 26. The engines will fire ULSD fuel (0.0015% sulfur). Each engine will be equipped with a MIRATECH SCR system to reduce NO_x (nitrogen oxides) emissions by 90% and a MIRATECH DPF to reduce PM_{2.5} and PM₁₀ (PM less than or equal to 2.5 and 10 micrometers in diameter, respectively) emissions by 85%. DEP-STpke-9, DEP-OSR-25 and 26. The proposed permits will allow these engines to operate the equivalent of 1200 hours per year at full load (DEP-STpke-9, DEP-OSR-25 and 26), but it is anticipated that the units will typically operate less than 300 hours per year, usually just a few hours on any given day and used to reduce peak electrical loads. APP-15.

NEW SOURCE REVIEW APPLICATION

Statutory and Regulatory Background

19. As required by the federal Clean Air Act (CAA), the U.S. Environmental Protection Agency (EPA) has established national ambient air quality standards (NAAQS) that reflect the acceptable concentrations of specific pollutants that protect the public health and welfare. 42 USC § 7409. The NAAQS, which are based on annual and various other shorter term averaging intervals, have been established for six air pollutants known as "criteria pollutants." These are: sulfur dioxide (SO₂), PM less than or equal to ten microns in diameter (PM₁₀) and less than or equal to 2.5 microns in diameter (PM_{2.5}), nitrogen dioxide (NO₂), carbon monoxide (CO), ozone (O₃), and lead (Pb). 40 CFR § 50.4 - 50.13. Comparable and additional Connecticut ambient air quality standards (CAAQS) have also been established. R.C.S.A. § 22a-174-24. Connecticut has adopted regulations to require permits for stationary sources of these and other regulated air pollutants. R.C.S.A. § 22a-174-3a.

20. The CAA establishes a joint federal and state program to control air pollution and to protect the public health and welfare, including regulatory requirements to ensure that the ambient air quality as impacted by existing and new sources of pollution comply with the

NAAQS. Each state is required to designate air quality control regions² defined by EPA and may adopt a state implementation plan (SIP) that establishes criteria pollutant emissions limitations and procedures to implement, maintain, and enforce the NAAQS for those designated regions. 42 USC § 7410(a)(2)(A)-(L).

21. The NAAQS are implemented, in part, through two different programs. The first is a federal program to regulate air pollution in "attainment" or "unclassifiable" areas. 42 USC §§ 7470-7479. The purpose of this program is the "prevention of significant deterioration" (PSD) of air quality in attainment areas. The program also ensures that economic growth "will occur in a manner consistent with the preservation of existing clean air resources" 42 USC § 7470. The federal regulations that implement this program call for certain pre-construction permit requirements for new major stationary sources or modifications. 42 USC §§ 7470-7492. The program also establishes PSD increments, which represent the maximum allowable increase in the concentration of certain air pollutants above baseline concentrations established under the Clean Air Act. 40 CFR § 52.21; see R.C.S.A. §22a-174-3a(k), Table 3a(k)-2.

22. Under the PSD regulations, major new sources and modifications must determine and use the "best available control technology" (BACT)³ to minimize emissions of pollutants from a source that might otherwise exceed the applicable significance levels established by the PSD program. 42 USC § 7475(a)(4); 40 CFR § 51.21(j)(2); § 22a-174-3a(k). Applicants are also required to evaluate the impacts from the proposed source combined with other sources and existing background ambient air quality through air dispersion modeling. To show that the new source will not cause or contribute to any air quality violation, the total concentration of any

² Air quality control regions are designated as:
(i) non-attainment, any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant,
(ii) attainment, any area (other than an area identified in clause (i)) that meets the national primary or secondary ambient air quality standard for the pollutant, or
(iii) unclassifiable, any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant. 42 USC §7407(d)(1)(A).

³ BACT is defined as "an emission limitation ... based upon the maximum degree of reduction for each applicable air pollutant emitted from any proposed stationary source ... which the commissioner, on a case-by-case basis, determines is achievable in accordance with section 22a-174-3a of the Regulations of Connecticut State agencies. BACT may include, without limitation, the application of production processes, work practice standards or available methods, systems, and techniques, including fuel cleaning or treatment, the use of clean fuels, or innovative techniques for the control of such air pollutant." R.C.S.A. §22a-174-1(16).

pollutant must be in compliance with the NAAQS and applicable PSD increments. 40 CFR § 52.21(m).

23. States, such as Connecticut that have a federally-approved SIP, have the authority to implement the PSD program. Connecticut's PSD regulations apply to major new sources with potential emission rates greater than the significant emission rate thresholds set forth in Table 3a(k)-1. R.C.S.A. § 22a-174-3a(k). The regulations that implement the Connecticut SIP, however, not only require New Source Review ("NSR") permits for major PSD sources, but also require NSR permits for minor stationary sources. Under the Connecticut SIP, any new source with potential emissions of fifteen or more tons per year (TPY) of an individual air pollutant must apply for a NSR permit and conduct a BACT review for those pollutants with potential emissions in excess of 15 TPY. R.C.S.A. §§ 22a-174-3a(a)(1) and 3a(j).

24. The CAA also establishes a second program designed to bring non-attainment areas into compliance as soon as practicable. 42 USC §§7410, 7501-7515. Major new sources of non-attainment pollutants, such as the ozone precursors, NO_x and volatile organic compounds (VOCs), must control such pollutants using the Lowest Achievable Emission Rate (LAER).⁴ Such major stationary sources must also obtain certified emission reduction credits (ERCs) to offset the allowable emissions increase for each individual non-attainment air pollutant that exceeds major source thresholds. R.C.S.A. § 22a-174-3a(l)(4).

PSD/BACT Determinations

25. The Projects are considered minor sources not subject to the regulations governing PSD in §22a-174-3a(k) of the Regulations of Connecticut State Agencies ("RCSA"), Non-Attainment New Source Review ("NNSR") in RCSA §22a-174-3a(l), and Connecticut Title V operating permits in RCSA §22a-174-33. APP-1(STpke), APP-2(OSR), APP-13.

⁴ LAER means the more stringent rate of emissions for any source based on the following:
(A) The most stringent emissions limitation which is contained in the implementation plan of any State for such class or category of stationary source, unless the owner or operator of the proposed stationary source demonstrates that such limitations are not achievable; or
(B) The most stringent emissions limitation which is achieved in practice by such class or category of stationary sources...In no event shall the application of the term permit a proposed new...stationary source to emit any pollutant in excess of the amount allowable under an applicable new source standard of performance.
40 CFR §51.165a(1)(xiii); R.C.S.A. §22a-174-1

26. RCSA 22a-174-3a(j)(1)(C) requires the owner or operator of a stationary source to incorporate BACT for any individual air pollutant with potential emissions greater than or equal to 15 TPY.

27. The pollutants subject to BACT are NO_x and CO, because the uncontrolled potential emissions of those pollutants exceed 15 TPY. Each engine's uncontrolled potential emissions of VOCs, PM/PM₁₀/PM_{2.5}, and all other pollutants, are less than 15 TPY and therefore the regulations do not require BACT for those pollutants. Attachment G in Exhibit APP-1(STpke) and Attachment G in Exhibit APP-2(OSR)

28. As part of its BACT analysis, CMEEC reviewed several control technologies. For NO_x, CMEEC proposed to utilize SCR, which uses urea to produce ammonia that reacts with NO_x and converts it to atmospheric nitrogen ("N₂") and water vapor, with ULSD and good combustion practices as BACT for NO_x with an emission rate of 7.43 lb/h. DEP-STpke-1, DEP-STpke-3e, DEP-OSR-1, DEP-OSR-10c. The use of an SCR system on an internal combustion engine would be considered LAER technology, a more stringent review criteria than BACT, and therefore, was acceptable to DEP as BACT for the engines. DEP-OSR-1, DEP-OSR-10c, DEP-STpke-1, DEP-STpke-3e.

29. For CO, CMEEC proposed the use of good combustion practices and the use of ULSD as BACT with an emission rate of 6.51 lb/h at Full Standby (routine testing) and 2.54 lb/h at Full Continuous operation. Because an oxidation catalyst is another available technology to control CO emissions, which could theoretically result in greater emissions reductions, CMEEC was required to submit a cost benefit analysis comparing the control technologies. The analysis indicated that the cost of the additional CO removed with an oxidation catalyst would be greater than \$20,000 per ton of CO. DEP determined that, given the limited hours of operation of the generators and the high cost of the additional CO removed with an oxidation catalyst, the use of good combustion practices and ULSD was acceptable as BACT for CO. DEP-STpke-1, DEP-STpke-3e, DEP-OSR-1, DEP-10c.

30. Particulate matter (PM) is broken into size fractions with portions of less than or equal to 10 microns in diameter being designated as PM₁₀ and portions less than or equal to 2.5 microns in diameter being designated as PM_{2.5}. See, DEP-1 and APP-3. Although not

subject to BACT, the PM/PM₁₀/PM_{2.5} emissions will be minimized by the use of ULSD and then controlled using a DPF. APP-15.

Reasonably Available Control Technology (“RACT”) for NO_x

31. The Generators are not a major stationary source of NO_x since the potential NO_x emissions are less than fifty (50) TPY in a serious nonattainment area for ozone. Since the maximum emissions of the engines do not exceed 274 lb/day during any day from May 1 to September 30, the Engines are not subject to NO_x RACT. DEP-OSR-1, DEP-STpke-1, APP-1(STpke), APP-2(OSR). Conn. Agencies Regs. 22a-174-22(b)(1)(B)(ii).

New Source Performance Standards (NSPS)

32. The Generators must comply with the applicable requirements of the New Source Performance Standards (“NSPS”) of the Code of Federal Regulations of 40 CFR Part 60, Subpart IIII which imposes various fuel quality, emission limit, stack testing, parametric monitoring, recordkeeping, notification and reporting requirements on the operation of the Generators. The proposed emission limits in the draft permits will meet the limitations of this subpart. Monitoring, record keeping and reporting requirements of the proposed permits are at least as stringent as Subpart IIII. DEP-OSR-1, DEP-STpke-1, APP-13, APP-1(STpke), APP-2(OSR).

Hazardous Air Pollutants

33. The Generators are not a major source of federally-regulated hazardous air pollutants (HAPs), because they will not emit ten (10) TPY or more of any single HAP listed in Section 112(b) of the Clean Air Act, or twenty-five (25) TPY or more of any combination of HAPs. APP-1(STpke) and APP-2(OSR).

34. Maximum Allowable Stack Concentration (“MASC”) calculations for state-regulated HAPs regulated in R.C.S.A. § 22a-174-29 have been performed and compared to expected actual stack concentrations (“ASC”) of HAP emissions from the source. ASC is calculated using specific equations based on stack height, the distance to the property line and the average actual exhaust gas flow rate. Conn. Agencies Regs. 22a-174-29. This analysis was performed using the conditions in the draft permits and it demonstrated that the ASCs will be below the calculated

MASCs. APP-1(STpke), APP-2(OSR), DEP-STpke-1, DEP-OSR-1, DEP-STpke-3b, DEP-OSR-10, APP-17 (STpke), APP-19(OSR).

35. The engines must comply with the National Emission Standards for Hazardous Air Pollutants (“NESHAPS”) of 40 CFR 63 Subpart ZZZZ, which apply to reciprocating internal combustion engines (“RICE”) located at an area source of HAPs constructed after June 12, 2006. The Engines will comply with Subpart ZZZZ by complying with the applicable requirements of Subpart IIII [40 CFR 63.6590]. The visible emissions of each engine may not exceed 10% during any six-minute block average or 40% reduced to a one-minute block average; as measured by 40 CFR 60, Appendix A, Reference Method 9. DEP-STpke-1, DEP-OSR-1, APP-1(STpke), APP-2(OSR), APP-13.

Ambient Impact Analysis

36. In areas in attainment of the NAAQS for a given criteria pollutant, PSD review is required for a new source which emits a criteria pollutant at greater than a major stationary source threshold. Federally enforceable emission limits for the Facility for criteria pollutants do not exceed any applicable major stationary source threshold. As such, a PSD review was not required for these pollutants. DEP-STpke-1, DEP-OSR-1, APP-1(STpke), APP-2(OSR), APP-13.

37. Norwich is located in a serious ozone non-attainment area as defined in R.C.S.A. § 22a-174-1(98) . Non-attainment review is required for a new source that emits NO_x or VOCs at a rate greater than a major stationary source threshold. The federally enforceable emission rates for these criteria pollutants for the Generators do not exceed the applicable major stationary source thresholds of 50 tpy for NO_x and VOCs. As such, non-attainment review was not required for these pollutants. DEP-STpke-1, DEP-OSR-1, APP-1(STpke), APP-2(OSR), APP-13.

