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Department of Environmental Protection

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Final Prevention of Significant Deterioration Permit

**Application No. CE-15-016
Transmittal No. X265409**

**Exelon West Medway, LLC and Exelon West Medway II, LLC
Exelon West Medway II Facility
9 Summer Street
Medway, MA 02053**

**200 MW Simple-Cycle Combustion Turbine
Electric Generating Facility**

Pursuant to the provisions of the Clean Air Act (CAA) Chapter I, Part C (42 U.S.C. Section 7470, et seq.), the regulations found at the Code of Federal Regulations Title 40, Section 52.21, and the Agreement for Delegation of the Federal Prevention of Significant Deterioration Program, dated April 2011, by the United States Environmental Protection Agency, Region 1 (EPA) to the Massachusetts Department of Environmental Protection (MassDEP), MassDEP is issuing a Prevention of Significant Deterioration (PSD) Permit to Exelon West Medway, LLC and Exelon West Medway II, LLC (“the Permittee” or “Exelon”) concerning its proposed installation and operation of two simple-cycle peaking electric combustion turbines and ancillary equipment to be located at 9 Summer Street in Medway, MA (or “Project”).

The design, construction, and operation of the proposed Project shall be subject to the permit conditions and permit limitations set forth herein. This PSD Permit is valid only for the equipment described herein and as submitted to MassDEP in the August 25, 2015 application for a PSD Permit under 40 CFR 52.21 and subsequent application submittal addenda. In accordance with 40 CFR 124.15(b), this PSD Permit shall be effective 30

days after the date of service of notice of this final decision unless review by the Environmental Appeals Board (EAB) is requested in accordance with 40 CFR 124.19.

This Permit becomes invalid if the construction does not commence as defined in 40 CFR 52.21(b)(9) within 18 months after this PSD Permit takes effect, is discontinued for a period of 18 months or more, or is not completed within a reasonable time. Pursuant to 40 CFR 52.21, MassDEP may extend the 18 month period upon a satisfactory showing that an extension is justified. This Final PSD Permit does not relieve the Permittee from the obligation to comply with applicable state and federal air pollution control rules and regulations. Failure to comply with the terms and conditions of this PSD Permit may result in enforcement action by MassDEP and/or EPA pursuant to Sections 113 and 167 of the CAA.

This final document copy is being provided to you electronically by the
Department of Environmental Protection. A signed copy of this document
is on file at the DEP office listed on the letterhead.

Roseanna E. Stanley
Permit Chief
Bureau of Air and Waste

December 19, 2016
Date Issued

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I. PROJECT DESCRIPTION (FOR INFORMATIONAL PURPOSES)

Exelon proposed to modify the existing West Medway Generating Station by constructing two new quick-starting simple-cycle combustion turbines and ancillary equipment at 9 Summer Street in Medway, Massachusetts. The proposed Project is a nominal 200 MW peaking facility. The Generating Station, including the Project, will likely operate during peak electrical energy demand. The combustion turbines will run primarily on natural gas, with Ultra Low Sulfur Diesel fuel (ULSD) as a backup fuel.

The new construction will include two simple-cycle combustion turbines with a nominal maximum electrical output of 100 megawatts each. Exelon has chosen the General Electric LMS 100 combustion turbines. Other equipment supporting the operation of the combustion turbines includes, but is not limited to, a ULSD fired emergency generator engine, a ULSD fired emergency fire pump engine, and an aqueous ammonia storage tank.

II. EMISSION UNIT IDENTIFICATION

Each Emission Unit (EU) identified in Table 1 is subject to and regulated by this PSD Permit:

Table 1			
Emission Unit Identification			
EU	Description	Design Capacity	Pollution Control Device
J4	Combustion Turbine: GE LMS100	992 MMBtu/hr heat input firing natural gas 946 MMBtu/hr heat input firing ULSD	Water Injected Low-NOx Combustor, Selective Catalytic Reduction, Oxidation Catalyst
J5	Combustion Turbine: GE LMS 100	992 MMBtu/hr heat input firing natural gas 946 MMBtu/hr Heat Input firing ULSD	Water Injected Low-NOx Combustor, Selective Catalytic Reduction, Oxidation Catalyst
EDG	Emergency Generator Engine	4.7 MMBtu/hr heat input	None
FP	Emergency Fire Pump Engine	1.5 MMBtu/hr heat input	None

Table 1 Key:

EU = Emission Unit

MMBtu/hr = million British thermal units per hour

NOx = Nitrogen oxides

III. OPERATIONAL, PRODUCTION, AND EMISSION LIMITS

The Facility is subject to, and the Permittee shall ensure that the Facility shall not exceed the Operational, Production, and Emission Limits as contained in Table 2 (normal operation) and Table 2a (startup/shutdown operation) below, including footnotes:

Table 2			
Operational/Production and Emission Limits			
EU	Operational / Production Limit	Air Contaminant	Emission Limit^{1,2}
J4 and J5	1. Emission limits apply from first combustion of fuel until flame out except that NOx limits don't apply during start-ups and shutdowns.	NOx (natural gas)	9.14 lb/hr 0.0092 lb/MMBtu 2.5 ppmvd @ 15% O ₂
		NOx (ULSD)	18.38 lb/hr 0.0194 lb/MMBtu 5.0 ppmvd @ 15% O ₂
	2. Maximum Fuel Heat Input of each EU: 5,150,880 MMBtu, HHV per 12-month rolling period total ³ and 681,120 MMBtu, HHV per 12-month rolling period firing ULSD. ³	Sulfur in fuel	1 grains/100 scf natural gas 0.0015 % sulfur by weight in ULSD
		H ₂ SO ₄ (natural gas)	2.34 lb/hr 0.0024 lb/MMBtu
		H ₂ SO ₄ (ULSD)	1.39 lb/hr 0.0015 lb/MMBtu
	3. Up to the equivalent of 5,256 hours per 12-month period operating firing natural gas at 100% load which includes up to the	PM/PM ₁₀ /PM _{2.5} (natural gas)	8.15 lb/hr 0.018 lb/MMBtu
		PM/PM ₁₀ /PM _{2.5} (ULSD)	30.69 lb/hr 0.032 lb/MMBtu

Table 2			
Operational/Production and Emission Limits			
EU	Operational / Production Limit	Air Contaminant	Emission Limit ^{1,2}
J4 and J5	equivalent of 720 hours per 12-month period operating firing ULSD at 100% load. 4. Less than 471,000 MW-hr/year net electric sales three year rolling average for each EU.	CO ₂	The applicable CO ₂ emission standard in 40 CFR 60 Subpart TTTT Table 2
		NO _x	0.084 lb/MW-hr natural gas 0.175 lb/MW-hr ULSD
		H ₂ SO ₄	0.022 lb/MW-hr natural gas 0.013 lb/MW-hr ULSD
		PM/PM ₁₀ /PM _{2.5}	0.084 lb/MW-hr natural gas 0.293 lb/MW-hr ULSD
	5. Operation at 100% load, steady state, initial compliance test only within 180 days of startup ⁴	Greenhouse Gases, CO ₂ e (at ISO Conditions) ⁵	1,151 lb/MW-hr natural gas 1,551 lb/MW-hr ULSD 1,352 lb/MW-hr annual average
EDG	6. Limited to the operating hours restriction of 310 CMR 7.26(42)(d)1, if any. 7. Ultra Low Sulfur Diesel shall be the only fuel of use.	NO _x and NMHC, Combined Total	3.98 lb/hr 3.0 g/bhp-hr 4.0 g/KW-hr
		Sulfur in fuel	0.0015% by weight
		H ₂ SO ₄	0.006 lb/hr
		PM/PM ₁₀ /PM _{2.5}	0.20 lb/hr 0.15 g/bhp-hr 0.20 g/KW-hr
		Greenhouse Gases, CO ₂ e	163.64 lb/MMBtu
FP	8. Limited to the operating hours restriction of 310 CMR 7.26(42)(d)1, if any.	NO _x and NMHC, Combined Total	1.6 lb/hr 3.0 gm/bhp-hr 4.0 gm/KW-hr
		Sulfur in fuel	0.0015% by weight
		H ₂ SO ₄	0.002 lb/hr

Table 2			
Operational/Production and Emission Limits			
EU	Operational / Production Limit	Air Contaminant	Emission Limit^{1, 2}
FP	9. Ultra Low Sulfur Diesel shall be the only fuel of use.	PM/PM ₁₀ /PM _{2.5}	0.078 lb/hr 0.15 g/bhp-hr 0.20 g/KW-hr
		Greenhouse Gases, CO ₂ e	163.64 lb/MMBtu
Project wide ^{6, 7}	NA	NO _x	66.0 TPY
		PM/PM ₁₀ /PM _{2.5}	58.2 TPY
		H ₂ SO ₄	12.4 TPY
		CO ₂	695,875 TPY
		Greenhouse Gases, CO ₂ e	697,049 TPY ⁵

Table 2 Key:

% = percent
CFR = Code of Federal Regulations
CMR = Code of Massachusetts Regulations
CO₂ = Carbon dioxide
CO₂e = Carbon dioxide equivalents
EU = Emission Unit
g/bhp-hr = grams per brake horsepower-hour
g/KW-hr = grams per kilowatt-hour
H₂SO₄ = Sulfuric acid mist
HHV = higher heating value
ISO = International Organization for Standardization
lb/MMBtu = pounds per million British thermal units
lb/MW-hr = pounds per Megawatt-hour
NMHC = Nonmethane hydrocarbons
NO_x = Nitrogen oxide
ppmvd @ 15% O₂ = parts per million by volume, dry basis, corrected to 15 percent oxygen
scf = standard cubic feet
PM = Total particulate matter
PM₁₀ = Particulate matter less than or equal to 10 microns in diameter
PM_{2.5} = Particulate matter less than or equal to 2.5 microns in diameter
TPY = tons per 12-month rolling period
ULSD = Ultra Low Sulfur Diesel

Table 2 Notes:

1. Emission limits are the maximum allowed emission and are one hour block averages unless otherwise noted, and apply to any block hour with more than 30 minutes of normal operation.

2. Emissions limits