38. The Generators were subject to an Analysis of Ambient Air Impacts for SO₂, PM₁₀, PM_{2.5}, NO_x and CO in accordance with DEP’s July 2009 Ambient Impact Analysis Guideline (AIAG) because the proposed height of each Engine’s stack is less than both 1) a height of 10 meters, and 2) the lesser of 1.3 times the building height or maximum projected width. Air quality dispersion modeling was conducted for each site to demonstrate compliance with the

applicable ambient air quality standards (see Attachment I in Exhibit APP-1(STpke) and Attachment I in Exhibit APP-2(OSR)). The modeling was conducted following current EPA and DEP modeling guidance, the "Guideline on Air Quality Models", 40 CFR Part 51, Appendix W November 2005 and the Ambient Impact Analysis Guideline, July 2009 - Revised December, 2009, respectively. The modeling analyses described in the 2009 air permit applications and supplements were performed using EPA's SCREEN3 (145 Old Salem Road) and AERMOD (57 Salem Turnpike) dispersion models, both of which are designed to provide conservative (high) predictions of ambient air pollutant concentrations. Four facility operating scenarios (50, 75 and 100 percent load, plus startup) were modeled at each site. APP-13, APP-1 (STpke), APP-2 (OSR).

39. In the AERMOD modeling analyses performed for the proposed engines at the 57 Salem Turnpike site, five years of climatologically representative meteorological data from Bradley Airport were used as input, together with site-specific Norwich area terrain data and the source parameter data (stack temperatures, exit velocity, emission rates) for the four specified operating scenarios. In the SCREEN3 modeling analyses performed for the proposed engines at the 145 Old Salem Road site, a built-in array of worst-case meteorological conditions was used together with input of the site-specific Norwich area terrain data and the source parameter data (stack temperatures, exit velocity, emission rates) for the four specified operating scenarios. APP-13, APP-1 (STpke), APP-2 (OSR).

40. The 2009 AERMOD and SCREEN3 modeling analyses both demonstrated that the worst-case air quality impacts from the engines will be well below the levels defined as significant or adverse for NO₂ (annual average), SO₂, CO, PM₁₀ and PM_{2.5}, which ensures that they will not cause or contribute to a violation of any of the corresponding CAAQS/NAAQS or PSD increments. Therefore, the 2009 dispersion modeling analyses fully demonstrated that the proposed engines at each site will comply with all the corresponding ambient air quality standards and regulations. APP-13, APP-1 (STpke), APP-2 (OSR).

41. DEP reviewed the SCREEN3 (145 Old Salem Road) and AERMOD (57 Salem Turnpike) modeling results and concluded that the engines at both sites satisfied the compliance demonstration requirements for the ambient air quality standards. DEP-OSR-10b, DEP-STpke-3d.

42. Stack height was calculated based on EPA guidance on Good Engineering Practice (“GEP”) (Guideline for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations) (Revised), EPA-45-/4-80-023R). The GEP stack height serves as a reference point to design the stack height. The stack height for the Project was selected by iteratively applying the EPA-approved air quality dispersion model using stack heights ranging from 20 to 30 feet to determine the stack height needed to readily demonstrate compliance with the applicable CAAQS/NAAQS and PSD increments. APP-13.

43. Upon completion of the August 21, 2009 air permit application supplements, a stack height of 25.5 feet was shown to meet that criterion for the 145 Old Salem Road site (see Attachment I in Exhibit APP-1(STpke)) and a stack height of 28.8 feet was shown to meet that criterion for the 57 Salem Turnpike site (see Attachment I in Exhibit APP-2(OSR)). On April 12, 2010, a new 1-hour average NAAQS for NO₂ became effective, and although the SIP has not yet been amended to implement this standard for new source permits, CMEEC voluntarily performed additional modeling analyses to address this new NAAQS using the AERMOD dispersion model (see Exhibits APP-9(STpke) and APP-10(OSR)). The AERMOD modeling results show that a stack height of 30 feet is sufficient to readily demonstrate compliance with the new 1-hour average NAAQS for NO₂ at both sites, and CMEEC has voluntarily agreed to increase the height of the engine stacks to 30 feet at both sites. The draft permits include a minimum stack height of 30 feet. APP-13, DEP-OSR-25, DEP-OSR-26, DEP-STpke-9.

Review of Compliance History

44. CMEEC provided information on forms supplied by DEP that demonstrate that it has not been convicted or penalized for any violation of a local, state or federal environmental law. CMEEC further demonstrated that it has not had any judgment entered against it for violating any environmental law and there are no outstanding orders against it issued by a state or federal administrative agency. Attachment J to DEP-1(STpke) and DEP-2(OSR).

Draft Permits

45. The draft permits specify the state and federal statutes and regulations that govern the operation of the Facility, restrict emissions, and establish the requirements for stack testing, emissions monitoring and record keeping. The permits provide that CMEEC must conduct,

maintain and operate each new source in compliance with all applicable requirements of any federal, municipal or state agency and applicable federal, state and local law. The final draft permits were submitted by DEP staff as Exhibits DEP-OSR-25, DEP-OSR-26 and DEP-STpke-9.

Intervenor's Position

46. The issue that the Intervenor, Ms. Roberta Paro, raised during the Hearing was whether alternatives to the generators were considered including the use of available energy efficiency and demand reduction resources. Ms. Paro presented exhibits, INT Roberta Paro-200 through 205, which were not admitted into evidence but that were left marked for identification. Exhibit 200 was excerpts from Connecticut's 2007 Energy Bill, HB 7432. This bill requires electric distribution companies to review the state's energy and capacity resource assessment and develop a comprehensive plan for procurement of energy resources. CMEEC is not an "electric distribution company" (defined in Conn. Gen. Stat. 16-1(29)).

47. Ms. Paro further offered excerpts from the Proposed 2010 Integrated Resource Plan ("IRP") for the Electric Distribution Companies. INT Roberta Paro Exhibits 201, 202, 203, 204, 205, 206, 207. Again, this plan does not apply to CMEEC because it is not an electric distribution company. Further, it is not relevant to this Hearing because it is a Department of Public Utility Control plan that is not relevant to the issue here of whether the activities proposed in the applications and authorized by the draft permits comply with the stated goals and requirements of Conn. Gen. Stat. 22a-174 and the applicable regulations, 22a-174-1 et seq. Moreover, the IRP is not even a final plan.

48. Intervenor, Mr. Ernie Cohen, offered exhibits and testimony regarding particulate matter emissions from the diesel generators. E. Cohen 1. However, CMEEC presented rebuttal testimony by Michael Anderson that Mr. Cohen's calculations were not valid because they did not use the formulas or dispersion procedures required by DEP regulations and ambient impact guidelines. Further, a number of Mr. Cohen's assumptions were incorrect, most significantly, his plume height estimate was not accurate because it was not calculated using the appropriate formula. Testimony of Michael Anderson. Mr. Cohen has also not shown how his calculations demonstrate that the activities proposed in the applications and as authorized in the proposed draft permits do not comply with the applicable statutes and regulations.

49. Mr. Cohen further presented exhibits and testimony regarding the health effects of diesel generator emissions and potential alternative technologies available to reduce the need for peaking generators. Testimony of Scott Deshefy, Testimony of Lee Hebert, Exhibits Cohen 3, 4, and 5. Mr. Cohen again did not show how this testimony and exhibits demonstrate that the activities proposed in the applications and as authorized in the proposed draft permits do not comply with the applicable statutes and regulations.

CONCLUSIONS OF LAW

Jurisdiction

50. The Commissioner is authorized to adopt and implement regulations to control and prohibit air pollution throughout the state and to issue permits for the construction and operation of new sources of air pollution in accordance with those regulations. General Statutes § 22a-174(a) and (c). The regulations must be consistent with federal law, which requires each state to develop a plan, which provides for implementation, maintenance and enforcement of the NAAQS, 42 U.S.C. § 7410(a), and to develop an acceptable procedure for implementing and enforcing federal standards of performance for new sources of air pollution. 42 USC § 7411(c).

The Commissioner has promulgated §§ 22a-174-1 to 22a-174-100 of the Regulations of Connecticut State Agencies, which include permitting requirements and the enforcement of standards of performance for new sources of air pollution. Section § 22a-174-3a specifies the application procedures, criteria and standards for issuing permits to construct and operate stationary sources of air pollution.

Prior to issuing the permits to construct and operate the Facility, the Commissioner must determine that the applicable provisions of the new source review regulations have been satisfied. The Applicant must demonstrate that it has or will comply with applicable state and federal statutes and regulations, and permit terms and conditions.

Regulatory Requirements

1. New Source Permit Application

An application for a permit to construct and operate a regulated source of air pollution must include, among other things, an executive summary, background information pertaining to

the owner and/or operator of the source and other contact information, a premises site plan, technical information, emissions rates for individual air pollutants, BACT and LAER determinations (as applicable), compliance history information, an authorized signatory certification, and all application fees. R.C.S.A. § 22a-174-3a(c)(1)(A)-(L). CMEEC has provided the information specified in § 22a-174-3a(c).

2. Standards for Issuing Permits

R.C.S.A. § 22a-174-3a(h) of the Regulations of Connecticut State Agencies imposes a duty on any owner or operator of a stationary source of pollution to comply with the terms and conditions of any permit issued by the Commissioner. Further, R.C.S.A. § 22a-174-3a(d)(2) provides that a permit will not be issued unless the Commissioner determines that the owner or operator of the subject stationary source will comply with the applicable provisions of R.C.S.A. § 22a-174-3a(d)(3). The Applicant is subject to R.C.S.A. § 22a-174-3a(h) and to the following provisions of R.C.S.A. § 22a-174-3a(d)(3).

- *Construct and operate such stationary source ... in accordance with the permit, and operate such stationary source ... in accordance with all applicable and relevant emissions limitations, statutes, regulations, schedules for stack tests, and other order of the commissioner R.C.S.A. § 22a-174-3a(d)(3)(A).*

CMEEC has demonstrated compliance with the relevant regulations and statutes that govern its applications and has agreed to the terms and conditions of the draft permits, DEP-STpke-9, DEP-OSR-25, DEP-OSR-26. The draft permits specify emissions limitations and stack testing requirements and the authority of the Commissioner to revise these conditions if necessary. The draft permits provide that CMEEC must construct and operate the Facility in accordance with all applicable requirements of any federal or state agency or applicable federal or state law. Compliance with the terms of the draft permits will result in sources that will be constructed and operated in accordance with all relevant emissions limitations, stack test requirements, any other order of the Commissioner.

- *Operate such stationary source ... without preventing or interfering with the attainment or maintenance of any applicable ambient air quality standards or any Prevention of Significant Deterioration increments under subsection (k) of this section. R.C.S.A. § 22a-174-3a(d)(3)(B)*

A PSD review is required for a new source which emits any criteria pollutant at greater than a major stationary source threshold. Proposed emissions for criteria pollutants from the

Projects do not exceed applicable major source thresholds. As such, PSD review is not required for these pollutants. CMEEC submitted an ambient air impact analysis using all DEP-required dispersion models and demonstrated that the Generators will not prevent or interfere with the attainment or maintenance of any applicable ambient air quality standard or any PSD increments.

- *Operate such stationary source ... without preventing or interfering with the attainment or maintenance of any {NAAQS} in any other state and without interfering with the application of the requirements in any other state's implementation plan.... R.C.S.A. § 22a-174-3a(d)(3)(C).*

CMEEC has complied with the requirements RCSEA §22a-174-3a(d)(3)(C) by submitting an ambient air quality analysis and demonstrating that it will operate without preventing or interfering with the attainment or maintenance of any NAAQS in any other state and without interfering with the application of the requirements in any other state's implementation plan, adopted pursuant to section 110 of the Act.

- *Operate such stationary source ... In accordance with all applicable emissions standards and standards of performance pursuant to 40 CFR Parts 60, 61, and 63, R.C.S.A. § 22a-174-3a(d)(3)(D).*

The Generators must comply with the applicable requirements of the NSPS of the Code of Federal regulations of 40 CFR Part 60, Subpart IIII, which impose various fuel quality, emission limit, stack testing, parametric monitoring, recordkeeping, notification and reporting requirements and the NESHAPS of 40 CFR 63 Subpart ZZZZ, which apply to reciprocating internal combustion engines ("RICE") located at an area source of HAPs constructed after June 12, 2006. The draft permits incorporate by reference the requirements of the applicable sections of 40 CFR 60, Subpart IIII and 40 CFR Part 63, Subpart ZZZZ. Compliance with the draft permits will result in operation of the Generators in accordance with all applicable emissions standards and standards of performance pursuant to these regulations.

- *Install: (i) sampling ports of a size, number and location as the Commissioner may reasonably require, (ii) instrumentation to monitor and record emission and other parameter data as the Commissioner may require, and (iii) such other sampling and testing facilities as the Commissioner may require R.C.S.A. § 22a-174-3a(d)(3)(E).*

The draft permits include requirements to perform periodic monitoring of emissions and process parameters, to conduct stack emissions testing, and to fulfill specific record keeping requirements. Compliance with these terms and conditions will result in the installation of

sampling ports and monitoring instrumentation and such other sampling and testing facilities as the commissioner may require pursuant to R.C.S.A. § 22a-174-3a(d)(3)(E).

- *As the Commissioner may require, conduct stack tests ... in accordance with subsection (e) of this section and in accordance with permit conditions and methods prescribed by the Commissioner. Such stack tests shall demonstrate, to the Commissioner's satisfaction that the requirements of each and every applicable permit ... are being met and that such stationary source ... complies with the Regulations of Connecticut Agencies and federal requirements. R.C.S.A. § 22a-174-3a(d)(3)(F).*

The draft permits set out the requirements for initial and periodic stack emissions testing that must be conducted in accordance with the provisions of R.C.S.A. § 22a-174-5 and the DEP *Source Stack Testing General Requirements*. Initial stack testing will be required for NO_x and CO, and possibly, at the 57 Salem Turnpike site, for polycyclic aromatic hydrocarbons (“PAH”). Initial stack testing of one Cummins QSK78-G6 engine will be required for PAH at the 57 Salem Turnpike site only if prior testing of another such engine at another “50 in 5” site has not occurred, or if the uncontrolled PAH emissions from such prior testing of another such engine at another “50 in 5” site exceed 90 percent of the MASC for PAH. Based on the results of preliminary stack testing of such an engine, no PAH stack testing will likely be required for the engines at 57 Salem Turnpike. Since the potential emissions of all other pollutants are insignificant and are not subject to BACT, there are no stack testing requirements for any other pollutants. Periodic stack testing will be required for NO_x and CO every five years.

Compliance with the terms of the draft permits will result in compliance with the requirements of R.C.S.A. § 22a-174-3a(d)(3)(F).

- *Pay all fees required by the Department within forty-five (45) days of receipt of a tentative determination of the Commissioner. R.C.S.A. § 22a-174-3a(d)(3)(G).*

CMEEC has paid all fees that were required at the time of issuance of the tentative determination.

- *Incorporate [BACT] as directed by the Commissioner, for each individual air pollutant subject to, and in accordance with, subsection (j) of this section. R.C.S.A. § 22a-174-3a(3)(d)(3)(H).*

CMEEC will incorporate BACT as determined by the Commissioner for each air pollutant as required by the regulations.

- *Incorporate LAER, as directed by the Commissioner, for each individual air pollutant subject to, and in accordance with, subsection (I) of this section. R.C.S.A. § 22a-174-3a(d)(3)(I).*

No federally enforceable emission rate for any criteria pollutant exceeds any applicable major source threshold and a LAER determination was not required. However, the control technology option chosen to control NO_x emissions is equivalent to LAER.

- *Incorporate the maximum available control technology (MACT), as directed by the Commissioner, for each individual air pollutant subject to, and in accordance with, subsection (m) of this section. R.C.S.A. § 22a-174-3a(d)(3)(J).*

The Generators are not subject to the requirements of R.C.S.A. § 22a-174-3a(d)(3)(J) since this project is not a construction, reconstruction or modification of a major source of HAPs. However, the Generators are subject to an area source MACT (40 CFR 63 Subpart ZZZZ) and comply with this regulation by complying with the applicable sections of 40 CFR 60 Subpart III. The draft permits incorporate by reference the requirements of the applicable sections of 40 CFR 60, Subpart III and 40 CFR Part 63, Subpart ZZZZ. Compliance with the draft permits will result in operation of the Generators in accordance with all applicable requirements of these regulations.

- *As required by the Commissioner, install monitoring equipment and perform monitoring to demonstrate compliance with any permit provision. Such monitoring may include, but not be limited to, continuous emission monitoring (CEM). R.C.S.A. § 22a-174-3a(d)(3)(K).*

CEM is not required for these Generators. The draft permits require CMEEC to perform monitoring and keep records to demonstrate compliance with the permit conditions. Compliance with the draft permits will ensure that the requirements of this Section are met.

- *Provide the Commissioner with current information regarding air pollutant emissions from such stationary source.... R.C.S.A. § 22a-174-3a(d)(3)(L).*

CMEEC has complied with the requirements of R.C.S.A. § 22a-174-3a(d)(3)(L) by submitting a supplemental application form indicating stack parameters. The draft permits require CMEEC to calculate and record monthly and annual emissions in accordance with this Section.

- *Comply with any applicable maximum allowable stack concentration (MASC) or other emissions limitation of R.C.S.A. § 22a-174-29. §22a-174-3a(d)(3)(M).*

The draft permits specify the requirement that HAP emissions not exceed any applicable MASCs and that CMEEC must comply with the provisions of R.C.S.A. § 22a-174-29 at all times. CMEEC has complied with the requirements by of R.C.S.A. § 22a-174-3a(d)(3)(M) by submitting calculations demonstrating compliance with any applicable MASCs or other emission limitation of R.C.S.A. § 22a-174-29.

- *Demonstrate that the emission limitation required of such stationary source ... for the control of any air pollutant shall not be affected by that portion of the stack height of such stationary source ... that exceeds good engineering practice stack height or by any other dispersion technique. R.C.S.A. § 22a-174-3a(d)(3)(N).*

CMEEC has complied with the requirements of R.C.S.A. § 22a-174-3a(d)(3)(N) by submitting calculations demonstrating that the required emission limitation for the control of any air pollutant shall not be affected by that portion of the stack height of such stationary source or by modifications that exceeds good engineering practice stack height or by any other dispersion technique.

- *The commissioner may require the applicant to publish notice of the application in media that serves the needs of the community...R.C.S.A. § 22a-174-2a(b)(2)(A)*

CMEEC has complied with the requirements of R.C.S.A. § 22a-174-2a(b)(2)(A) by publishing a notice of applications in the Norwich Bulletin on March 19, 2009.

- *In the event the commissioner requires compliance with subparagraph (A) of this subdivision, the applicant shall submit to the commissioner a certified copy of the notice...R.C.S.A. § 22a-174-2a(b)(2)(B)*

CMEEC has complied with the requirements of R.C.S.A. § 22a-174-2a(b)(2)(B) by submitting a Certification of Notice-Notice of Application form to DEP which was received on April 21, 2009.

- *With respect to notice of tentative determination for any application for a permit, other than a general permit, the applicant shall comply with the requirements of section 22a-6h of the Connecticut General Statutes...R.C.S.A. § 22a-174-2a(b)(3)*

Conn. Gen. Stat. §22a-6h requires that the Commissioner publish or cause to be published, at the Applicant's expense, notice of the tentative determination once in a newspaper having a substantial circulation in the affected area. DEP issued a tentative determination to approve the applications for 145 Old Salem Road on September 15, 2009 (DEP-OSR-12) and for 57 Salem Turnpike on October 26, 2009 (DEP-STpke-5). Pursuant to R.C.S.A. § 22a-174-

2a(b)(3), public notice of the tentative determination was published in the Norwich Bulletin on September 17, 2009 for Old Salem Road (DEP-OSR-14 and 14a) and on October 30, 2009 for Salem Turnpike (DEP-STpke-6).

- *In exercising any authority to issue...any permit ... the Commissioner of Environmental Protection may consider the record of the applicant for... such permit ... the principals, and any parent company or subsidiary, of the applicant..., regarding compliance with environmental protection laws of this state, all other states and the federal government. If the commissioner finds that such record evidences a pattern or practice of noncompliance which demonstrates the applicant's unwillingness or inability to achieve and maintain compliance with the terms and conditions of the permit...for which application is being made, ... the commissioner, ... may (1) include such conditions as he deems necessary in any such permit, registration, certificate or other license, (2) deny any application for the issuance, renewal, modification or transfer of any such permit, registration, certificate or other license, or (3) revoke any such permit, registration, certificate or other license. Conn. Gen. Statute R.C.S.A. § 22a-6m*


CMEEC's compliance history does not warrant either denial of the application or imposition of special conditions under Connecticut General Statute § 22a-6m.

CONCLUSION

CMEEC has demonstrated by a preponderance of the evidence presented that the Generators, operated in compliance with the draft permits, will comply with the applicable provisions of the Regulations of Connecticut State Agencies governing new sources of air pollution. The draft permits provide that CMEEC must conduct its operations in accordance with the relevant sections of subdivision (d) of R.C.S.A. § 22a-174-3a and the CAA. CMEEC has complied with the regulatory requirements to qualify its application as a minor source and has shown that the operation of the Generators will comply with the permit terms and conditions and will not adversely affect ambient air quality or impede attainment of any NAAQS. Therefore, the New Source Review Permits to construct and operate the Generators should be issued with the terms as set forth in Exhibits DEP-OSR-25, DEP-OSR-26 and DEP-STpke-9.

Respectfully Submitted,

**CONNECTICUT MUNICIPAL ELECTRIC
ENERGY COOPERATIVE**

By 

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**DEPARTMENT OF ENVIRONMENTAL
PROTECTION**

By 

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CERTIFICATION

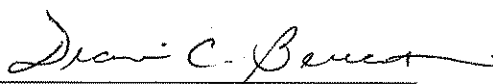
A copy of the foregoing Proposed Findings of Fact and Conclusions of Law were forwarded via email transmission on this 11th day of June, 2010, to the parties listed below.

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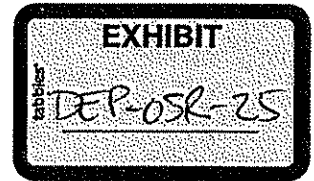
Exhibit A

Draft Permits



STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT

NEW SOURCE REVIEW PERMIT
TO CONSTRUCT AND OPERATE
A STATIONARY SOURCE



Issued pursuant to Title 22a of the Connecticut General Statutes (CGS) and Section 22a-174-3a of the Regulations of Connecticut State Agencies (RCSA).

| | |
|------------------------|---|
| Owner/Operator: | Connecticut Municipal Electric Energy Cooperative |
| Address: | 30 Stott Avenue, Norwich, CT 06360 |
| Equipment Location: | 145 Old Salem Road, Norwich, CT 06360 |
| Equipment Description: | Cummins QSK78-G6 Diesel Generator (Briar Hill 1) |

| | |
|-----------------------------|----------|
| Town-Permit Numbers: | 139-0109 |
| Town-Premises Numbers: | 139-0203 |
| Original Permit Issue Date: | |
| Expiration Date: | None |

Amey Marrella
Commissioner

Date

PERMIT FOR FUEL BURNING EQUIPMENT

STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF AIR MANAGEMENT

This permit specifies necessary terms and conditions for the operation of this equipment to comply with state and federal air quality standards. The Permittee shall at all times comply with the terms and conditions stated herein.

PART I. DESIGN SPECIFICATIONS

A. General Description

The source is a Cummins QSK78-G6 diesel generator set with an electrical output of approximately 2.5 MW. Control equipment will consist of selective catalytic reduction with urea injection and a diesel particulate filter. The source will be operated as a peaking unit with a fuel use limit equivalent to 1,200 hours of full load operation per calendar year.

B. Equipment Design Specifications

1. Maximum Fuel Firing Rate (gal/hr): 165.9
2. Maximum Gross Heat Input (MMBtu/hr): 22.2

C. Control Equipment Design Specifications

1. Selective Catalytic Reduction (SCR) with urea injection
 - a. Make and Model: MIRATECH Corp
 - b. Catalyst Type: Vanadium or equivalent
 - c. Minimum Design NO_x Removal Efficiency (%): 90
 - d. Catalyst bed temperature range (°F): 570-930
 - e. Catalyst bed pressure drop range (inches of H₂O): 2-40 (@ 570°F or greater)
 - f. Urea Flow Rate (gal/hr): 1.5-19.8
 - g. Urea Solution Concentration (% by weight): 40
2. Particulate Trap
 - a. Make and Model: MIRATECH Corp, CombiKat or equivalent
 - b. Filter Media: Silicon carbide or equivalent
 - c. Minimum Design Particulate Removal Efficiency (%): 85

D. Stack Parameters

1. Minimum Stack Height (ft): 25.530
2. Minimum Exhaust Gas Flow Rate at 100% load (acfm): 15,167
3. Minimum Stack Exit Temperature at 100% load (°F): 786
4. Minimum Distance from Stack to Property Line (ft): 7554

PART II. OPERATIONAL CONDITIONS

A. Operating Limits

1. Fuel Type: Ultra Low Sulfur Diesel
2. Maximum Fuel Consumption over any Consecutive 12 Month Period (gal):
199,080
3. Maximum Fuel Sulfur Content (% by weight, dry basis): 0.0015

FIRM NAME: Connecticut Municipal Electric Energy Cooperative
 EQUIPMENT LOCATION: 145 Old Salem Road, Norwich, CT 06360
 EQUIPMENT DESCRIPTION: Cummins QSK78-G6 Diesel Generator (Briar Hill 1)

Town No: 139

Premises No: 203

Permit No: 109

Stack No: 1

PERMIT FOR FUEL BURNING EQUIPMENT

STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF AIR MANAGEMENT

PART III. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS

A. Monitoring

1. The Permittee shall use a non-resettable totalizing fuel metering device to continuously monitor fuel feed to this permitted source.
2. The Permittee shall continuously monitor and continuously record the SCR urea solution injection rate (lb/hr or gal/hr), operating temperature (^oF) and the combined pressure drop (inches of water) across the catalyst bed and diesel particulate filter. The Permittee shall maintain these parameters within the ranges recommended by the manufacturer to achieve compliance with the emission limits in this permit.
3. The Permittee shall inspect the engine and control devices once per year, at a minimum, or more frequently if recommended by manufacturer.

B. Record Keeping

1. The Permittee shall keep records of monthly and consecutive 12 month fuel consumption. The consecutive 12 month fuel consumption shall be determined by adding the current month's fuel consumption to that of the previous 11 months. The Permittee shall make these calculations within 30 days of the end of the previous month.
2. The Permittee shall keep records of the fuel certification for each delivery of fuel oil from a bulk petroleum provider or a copy of the current contract with the fuel supplier supplying the fuel used by this equipment that includes the applicable sulfur content of the fuel as a condition of each shipment. The shipping receipt or contract shall include the date of delivery, the name of the fuel supplier, type of fuel delivered, the percentage of sulfur in such fuel, by weight, dry basis, and the method used to determine the sulfur content of such fuel.
3. The Permittee shall calculate and record the monthly and consecutive 12 month PM₁₀/PM_{2.5}, SO₂, NO_x, CO, and VOC emissions in units of tons. The consecutive 12 month emissions shall be determined by adding (for each pollutant) the current month's emissions to that of the previous 11 months. Such records shall include a sample calculation for each pollutant. The Permittee shall make these calculations within 30 days of the end of the previous month.
4. The Permittee shall keep records of each delivery of urea solution. The records shall include the date of delivery, the name of the supplier, the quantity of urea solution delivered, and the percentage of urea in solution, by weight.

FIRM NAME: Connecticut Municipal Electric Energy Cooperative
 EQUIPMENT LOCATION: 145 Old Salem Road, Norwich, CT 06360
 EQUIPMENT DESCRIPTION: Cummins QSK78-G6 Diesel Generator (Briar Hill 1)

Town No: 139

Premises No: 203

Permit No: 109

Stack No: 1

PERMIT FOR FUEL BURNING EQUIPMENT

**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT**

PART III. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS, cont.

5. The Permittee shall keep records of the inspection and maintenance of the engine, SCR catalyst and particulate filters. The records shall include the name of the person, the date, the results or actions and the date the SCR catalyst is replaced.
6. The Permittee shall keep records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of this source; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. [40 CFR \$60.7(b)]
7. The Permittee shall keep all records required by this permit for a period of no less than five years and shall submit such records to the commissioner upon request.

C. Reporting

1. The commissioner may request additional reporting to demonstrate compliance with the requirements of this permit, as allowed by state or federal statute, law or regulation.
2. The Permittee shall notify the commissioner, in writing, of the date of commencement of construction and the date of initial startup of this source. Such written notifications shall be submitted no later than 30 days after the subject event.

PART IV. OPERATION AND MAINTENANCE REQUIREMENTS

The Permittee shall operate and maintain this equipment in accordance with the manufacturer's specifications and written recommendations. The Permittee shall operate and maintain this stationary source, any air pollution control equipment, and any monitoring equipment in a manner for minimizing emission at all times including during startup, shutdown and malfunction.

FIRM NAME: Connecticut Municipal Electric Energy Cooperative
 EQUIPMENT LOCATION: 145 Old Salem Road, Norwich, CT 06360
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PERMIT FOR FUEL BURNING EQUIPMENT

**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT**

PART V. ALLOWABLE EMISSION LIMITS

The Permittee shall not cause or allow this equipment to exceed the emission limits stated herein:

A. Short Term Emission Limits (excluding Startup for NO_x, Shutdown and Malfunction)

| <u>Criteria Pollutants</u> | <u>lb/hr</u> | <u>lbs/MW-hr</u> |
|--------------------------------|--------------|------------------|
| PM ₁₀ | 0.15 | |
| PM _{2.5} | 0.15 | |
| SO _x | 0.04 | |
| NO _x | 7.43 | 2.97 |
| VOC | 2.94 | |
| CO | 6.51 | |

B. Startup, Shutdown and Malfunction Emissions

The Permittee shall minimize emissions during periods of startup and shutdown by the following work practices and time constraints:

1. Start the urea solution injection as soon as the minimum SCR catalyst operating temperature is reached.
2. The duration of startup shall not exceed 60 minutes.
- ~~3. The duration of shutdown shall not exceed 30 minutes.~~
- 4-3. Emissions during these events shall be counted towards the annual emission limits stated herein.

In the event that a malfunction causing either an emission exceedance or a parameter monitored out of recommended range is not corrected within three hours, the Permittee shall immediately institute shutdown of the engine.

C. Annual Emission Limits

| <u>Criteria Pollutants</u> | <u>Tons per 12 Consecutive Months</u> |
|--------------------------------|---|
| PM ₁₀ | 0.09 |
| PM _{2.5} | 0.09 |
| SO _x | 0.02 |
| NO _x | 5.29 |
| VOC | 1.76 |
| CO | 3.90 |

FIRM NAME: Connecticut Municipal Electric Energy Cooperative
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PERMIT FOR FUEL BURNING EQUIPMENT

**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
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PART V. ALLOWABLE EMISSION LIMITS, continued

D. Hazardous Air Pollutants: This unit shall not cause an exceedance of the Maximum Allowable Stack Concentration (MASC) for any hazardous air pollutant (HAP) emitted and listed in RCSA Section 22a-174-29. [STATE ONLY REQUIREMENT]

E. Compliance Demonstration

1. Demonstration of compliance with the above emission limits shall be met by calculating the emission rates using emission factors from the following sources:

- a. Manufacturer's Data: PM₁₀, PM_{2.5}, NO_x, VOC, CO
- b. Mass Balance: SO_x
- c. NO_x (startup): 24.2 lb/event, duration of event not to exceed 60 minutes.

~~2. The NO_x emission rate during shutdown will be as controlled (steady state).~~

2. The Permittee is not required to demonstrate compliance with the short-term emission limits stated herein during the initial shakedown period. Emissions during the initial shakedown period shall be counted towards the annual emission limits stated herein. The shakedown period shall not extend beyond the required date for the initial performance tests.

43. The commissioner may require other means (e.g. stack testing) to demonstrate compliance with the above emission limits, as allowed by state or federal statute, law or regulation.

PART VI. STACK EMISSION TEST REQUIREMENTS (Applicable if -X- Checked)

A. Stack testing shall be performed in accordance with the latest Emission Test Guidelines available on the DEP website:

http://www.ct.gov/dep/cwp/view.asp?a=2684&q=322076&depNav_GID=1619

B. Initial stack testing shall be required for the following pollutant(s):

PM SO_x NO_x CO VOC Pb

C. The Permittee shall conduct initial stack testing within 60 days of achieving the maximum production rate, but not later than 180 days after initial startup. Test results must be submitted within 45 days after testing.

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PERMIT FOR FUEL BURNING EQUIPMENT

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PART VI. STACK EMISSION TEST REQUIREMENTS, continued

- D. Testing being conducted pursuant to 40 CFR Part 60: The test report is to be submitted within 180 days after the initial startup date or within 60 days after reaching maximum production rate. [40 CFR §60.8(a)]
- E. Recurrent stack testing for NO_x and CO shall be conducted within 5 years from the date of the previous stack test.

PART VII. SPECIAL REQUIREMENTS

- A. The Permittee shall operate this facility at all time in a manner so as not to violate or contribute significantly to the violation of a any applicable state noise control regulations, as set forth in RCSA §§22a-69-1 through 22a-69-7.4. [STATE ONLY REQUIREMENT]
- B. The Permittee shall comply with all applicable sections of the following New Source Performance Standard(s) at all times.

Title 40 CFR Part 60, Subparts: IIII and A

Copies of the Code of Federal Regulations (CFR) are available online at the U.S. Government Printing Office website.
- C. The Permittee shall comply with all applicable sections of the following National Emission Standards for Hazardous Air Pollutants at all times.

Title 40 CFR Part 63, Subpart: ZZZZ and A

Copies of the Code of Federal Regulations (CFR) are available online at the U.S. Government Printing Office website.
- D. Opacity resulting from operation of this engine shall not exceed 10% during any six-minute block average or 40% reduced to a one-minute block average; as measured by 40 CFR 60, Appendix A, Reference Method 9.

PART VIII. ADDITIONAL TERMS AND CONDITIONS

- A. This permit does not relieve the Permittee of the responsibility to conduct, maintain and operate the regulated activity in compliance with all applicable requirements of any federal, municipal or other state agency. Nothing in this permit shall relieve the Permittee of other obligations under applicable federal, state and local law.

FIRM NAME: Connecticut Municipal Electric Energy Cooperative
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PERMIT FOR FUEL BURNING EQUIPMENT

**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
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PART VIII. ADDITIONAL TERMS AND CONDITIONS, continued

- B. Any representative of the DEP may enter the Permittee's site in accordance with constitutional limitations at all reasonable times without prior notice, for the purposes of inspecting, monitoring and enforcing the terms and conditions of this permit and applicable state law.
- C. This permit may be revoked, suspended, modified or transferred in accordance with applicable law.
- D. This permit is subject to and in no way derogates from any present or future property rights or other rights or powers of the State of Connecticut and conveys no property rights in real estate or material, nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state or local laws or regulations pertinent to the facility or regulated activity affected thereby. This permit shall neither create nor affect any rights of persons or municipalities who are not parties to this permit.
- E. Any document, including any notice, which is required to be submitted to the commissioner under this permit shall be signed by a duly authorized representative of the Permittee and by the person who is responsible for actually preparing such document, each of whom shall certify in writing as follows: "I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that any false statement made in the submitted information may be punishable as a criminal offense under section 22a-175 of the Connecticut General Statutes, under section 53a-157b of the Connecticut General Statutes, and in accordance with any applicable statute."
- F. Nothing in this permit shall affect the commissioner's authority to institute any proceeding or take any other action to prevent or abate violations of law, prevent or abate pollution, recover costs and natural resource damages, and to impose penalties for violations of law, including but not limited to violations of this or any other permit issued to the Permittee by the commissioner.
- G. Within 15 days of the date the Permittee becomes aware of a change in any information submitted to the commissioner under this permit, or that any such information was inaccurate or misleading or that any relevant information was omitted, the Permittee shall submit the correct or omitted information to the commissioner.

FIRM NAME: Connecticut Municipal Electric Energy Cooperative
 EQUIPMENT LOCATION: 145 Old Salem Road, Norwich, CT 06360
 EQUIPMENT DESCRIPTION: Cummins QSK78-G6 Diesel Generator (Briar Hill 1)

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PERMIT FOR FUEL BURNING EQUIPMENT

STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT

PART VIII. ADDITIONAL TERMS AND CONDITIONS, continued

- H. The date of submission to the commissioner of any document required by this permit shall be the date such document is received by the commissioner. The date of any notice by the commissioner under this permit, including but not limited to notice of approval or disapproval of any document or other action, shall be the date such notice is personally delivered or the date three days after it is mailed by the commissioner, whichever is earlier. Except as otherwise specified in this permit, the word "day" means calendar day. Any document or action which is required by this permit to be submitted or performed by a date which falls on a Saturday, Sunday or legal holiday shall be submitted or performed by the next business day thereafter.
- I. Any document required to be submitted to the commissioner under this permit shall, unless otherwise specified in writing by the commissioner, be directed to: Office of Director; Engineering & Enforcement Division; Bureau of Air Management; Department of Environmental Protection; 79 Elm Street, 5th Floor; Hartford, Connecticut 06106-5127.

FIRM NAME: Connecticut Municipal Electric Energy Cooperative
EQUIPMENT LOCATION: 145 Old Salem Road, Norwich, CT 06360
EQUIPMENT DESCRIPTION: Cummins QSK78-G6 Diesel Generator (Briar Hill 1)

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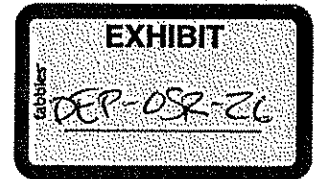
Permit No: 109

Stack No: 1



STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT

NEW SOURCE REVIEW PERMIT
TO CONSTRUCT AND OPERATE
A STATIONARY SOURCE



Issued pursuant to Title 22a of the Connecticut General Statutes (CGS) and Section 22a-174-3a of the Regulations of Connecticut State Agencies (RCSA).

| | |
|------------------------|---|
| Owner/Operator: | Connecticut Municipal Electric Energy Cooperative |
| Address: | 30 Stott Avenue, Norwich, CT 06360 |
| Equipment Location: | 145 Old Salem Road, Norwich, CT 06360 |
| Equipment Description: | Cummins QSK78-G6 Diesel Generator (Briar Hill 2) |

| | |
|-----------------------------|----------|
| Town-Permit Numbers: | 139-0110 |
| Town-Premises Numbers: | 139-0203 |
| Original Permit Issue Date: | |
| Expiration Date: | None |

Amey Marrella
Commissioner

Date

PERMIT FOR FUEL BURNING EQUIPMENT

**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT**

This permit specifies necessary terms and conditions for the operation of this equipment to comply with state and federal air quality standards. The Permittee shall at all times comply with the terms and conditions stated herein.

PART I. DESIGN SPECIFICATIONS

A. General Description

The source is a Cummins QSK78-G6 diesel generator set with an electrical output of approximately 2.5 MW. Control equipment will consist of selective catalytic reduction with urea injection and a diesel particulate filter. The source will be operated as a peaking unit with a fuel use limit equivalent to 1,200 hours of full load operation per calendar year.

B. Equipment Design Specifications

1. Maximum Fuel Firing Rate (gal/hr): 165.9
2. Maximum Gross Heat Input (MMBtu/hr): 22.2

C. Control Equipment Design Specifications

1. Selective Catalytic Reduction (SCR) with urea injection
 - a. Make and Model: MIRATECH Corp
 - b. Catalyst Type: Vanadium or equivalent
 - c. Minimum Design NO_x Removal Efficiency (%): 90
 - d. Catalyst bed temperature range (°F): 570-930
 - e. Catalyst bed pressure drop range (inches of H₂O): 2-40 (@ 570°F or greater)
 - f. Urea Flow Rate (gal/hr): 1.5-19.8
 - g. Urea Solution Concentration (% by weight): 40
2. Particulate Trap
 - a. Make and Model: MIRATECH Corp, CombiKat or equivalent
 - b. Filter Media: Silicon carbide or equivalent
 - c. Minimum Design Particulate Removal Efficiency (%): 85

D. Stack Parameters

1. Minimum Stack Height (ft): 25-530
2. Minimum Exhaust Gas Flow Rate at 100% load (acfm): 15,167
3. Minimum Stack Exit Temperature at 100% load (°F): 786
4. Minimum Distance from Stack to Property Line (ft): 7554

PART II. OPERATIONAL CONDITIONS

A. Operating Limits

1. Fuel Type: Ultra Low Sulfur Diesel
2. Maximum Fuel Consumption over any Consecutive 12 Month Period (gal):
199,080
3. Maximum Fuel Sulfur Content (% by weight, dry basis): 0.0015

FIRM NAME: Connecticut Municipal Electric Energy Cooperative
 EQUIPMENT LOCATION: 145 Old Salem Road, Norwich, CT 06360
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PERMIT FOR FUEL BURNING EQUIPMENT

**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT**

PART III. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS

A. Monitoring

1. The Permittee shall use a non-resettable totalizing fuel metering device to continuously monitor fuel feed to this permitted source.
2. The Permittee shall continuously monitor and continuously record the SCR urea solution injection rate (lb/hr or gal/hr), operating temperature (°F) and the combined pressure drop (inches of water) across the catalyst bed and diesel particulate filter. The Permittee shall maintain these parameters within the ranges recommended by the manufacturer to achieve compliance with the emission limits in this permit.
3. The Permittee shall inspect the engine and control devices once per year, at a minimum, or more frequently if recommended by manufacturer.

B. Record Keeping

1. The Permittee shall keep records of monthly and consecutive 12 month fuel consumption. The consecutive 12 month fuel consumption shall be determined by adding the current month's fuel consumption to that of the previous 11 months. The Permittee shall make these calculations within 30 days of the end of the previous month.
2. The Permittee shall keep records of the fuel certification for each delivery of fuel oil from a bulk petroleum provider or a copy of the current contract with the fuel supplier supplying the fuel used by this equipment that includes the applicable sulfur content of the fuel as a condition of each shipment. The shipping receipt or contract shall include the date of delivery, the name of the fuel supplier, type of fuel delivered, the percentage of sulfur in such fuel, by weight, dry basis, and the method used to determine the sulfur content of such fuel.
3. The Permittee shall calculate and record the monthly and consecutive 12 month PM₁₀/PM_{2.5}, SO₂, NO_x, CO, and VOC emissions in units of tons. The consecutive 12 month emissions shall be determined by adding (for each pollutant) the current month's emissions to that of the previous 11 months. Such records shall include a sample calculation for each pollutant. The Permittee shall make these calculations within 30 days of the end of the previous month.
4. The Permittee shall keep records of each delivery of urea solution. The records shall include the date of delivery, the name of the supplier, the quantity of urea solution delivered, and the percentage of urea in solution, by weight.

FIRM NAME: Connecticut Municipal Electric Energy Cooperative
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**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT**

PART III. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS, cont.

5. The Permittee shall keep records of the inspection and maintenance of the engine, SCR catalyst and particulate filters. The records shall include the name of the person, the date, the results or actions and the date the SCR catalyst is replaced.
6. The Permittee shall keep records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of this source; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. [40 CFR §60.7(b)]
7. The Permittee shall keep all records required by this permit for a period of no less than five years and shall submit such records to the commissioner upon request.

C. Reporting

1. The commissioner may request additional reporting to demonstrate compliance with the requirements of this permit, as allowed by state or federal statute, law or regulation.
2. The Permittee shall notify the commissioner, in writing, of the date of commencement of construction and the date of initial startup of this source. Such written notifications shall be submitted no later than 30 days after the subject event.

PART IV. OPERATION AND MAINTENANCE REQUIREMENTS

The Permittee shall operate and maintain this equipment in accordance with the manufacturer's specifications and written recommendations. The Permittee shall operate and maintain this stationary source, any air pollution control equipment, and any monitoring equipment in a manner for minimizing emission at all times including during startup, shutdown and malfunction.

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PERMIT FOR FUEL BURNING EQUIPMENT

**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT**

PART V. ALLOWABLE EMISSION LIMITS

The Permittee shall not cause or allow this equipment to exceed the emission limits stated herein:

A. Short Term Emission Limits (excluding Startup for NO_x, Shutdown and Malfunction)

| Criteria Pollutants | lb/hr | lbs/MW-hr |
|------------------------|-------|-----------|
| PM ₁₀ | 0.15 | |
| PM _{2.5} | 0.15 | |
| SO _x | 0.04 | |
| NO _x | 7.43 | 2.97 |
| VOC | 2.94 | |
| CO | 6.51 | |

B. Startup, Shutdown and Malfunction Emissions

The Permittee shall minimize emissions during periods of startup and shutdown by the following work practices and time constraints:

1. Start the urea solution injection as soon as the minimum SCR catalyst operating temperature is reached.
2. The duration of startup shall not exceed 60 minutes.
- ~~3. The duration of shutdown shall not exceed 30 minutes.~~
- 4-3. Emissions during these events shall be counted towards the annual emission limits stated herein.

In the event that a malfunction causing either an emission exceedance or a parameter monitored out of recommended range is not corrected within three hours, the Permittee shall immediately institute shutdown of the engine.

C. Annual Emission Limits

| Criteria Pollutants | Tons per 12 Consecutive Months |
|------------------------|-----------------------------------|
| PM ₁₀ | 0.09 |
| PM _{2.5} | 0.09 |
| SO _x | 0.02 |
| NO _x | 5.29 |
| VOC | 1.76 |
| CO | 3.90 |

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PERMIT FOR FUEL BURNING EQUIPMENT

STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT

PART V. ALLOWABLE EMISSION LIMITS, continued

D. **Hazardous Air Pollutants:** This unit shall not cause an exceedance of the Maximum Allowable Stack Concentration (MASC) for any hazardous air pollutant (HAP) emitted and listed in RCSA Section 22a-174-29. [STATE ONLY REQUIREMENT]

E. **Compliance Demonstration**

1. Demonstration of compliance with the above emission limits shall be met by calculating the emission rates using emission factors from the following sources:

- a. Manufacturer's Data: PM₁₀, PM_{2.5}, NO_x, VOC, CO
- b. Mass Balance: SO_x
- c. NO_x (startup): 24.2 lb/event, duration of event not to exceed 60 minutes.

~~2. The NO_x emission rate during shutdown will be as controlled (steady state).~~

2. The Permittee is not required to demonstrate compliance with the short-term emission limits stated herein during the initial shakedown period. Emissions during the initial shakedown period shall be counted towards the annual emission limits stated herein. The shakedown period shall not extend beyond the required date for the initial performance tests.

43. The commissioner may require other means (e.g. stack testing) to demonstrate compliance with the above emission limits, as allowed by state or federal statute, law or regulation.

PART VI. STACK EMISSION TEST REQUIREMENTS (Applicable if -X- Checked)

A. Stack testing shall be performed in accordance with the latest Emission Test Guidelines available on the DEP website:

http://www.ct.gov/dep/cwp/view.asp?a=2684&q=322076&depNav_GID=1619

B. Initial stack testing shall be required for the following pollutant(s):

PM SO_x NO_x CO VOC Pb

C. The Permittee shall conduct initial stack testing within 60 days of achieving the maximum production rate, but not later than 180 days after initial startup. Test results must be submitted within 45 days after testing.

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**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT**

PART VI. STACK EMISSION TEST REQUIREMENTS, continued

- D. Testing being conducted pursuant to 40 CFR Part 60: The test report is to be submitted within 180 days after the initial startup date or within 60 days after reaching maximum production rate. [40 CFR §60.8(a)]
- E. Recurrent stack testing for NO_x and CO shall be conducted within 5 years from the date of the previous stack test.

PART VII. SPECIAL REQUIREMENTS

- A. The Permittee shall operate this facility at all time in a manner so as not to violate or contribute significantly to the violation of a any applicable state noise control regulations, as set forth in RCSA §§22a-69-1 through 22a-69-7.4. [STATE ONLY REQUIREMENT]
- B. The Permittee shall comply with all applicable sections of the following New Source Performance Standard(s) at all times.

Title 40 CFR Part 60, Subparts: IIII and A

Copies of the Code of Federal Regulations (CFR) are available online at the U.S. Government Printing Office website.
- C. The Permittee shall comply with all applicable sections of the following National Emission Standards for Hazardous Air Pollutants at all times.

Title 40 CFR Part 63, Subpart: ZZZZ and A

Copies of the Code of Federal Regulations (CFR) are available online at the U.S. Government Printing Office website.
- D. Opacity resulting from operation of this engine shall not exceed 10% during any six-minute block average or 40% reduced to a one-minute block average; as measured by 40 CFR 60, Appendix A, Reference Method 9.

PART VIII. ADDITIONAL TERMS AND CONDITIONS

- A. This permit does not relieve the Permittee of the responsibility to conduct, maintain and operate the regulated activity in compliance with all applicable requirements of any federal, municipal or other state agency. Nothing in this permit shall relieve the Permittee of other obligations under applicable federal, state and local law.

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**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT**

PART VIII. ADDITIONAL TERMS AND CONDITIONS, continued

- B. Any representative of the DEP may enter the Permittee's site in accordance with constitutional limitations at all reasonable times without prior notice, for the purposes of inspecting, monitoring and enforcing the terms and conditions of this permit and applicable state law.
- C. This permit may be revoked, suspended, modified or transferred in accordance with applicable law.
- D. This permit is subject to and in no way derogates from any present or future property rights or other rights or powers of the State of Connecticut and conveys no property rights in real estate or material, nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state or local laws or regulations pertinent to the facility or regulated activity affected thereby. This permit shall neither create nor affect any rights of persons or municipalities who are not parties to this permit.
- E. Any document, including any notice, which is required to be submitted to the commissioner under this permit shall be signed by a duly authorized representative of the Permittee and by the person who is responsible for actually preparing such document, each of whom shall certify in writing as follows: "I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that any false statement made in the submitted information may be punishable as a criminal offense under section 22a-175 of the Connecticut General Statutes, under section 53a-157b of the Connecticut General Statutes, and in accordance with any applicable statute."
- F. Nothing in this permit shall affect the commissioner's authority to institute any proceeding or take any other action to prevent or abate violations of law, prevent or abate pollution, recover costs and natural resource damages, and to impose penalties for violations of law, including but not limited to violations of this or any other permit issued to the Permittee by the commissioner.
- G. Within 15 days of the date the Permittee becomes aware of a change in any information submitted to the commissioner under this permit, or that any such information was inaccurate or misleading or that any relevant information was omitted, the Permittee shall submit the correct or omitted information to the commissioner.

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STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT

PART VIII. ADDITIONAL TERMS AND CONDITIONS, continued

- H. The date of submission to the commissioner of any document required by this permit shall be the date such document is received by the commissioner. The date of any notice by the commissioner under this permit, including but not limited to notice of approval or disapproval of any document or other action, shall be the date such notice is personally delivered or the date three days after it is mailed by the commissioner, whichever is earlier. Except as otherwise specified in this permit, the word "day" means calendar day. Any document or action which is required by this permit to be submitted or performed by a date which falls on a Saturday, Sunday or legal holiday shall be submitted or performed by the next business day thereafter.
- I. Any document required to be submitted to the commissioner under this permit shall, unless otherwise specified in writing by the commissioner, be directed to: Office of Director; Engineering & Enforcement Division; Bureau of Air Management; Department of Environmental Protection; 79 Elm Street, 5th Floor; Hartford, Connecticut 06106-5127.

FIRM NAME: Connecticut Municipal Electric Energy Cooperative
EQUIPMENT LOCATION: 145 Old Salem Road, Norwich, CT 06360
EQUIPMENT DESCRIPTION: Cummins QSK78-G6 Diesel Generator (Briar Hill 2)

Town No: 139

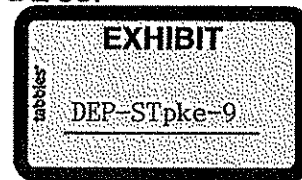
Premises No: 203

Permit No: 110

Stack No: 2



STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT



NEW SOURCE REVIEW PERMIT
TO CONSTRUCT AND OPERATE
A STATIONARY SOURCE

Issued pursuant to Title 22a of the Connecticut General Statutes (CGS) and Section 22a-174-3a of the Regulations of Connecticut State Agencies (RCSA).

| | |
|------------------------|---|
| Owner/Operator: | Connecticut Municipal Electric Energy Cooperative |
| Address: | 30 Stott Avenue, Norwich, CT 06360-1526 |
| Equipment Location: | 57 Salem Turnpike, Norwich, CT 06360 |
| Equipment Description: | Cummins QSK78-G6 Diesel Generator (Salem Tpke 1) |

| | |
|------------------------|----------|
| Town-Permit Numbers: | 139-0111 |
| Town-Premises Numbers: | 139-204 |
| Permit Issue Date: | |
| Expiration Date: | |

Amey Marrella
Commissioner

Date

PERMIT FOR FUEL BURNING EQUIPMENT

**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT**

This permit specifies necessary terms and conditions for the operation of this equipment to comply with state and federal air quality standards. The Permittee shall at all times comply with the terms and conditions stated herein.

PART I. DESIGN SPECIFICATIONS

A. General Description

The source is a Cummins QSK78-G6 diesel generator set with an electrical output of approximately 2.5 MW. Control equipment will consist of a selective catalytic reduction with urea injection and a diesel particulate filter. The source will be operated as a peaking unit with a fuel use limit equivalent to 1,200 hours of full load operation per calendar year.

B. Equipment Design Specifications

1. Maximum Fuel Firing Rate (gallons/hr): 165.9
2. Maximum Gross Heat Input (MMBTU/hr): 22.2

C. Control Equipment Design Specifications

1. Selective Catalytic Reduction (SCR) with Urea Injection
 - a. Make and Model: MIRATECH Corporation
 - b. Catalyst Type: Vanadium or Equivalent
 - c. Minimum Design NO_x Removal Efficiency (%): 90
 - d. Catalyst Bed Temperature Range (°F): 570-930
 - e. Catalyst Bed Design Pressure Drop Range (inH₂O): 2-40 at ≥ 570°F
 - f. Urea Flow Rate (gallons/hr): 1.5-19.8
 - g. Urea Solution Concentration (% by weight): 40
2. Particulate Trap
 - a. Make and Model: MIRATECH Corporation, CombiKat or Equivalent
 - b. Filtering Material: Silicon Carbide or Equivalent
 - c. Minimum Design Particulate Removal Efficiency (%): 85
 - d. Minimum Design PAH Removal Efficiency (%): 60

D. Stack Parameters

1. Minimum Stack Height (ft): 30
2. Minimum Exhaust Gas Flow Rate at 100% Load (acfm): 15,167
3. Stack Exit Temperature at 100% Load (°F): 786
4. Minimum Distance from Stack to Property Line (ft): 22

FIRM NAME: Connecticut Municipal Electric Energy Cooperative
 EQUIPMENT LOCATION: 57 Salem Turnpike, Norwich, CT 06360
 EQUIPMENT DESCRIPTION: Cummins QSK78-G6 Diesel Generator, Salem Tpke 1

Town No: 139

Premises No: 204

Permit No: 0111

Stack No: 01

PERMIT FOR FUEL BURNING EQUIPMENT**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT****PART II OPERATIONAL CONDITIONS****Operating Limits**

1. Fuel Type: Ultra Low Sulfur Diesel
2. Maximum Fuel Consumption over any Consecutive 12 Month Period:
199,080 gallons
3. Maximum Fuel Sulfur Content (% by weight, dry basis): 0.0015

PART III. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS**A. Monitoring**

1. The Permittee shall use a non-resettable totalizing fuel metering device to continuously monitor fuel feed to this permitted source.
2. The Permittee shall continuously monitor and continuously record the SCR urea solution injection rate (lb/hr or gal/hr), operating temperature (°F) and the combined pressure drop (inches of water) across the catalyst bed and diesel particulate filter. The Permittee shall maintain these parameters within the ranges recommended by the manufacturer to achieve compliance with the emission limits in this permit.
3. The Permittee shall inspect the engine and control devices once per year, at a minimum, or more frequently if recommended by the manufacturer.

B. Record Keeping

1. The Permittee shall record the monthly and consecutive 12 month fuel consumption. The consecutive 12 month fuel consumption shall be determined by adding the current month's fuel consumption to that of the previous 11 months. The Permittee shall make these calculations within 30 days of the end of the previous month.
2. The Permittee shall keep records of the fuel certification for each delivery of fuel oil from a bulk petroleum provider or a copy of the current contract with the fuel supplier supplying the fuel used by this equipment that includes the applicable sulfur content of the fuel as a condition of each shipment. The shipping receipt or contract shall include the date of delivery, the name of the fuel supplier, type of fuel delivered, the percentage of sulfur in such fuel, by weight, dry basis, and the method used to determine the sulfur content of such fuel.

FIRM NAME: Connecticut Municipal Electric Energy Cooperative
EQUIPMENT LOCATION: 57 Salem Turnpike, Norwich, CT 06360
EQUIPMENT DESCRIPTION: Cummins QSK78-G6 Diesel Generator, Salem Tpke 1

Town No: 139

Premises No: 204

Permit No: 0111

Stack No: 01

PERMIT FOR FUEL BURNING EQUIPMENT

**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT**

PART III. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS, cont.

3. The Permittee shall calculate and record the monthly and consecutive 12 month PM₁₀/PM_{2.5}, SO₂, NO_x, CO, and VOC emissions in units of tons. The consecutive 12 month emissions shall be determined by adding (for each pollutant) the current month's emissions to that of the previous 11 months. Such records shall include a sample calculation for each pollutant. The Permittee shall make these calculations within 30 days of the end of the previous month.
4. The Permittee shall keep records of each delivery of urea solution. The records shall include the date of delivery, the name of the supplier, the quantity of urea solution delivered, and the percentage of urea in solution, by weight.
5. The Permittee shall keep records of the inspection and maintenance of the engine, SCR catalyst and particulate filters. The records shall include the name of the person, the date, the results or actions and the date the SCR catalyst is replaced.
6. The Permittee shall keep records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of this source; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. [40 CFR §60.7(b)]
7. The Permittee shall keep all records required by this permit for a period of no less than five years and shall submit such records to the commissioner upon request.

C. Reporting

1. The commissioner may request additional reporting to demonstrate compliance with the requirements of this permit, as allowed by state or federal statute, law or regulation.
2. The Permittee shall notify the commissioner and Administrator, in writing, of the date of commencement of construction and the date of initial startup of this source. Such written notifications shall be submitted no later than 30 days after the subject event.

PART IV. OPERATION AND MAINTENANCE REQUIREMENTS

- A. The Permittee shall operate and maintain this equipment in accordance with the manufacturer's specifications and written recommendations.

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|--|
| FIRM NAME: Connecticut Municipal Electric Energy Cooperative |
| EQUIPMENT LOCATION: 57 Salem Turnpike, Norwich, CT 06360 |
| EQUIPMENT DESCRIPTION: Cummins QSK78-G6 Diesel Generator, Salem Tpke 1 |

Town No: 139 Premises No: 204 Permit No: 0111 Stack No: 01

PERMIT FOR FUEL BURNING EQUIPMENT

**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT**

PART IV. OPERATION AND MAINTENANCE REQUIREMENTS, continued

- B. The Permittee shall operate and maintain this stationary source, any air pollution control equipment, and any monitoring equipment in a manner for minimizing emission at all times including during startup, shutdown and malfunction.

PART V. ALLOWABLE EMISSION LIMITS

The Permittee shall not cause or allow this equipment to exceed the emission limits stated herein.

A. Short Term Emission Limits (Excluding Startup for NOx)

| Criteria | lb/hr | lb/MW-hr |
|-------------------|-------|----------|
| <u>Pollutants</u> | | |
| PM ₁₀ | 0.15 | |
| PM _{2.5} | 0.15 | |
| SOx | 0.04 | |
| NOx | 7.43 | 2.97 |
| VOC | 2.94 | |
| CO | 6.51 | |

B. Startup Emission Limits

The Permittee shall minimize emissions during periods of startup and shutdown according to the following work practices and time constraints:

1. Start the urea solution injection as soon as the minimum SCR catalyst operating temperature is reached.
2. The duration of startup shall not exceed 60 minutes.
3. Emissions during these events shall be counted towards the annual emissions limits stated herein.

C. Annual Emission Limits

| Criteria | Tons per Twelve (12) |
|-------------------|---------------------------|
| <u>Pollutants</u> | <u>Consecutive Months</u> |
| PM ₁₀ | 0.09 |
| PM _{2.5} | 0.09 |
| SOx | 0.02 |
| NOx | 5.29 |
| VOC | 1.76 |
| CO | 3.90 |

| |
|--|
| FIRM NAME: Connecticut Municipal Electric Energy Cooperative |
| EQUIPMENT LOCATION: 57 Salem Turnpike, Norwich, CT 06360 |
| EQUIPMENT DESCRIPTION: Cummins QSK78-G6 Diesel Generator, Salem Tpke 1 |

Town No: 139

Premises No: 204

Permit No: 0111

Stack No: 01

PERMIT FOR FUEL BURNING EQUIPMENT

**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT**

PART V. ALLOWABLE EMISSION LIMITS, continued

D. Hazardous Air Pollutants: This unit shall not cause an exceedance of the Maximum Allowable Stack Concentration (MASC) for any hazardous air pollutant (HAP) listed in RCSA Section 22a-174-29. [STATE ONLY REQUIREMENT]

E. Compliance Demonstration

1. Demonstration of compliance with the above emission limits shall be met by calculating the emission rates using emission factors from the following sources:
 - a. PM₁₀, PM_{2.5}, NO_x, VOC and CO: Manufacturer's specifications.
 - b. SO_x: Mass balance.
 - c. NO_x (startup): 24.2 lb per event, duration of each event shall not exceed 60 minutes.
2. The Permittee is not required to demonstrate compliance with the short-term emission limits stated herein during the initial shakedown period. Emissions during the initial shakedown period shall be counted towards the annual emission limits stated herein. The shakedown period shall not extend beyond the required date for the initial performance tests.
3. The commissioner may require other means (e.g. stack testing) to demonstrate compliance with the above emission limits, as allowed by state or federal statute, law or regulation.

PART VI. STACK EMISSION TEST REQUIREMENTS (Applicable if -X- Checked)

A. Stack testing shall be performed in accordance with the latest Emission Test Guidelines available on the DEP website:

http://www.ct.gov/dep/cwp/view.asp?a=2684&q=322076&depNav_GID=1619

B. Initial stack testing shall be required for the following pollutant(s):

PM SO_x NO_x CO VOC Opacity

Other (HAPs): PAH

FIRM NAME: Connecticut Municipal Electric Energy Cooperative
 EQUIPMENT LOCATION: 57 Salem Turnpike, Norwich, CT 06360
 EQUIPMENT DESCRIPTION: Cummins QSK78-G6 Diesel Generator, Salem Tpke 1

Town No: 139 Premises No: 204 Permit No: 0111 Stack No: 01

PERMIT FOR FUEL BURNING EQUIPMENT

**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT**

PART VI. STACK EMISSION TEST REQUIREMENTS, continued

C. NO_x and CO

1. The Permittee shall conduct initial stack testing within 60 days of achieving the maximum production rate, but not later than 180 days after initial startup. Test results must be submitted within 45 days after testing.
2. Testing being conducted pursuant to 40 CFR Part 60: The test report is to be submitted within 180 days after the initial startup date or within 60 days after reaching maximum production rate. [40 CFR §60.8(a)]
3. Recurrent stack testing for NO_x and CO shall be conducted within five years from the date of the previous stack test.

D. PAHs

1. PAHs shall be considered to consist of the following seven pollutants: Benzo(a)pyrene, Dibenz(a,h)anthracene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene and Indeno(1,2,3-cd)pyrene.
2. Uncontrolled (without Diesel Particulate Filter) Emission Rate Test
 - a. The Permittee may conduct an initial stack test to determine the uncontrolled emission rate of PAHs.
 - b. This emission rate shall be used to determine compliance with Part V.D of this permit.
 - c. This test shall not be required if the Permittee has previously conducted an uncontrolled PAH emission rate test, required by a federally enforceable permit, on an identical Cummins QSK78-G6 diesel generator set at one of the Permittee's other locations.
 - d. This test shall be conducted within 60 days of achieving the maximum production rate, but not later than 180 days after initial startup. Test results must be submitted within 45 days after testing.
3. Controlled (with Diesel Particulate Filter) Emission Rate Test
 - a. If the results of the uncontrolled emission rate test, required in Part VI.D.2 of this permit, exceed 90% of the MASC as determined in RCSA Section 22a-174-29 or the Permittee does not complete the testing in Part VI.D.2 of this permit, the Permittee shall conduct stack testing of this engine to

FIRM NAME: Connecticut Municipal Electric Energy Cooperative
 EQUIPMENT LOCATION: 57 Salem Turnpike, Norwich, CT 06360
 EQUIPMENT DESCRIPTION: Cummins QSK78-G6 Diesel Generator, Salem Tpke 1

Town No: 139

Premises No: 204

Permit No: 0111

Stack No: 01

PERMIT FOR FUEL BURNING EQUIPMENT

**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT**

PART VI. STACK EMISSION TEST REQUIREMENTS, continued

- determine the as-controlled emission rate of PAHs.
- b. This emission rate shall be used to determine compliance with Part V.D of this permit.
 - c. This test shall be conducted within 60 days of achieving the maximum production rate, but no later than 180 days after the initial startup unless the test in Part VI.D.2 of this permit was completed.
 - d. If the test in Part VI.D.2 of this permit was completed and the test in Part VI.D.3 of this permit is required, then the as-controlled emission test shall be conducted no later than 30 days after the test required in Part VI.D.2 of this permit. Test results shall be submitted within 45 days after testing.
 - e. Recurrent stack testing for the as-controlled emission rate of PAHs shall be conducted within 5 years from the date of any previously required as-controlled stack testing for PAH required by this section.

PART VII. SPECIAL REQUIREMENTS

- A. The Permittee shall operate this facility at all times in a manner so as not to violate or contribute significantly to the violation of any applicable state noise control regulations, as set forth in RCSA Sections 22a-69-1 through 22a-69-7.4. [**STATE ONLY REQUIREMENT**]
- B. The Permittee shall comply with all applicable sections of the following New Source Performance Standard(s) at all times.

Title 40 CFR Part 60, Subparts IIII and A

Copies of the Code of Federal Regulations (CFR) are available online at the U.S. Government Printing Office website.
- C. The Permittee shall comply with all applicable sections of the following National Emission Standards for Hazardous Air Pollutants at all times.

Title 40 CFR Part 63, Subparts ZZZZ and A

Copies of the Code of Federal Regulations (CFR) are available online at the U.S. Government Printing Office website.
- D. Opacity resulting from operation of this engine shall not exceed 10% during any six-minute block average or 40% reduced to a one-minute block average; as measured by 40 CFR 60, Appendix A, Reference Method 9.

FIRM NAME: Connecticut Municipal Electric Energy Cooperative
EQUIPMENT LOCATION: 57 Salem Turnpike, Norwich, CT 06360
EQUIPMENT DESCRIPTION: Cummins QSK78-G6 Diesel Generator, Salem Tpke 1

Town No: 139 Premises No: 204 Permit No: 0111 Stack No: 01

PERMIT FOR FUEL BURNING EQUIPMENT

**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT**

PART VII. SPECIAL REQUIREMENTS, continued

- E. In the event that a malfunction causing either an emission exceedance or a parameter monitored out of recommended range is not corrected within three (3) hours, the Permittee shall immediately institute shutdown of the engine.

PART VIII. ADDITIONAL TERMS AND CONDITIONS

- A. This permit does not relieve the Permittee of the responsibility to conduct, maintain and operate the regulated activity in compliance with all applicable requirements of any federal, municipal or other state agency. Nothing in this permit shall relieve the Permittee of other obligations under applicable federal, state and local law.
- B. Any representative of the DEP may enter the Permittee's site in accordance with constitutional limitations at all reasonable times without prior notice, for the purposes of inspecting, monitoring and enforcing the terms and conditions of this permit and applicable state law.
- C. This permit may be revoked, suspended, modified or transferred in accordance with applicable law.
- D. This permit is subject to and in no way derogates from any present or future property rights or other rights or powers of the State of Connecticut and conveys no property rights in real estate or material, nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state or local laws or regulations pertinent to the facility or regulated activity affected thereby. This permit shall neither create nor affect any rights of persons or municipalities who are not parties to this permit.
- E. Any document, including any notice, which is required to be submitted to the commissioner under this permit shall be signed by a duly authorized representative of the Permittee and by the person who is responsible for actually preparing such document, each of whom shall certify in writing as follows: "I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that any false statement made in the submitted information may be punishable as a criminal offense under section 22a-175 of the Connecticut General Statutes, under section 53a-157b of the Connecticut General Statutes, and in accordance with any applicable statute."

FIRM NAME: Connecticut Municipal Electric Energy Cooperative
EQUIPMENT LOCATION: 57 Salem Turnpike, Norwich, CT 06360
EQUIPMENT DESCRIPTION: Cummins QSK78-G6 Diesel Generator, Salem Tpke 1

Town No: 139

Premises No: 204

Permit No: 0111

Stack No: 01

PERMIT FOR FUEL BURNING EQUIPMENT

**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT**

PART VIII. ADDITIONAL TERMS AND CONDITIONS, continued

- F. Nothing in this permit shall affect the commissioner's authority to institute any proceeding or take any other action to prevent or abate violations of law, prevent or abate pollution, recover costs and natural resource damages, and to impose penalties for violations of law, including but not limited to violations of this or any other permit issued to the Permittee by the commissioner.
- G. Within 15 days of the date the Permittee becomes aware of a change in any information submitted to the commissioner under this permit, or that any such information was inaccurate or misleading or that any relevant information was omitted, the Permittee shall submit the correct or omitted information to the commissioner.
- H. The date of submission to the commissioner of any document required by this permit shall be the date such document is received by the commissioner. The date of any notice by the commissioner under this permit, including but not limited to notice of approval or disapproval of any document or other action, shall be the date such notice is personally delivered or the date three days after it is mailed by the commissioner, whichever is earlier. Except as otherwise specified in this permit, the word "day" means calendar day. Any document or action which is required by this permit to be submitted or performed by a date which falls on a Saturday, Sunday or legal holiday shall be submitted or performed by the next business day thereafter.
- I. Any document required to be submitted to the commissioner under this permit shall, unless otherwise specified in writing by the commissioner, be directed to: Office of Director; Engineering & Enforcement Division; Bureau of Air Management; Department of Environmental Protection; 79 Elm Street, 5th Floor; Hartford, Connecticut 06106-5127.

| | |
|------------------------|---|
| FIRM NAME: | Connecticut Municipal Electric Energy Cooperative |
| EQUIPMENT LOCATION: | 57 Salem Turnpike, Norwich, CT 06360 |
| EQUIPMENT DESCRIPTION: | Cummins QSK78-G6 Diesel Generator, Salem Tpke 1 |

Town No: 139

Premises No: 204

Permit No: 0111

Stack No: 01



STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT

NEW SOURCE REVIEW PERMIT
TO CONSTRUCT AND OPERATE
A STATIONARY SOURCE

Issued pursuant to Title 22a of the Connecticut General Statutes (CGS) and Section 22a-174-3a of the Regulations of Connecticut State Agencies (RCSA).

| | |
|------------------------|---|
| Owner/Operator: | Connecticut Municipal Electric Energy Cooperative |
| Address: | 30 Stott Avenue, Norwich, CT 06360-1526 |
| Equipment Location: | 57 Salem Turnpike, Norwich, CT 06360 |
| Equipment Description: | Cummins QSK78-G6 Diesel Generator (Salem Tpke 2) |

| | |
|------------------------|----------|
| Town-Permit Numbers: | 139-0112 |
| Town-Premises Numbers: | 139-204 |
| Permit Issue Date: | |
| Expiration Date: | |

Amey Marrella
Commissioner

Date

PERMIT FOR FUEL BURNING EQUIPMENT

STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF AIR MANAGEMENT

This permit specifies necessary terms and conditions for the operation of this equipment to comply with state and federal air quality standards. The Permittee shall at all times comply with the terms and conditions stated herein.

PART I. DESIGN SPECIFICATIONS

A. General Description

The source is a Cummins QSK78-G6 diesel generator set with an electrical output of approximately 2.5 MW. Control equipment will consist of a selective catalytic reduction with urea injection and a diesel particulate filter. The source will be operated as a peaking unit with a fuel use limit equivalent to 1,200 hours of full load operation per calendar year.

B. Equipment Design Specifications

1. Maximum Fuel Firing Rate (gallons/hr): 165.9
2. Maximum Gross Heat Input (MMBTU/hr): 22.2

C. Control Equipment Design Specifications

1. Selective Catalytic Reduction (SCR) with Urea Injection
 - a. Make and Model: MIRATECH Corporation
 - b. Catalyst Type: Vanadium or Equivalent
 - c. Minimum Design NO_x Removal Efficiency (%): 90
 - d. Catalyst Bed Temperature Range (°F): 570-930
 - e. Catalyst Bed Design Pressure Drop Range (inH₂O): 2-40 at ≥ 570°F
 - f. Urea Flow Rate (gallons/hr): 1.5-19.8
 - g. Urea Solution Concentration (% by weight): 40
2. Particulate Trap
 - a. Make and Model: MIRATECH Corporation, CombiKat or Equivalent
 - b. Filtering Material: Silicon Carbide or Equivalent
 - c. Minimum Design Particulate Removal Efficiency (%): 85
 - d. Minimum Design PAH Removal Efficiency (%): 60

D. Stack Parameters

1. Minimum Stack Height (ft): 30
2. Minimum Exhaust Gas Flow Rate at 100% Load (acfm): 15,167
3. Stack Exit Temperature at 100% Load (°F): 786
4. Minimum Distance from Stack to Property Line (ft): 22

FIRM NAME: Connecticut Municipal Electric Energy Cooperative
 EQUIPMENT LOCATION: 57 Salem Turnpike, Norwich, CT 06360
 EQUIPMENT DESCRIPTION: Cummins QSK78-G6 Diesel Generator, Salem Tpke 2

Town No: 139

Premises No: 204

Permit No: 0112

Stack No: 02

PERMIT FOR FUEL BURNING EQUIPMENT

**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT**

PART II OPERATIONAL CONDITIONS

Operating Limits

1. Fuel Type: Ultra Low Sulfur Diesel
2. Maximum Fuel Consumption over any Consecutive 12 Month Period:
199,080 gallons
3. Maximum Fuel Sulfur Content (% by weight, dry basis): 0.0015

PART III. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS

A. Monitoring

1. The Permittee shall use a non-resettable totalizing fuel metering device to continuously monitor fuel feed to this permitted source.
2. The Permittee shall continuously monitor and continuously record the SCR urea solution injection rate (lb/hr or gal/hr), operating temperature (°F) and the combined pressure drop (inches of water) across the catalyst bed and diesel particulate filter. The Permittee shall maintain these parameters within the ranges recommended by the manufacturer to achieve compliance with the emission limits in this permit.
3. The Permittee shall inspect the engine and control devices once per year, at a minimum, or more frequently if recommended by the manufacturer.

B. Record Keeping

1. The Permittee shall record the monthly and consecutive 12 month fuel consumption. The consecutive 12 month fuel consumption shall be determined by adding the current month's fuel consumption to that of the previous 11 months. The Permittee shall make these calculations within 30 days of the end of the previous month.
2. The Permittee shall keep records of the fuel certification for each delivery of fuel oil from a bulk petroleum provider or a copy of the current contract with the fuel supplier supplying the fuel used by this equipment that includes the applicable sulfur content of the fuel as a condition of each shipment. The shipping receipt or contract shall include the date of delivery, the name of the fuel supplier, type of fuel delivered, the percentage of sulfur in such fuel, by weight, dry basis, and the method used to determine the sulfur content of such fuel.

FIRM NAME: Connecticut Municipal Electric Energy Cooperative
EQUIPMENT LOCATION: 57 Salem Turnpike, Norwich, CT 06360
EQUIPMENT DESCRIPTION: Cummins QSK78-G6 Diesel Generator, Salem Tpke 2

Town No: 139

Premises No: 204

Permit No: 0112

Stack No: 02

PERMIT FOR FUEL BURNING EQUIPMENT

**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT**

PART III. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS, cont.

3. The Permittee shall calculate and record the monthly and consecutive 12 month PM₁₀/PM_{2.5}, SO₂, NO_x, CO, and VOC emissions in units of tons. The consecutive 12 month emissions shall be determined by adding (for each pollutant) the current month's emissions to that of the previous 11 months. Such records shall include a sample calculation for each pollutant. The Permittee shall make these calculations within 30 days of the end of the previous month.
4. The Permittee shall keep records of each delivery of urea solution. The records shall include the date of delivery, the name of the supplier, the quantity of urea solution delivered, and the percentage of urea in solution, by weight.
5. The Permittee shall keep records of the inspection and maintenance of the engine, SCR catalyst and particulate filters. The records shall include the name of the person, the date, the results or actions and the date the SCR catalyst is replaced.
6. The Permittee shall keep records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of this source; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. [40 CFR §60.7(b)]
7. The Permittee shall keep all records required by this permit for a period of no less than five years and shall submit such records to the commissioner upon request.

C. Reporting

1. The commissioner may request additional reporting to demonstrate compliance with the requirements of this permit, as allowed by state or federal statute, law or regulation.
2. The Permittee shall notify the commissioner and Administrator, in writing, of the date of commencement of construction and the date of initial startup of this source. Such written notifications shall be submitted no later than 30 days after the subject event.

PART IV. OPERATION AND MAINTENANCE REQUIREMENTS

- A. The Permittee shall operate and maintain this equipment in accordance with the manufacturer's specifications and written recommendations.

| |
|--|
| FIRM NAME: Connecticut Municipal Electric Energy Cooperative |
| EQUIPMENT LOCATION: 57 Salem Turnpike, Norwich, CT 06360 |
| EQUIPMENT DESCRIPTION: Cummins QSK78-G6 Diesel Generator, Salem Tpke 2 |

Town No: 139

Premises No: 204

Permit No: 0112

Stack No: 02

PERMIT FOR FUEL BURNING EQUIPMENT

**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR MANAGEMENT**

PART IV. OPERATION AND MAINTENANCE REQUIREMENTS, continued

- B. The Permittee shall operate and maintain this stationary source, any air pollution control equipment, and any monitoring equipment in a manner for minimizing emission at all times including during startup, shutdown and malfunction.

PART V. ALLOWABLE EMISSION LIMITS

The Permittee shall not cause or allow this equipment to exceed the emission limits stated herein at any time.

A. Short Term Emission Limits (Excluding Startup for NOx)

| Criteria Pollutants | lb/hr | lb/MW-hr |
|------------------------|-------|----------|
| PM ₁₀ | 0.15 | |
| PM _{2.5} | 0.15 | |
| SOx | 0.04 | |
| NOx | 7.43 | 2.97 |
| VOC | 2.94 | |
| CO | 6.51 | |

B. Startup Emission Limits

The Permittee shall minimize emissions during periods of startup and shutdown according to the following work practices and time constraints:

1. Start the urea solution injection as soon as the minimum SCR catalyst operating temperature is reached.
2. The duration of startup shall not exceed 60 minutes.
3. Emissions during these events shall be counted towards the annual emissions limits stated herein.

C. Annual Emission Limits

| Criteria Pollutants | Tons per Twelve (12) Consecutive Months |
|------------------------|--|
| PM ₁₀ | 0.09 |
| PM _{2.5} | 0.09 |
| SOx | 0.02 |
| NOx | 5.29 |
| VOC | 1.76 |
| CO | 3.90 |

FIRM NAME: Connecticut Municipal Electric Energy Cooperative
 EQUIPMENT LOCATION: 57 Salem Turnpike, Norwich, CT 06360
 EQUIPMENT DESCRIPTION: Cummins QSK78-G6 Diesel Generator, Salem Tpke 2

Town No: 139 Premises No: 204 Permit No: 0112 Stack No: 02

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PART V. ALLOWABLE EMISSION LIMITS, continued

D. Hazardous Air Pollutants: This unit shall not cause an exceedance of the Maximum Allowable Stack Concentration (MASC) for any hazardous air pollutant (HAP) listed in RCSA Section 22a-174-29. [STATE ONLY REQUIREMENT]

E. Compliance Demonstration

1. Demonstration of compliance with the above emission limits shall be met by calculating the emission rates using emission factors from the following sources:
 - a. PM₁₀, PM_{2.5}, NO_x, VOC and CO: Manufacturer's specifications.
 - b. SO_x: Mass balance.
 - c. NO_x (startup): 24.2 lb per event, duration of each event shall not exceed 60 minutes.
2. The Permittee is not required to demonstrate compliance with the short-term emission limits stated herein during the initial shakedown period. Emissions during the initial shakedown period shall be counted towards the annual emission limits stated herein. The shakedown period shall not extend beyond the required date for the initial performance tests.
3. The commissioner may require other means (e.g. stack testing) to demonstrate compliance with the above emission limits, as allowed by state or federal statute, law or regulation.

PART VI. STACK EMISSION TEST REQUIREMENTS (Applicable if -X- Checked)

A. Stack testing shall be performed in accordance with the latest Emission Test Guidelines available on the DEP website:

<http://www.ct.gov/dep/cwp/view.asp?a=2684&q=322076&depNav GID=1619>

B. Initial stack testing shall be required for the following pollutant(s):

PM SO_x NO_x CO VOC Opacity

Other (HAPs): PAH

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PART VI. STACK EMISSION TEST REQUIREMENTS, continued

C. NO_x and CO

1. The Permittee shall conduct initial stack testing within 60 days of achieving the maximum production rate, but not later than 180 days after initial startup. Test results must be submitted within 45 days after testing.
2. Testing being conducted pursuant to 40 CFR Part 60: The test report is to be submitted within 180 days after the initial startup date or within 60 days after reaching maximum production rate. [40 CFR §60.8(a)]
3. Recurrent stack testing for NO_x and CO shall be conducted within five years from the date of the previous stack test.

D. PAHs

1. PAHs shall be considered to consist of the following seven pollutants: Benzo(a)pyrene, Dibenz(a,h)anthracene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene and Indeno(1,2,3-cd)pyrene.
2. Uncontrolled (without Diesel Particulate Filter) Emission Rate Test
 - a. The Permittee may conduct an initial stack test to determine the uncontrolled emission rate of PAHs.
 - b. This emission rate shall be used to determine compliance with Part V.D of this permit.
 - c. This test shall not be required if the Permittee has previously conducted an uncontrolled PAH emission rate test, required by a federally enforceable permit, on an identical Cummins QSK78-G6 diesel generator set at one of the Permittee's other locations.
 - d. This test shall be conducted within 60 days of achieving the maximum production rate, but not later than 180 days after initial startup. Test results must be submitted within 45 days after testing.
3. Controlled (with Diesel Particulate Filter) Emission Rate Test
 - a. If the results of the uncontrolled emission rate test, required in Part VI.D.2 of this permit, exceed 90% of the MASC as determined in RCSA Section 22a-174-29 or the Permittee does not complete the testing in Part VI.D.2 of this permit, the Permittee shall conduct stack testing of this engine to

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PART VI. STACK EMISSION TEST REQUIREMENTS, continued

- determine the as-controlled emission rate of PAHs.
- b. This emission rate shall be used to determine compliance with Part V.D of this permit.
 - c. This test shall be conducted within 60 days of achieving the maximum production rate, but no later than 180 days after initial startup unless the test in Part VI.D.2 of this permit was completed.
 - d. If the test in Part VI.D.2 of this permit was completed and the test in Part VI.D.3 of this permit is required, then the as-controlled emission test shall be conducted no later than 30 days after the test required in Part VI.D.2 of this permit. Test results shall be submitted within 45 days after testing.
 - e. Recurrent stack testing for the as-controlled emission rate of PAHs shall be conducted within 5 years from the date of any previously required as-controlled stack testing for PAH required by this section.

PART VII. SPECIAL REQUIREMENTS

- A. The Permittee shall operate this facility at all times in a manner so as not to violate or contribute significantly to the violation of any applicable state noise control regulations, as set forth in RCSA Sections 22a-69-1 through 22a-69-7.4. [**STATE ONLY REQUIREMENT**]
- B. The Permittee shall comply with all applicable sections of the following New Source Performance Standard(s) at all times.

Title 40 CFR Part 60, Subparts IIII and A

Copies of the Code of Federal Regulations (CFR) are available online at the U.S. Government Printing Office website.
- C. The Permittee shall comply with all applicable sections of the following National Emission Standards for Hazardous Air Pollutants at all times.

Title 40 CFR Part 63, Subparts ZZZZ and A

Copies of the Code of Federal Regulations (CFR) are available online at the U.S. Government Printing Office website.
- D. Opacity resulting from operation of this engine shall not exceed 10% during any six-minute block average or 40% reduced to a one-minute block average; as measured by 40 CFR 60, Appendix A, Reference Method 9.

| | |
|------------------------|---|
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PART VII. SPECIAL REQUIREMENTS, continued

- E. In the event that a malfunction causing either an emission exceedance or a parameter monitored out of recommended range is not corrected within three (3) hours, the Permittee shall immediately institute shutdown of the engine.

PART VIII. ADDITIONAL TERMS AND CONDITIONS

- A. This permit does not relieve the Permittee of the responsibility to conduct, maintain and operate the regulated activity in compliance with all applicable requirements of any federal, municipal or other state agency. Nothing in this permit shall relieve the Permittee of other obligations under applicable federal, state and local law.
- B. Any representative of the DEP may enter the Permittee's site in accordance with constitutional limitations at all reasonable times without prior notice, for the purposes of inspecting, monitoring and enforcing the terms and conditions of this permit and applicable state law.
- C. This permit may be revoked, suspended, modified or transferred in accordance with applicable law.
- D. This permit is subject to and in no way derogates from any present or future property rights or other rights or powers of the State of Connecticut and conveys no property rights in real estate or material, nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state or local laws or regulations pertinent to the facility or regulated activity affected thereby. This permit shall neither create nor affect any rights of persons or municipalities who are not parties to this permit.
- E. Any document, including any notice, which is required to be submitted to the commissioner under this permit shall be signed by a duly authorized representative of the Permittee and by the person who is responsible for actually preparing such document, each of whom shall certify in writing as follows: "I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that any false statement made in the submitted information may be punishable as a criminal offense under section 22a-175 of the Connecticut General Statutes, under section 53a-157b of the Connecticut General Statutes, and in accordance with any applicable statute."

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BUREAU OF AIR MANAGEMENT****PART VIII. ADDITIONAL TERMS AND CONDITIONS, continued**

- F. Nothing in this permit shall affect the commissioner's authority to institute any proceeding or take any other action to prevent or abate violations of law, prevent or abate pollution, recover costs and natural resource damages, and to impose penalties for violations of law, including but not limited to violations of this or any other permit issued to the Permittee by the commissioner.
- G. Within 15 days of the date the Permittee becomes aware of a change in any information submitted to the commissioner under this permit, or that any such information was inaccurate or misleading or that any relevant information was omitted, the Permittee shall submit the correct or omitted information to the commissioner.
- H. The date of submission to the commissioner of any document required by this permit shall be the date such document is received by the commissioner. The date of any notice by the commissioner under this permit, including but not limited to notice of approval or disapproval of any document or other action, shall be the date such notice is personally delivered or the date three days after it is mailed by the commissioner, whichever is earlier. Except as otherwise specified in this permit, the word "day" means calendar day. Any document or action which is required by this permit to be submitted or performed by a date which falls on a Saturday, Sunday or legal holiday shall be submitted or performed by the next business day thereafter.
- I. Any document required to be submitted to the commissioner under this permit shall, unless otherwise specified in writing by the commissioner, be directed to: Office of Director; Engineering & Enforcement Division; Bureau of Air Management; Department of Environmental Protection; 79 Elm Street, 5th Floor; Hartford, Connecticut 06106-5127.

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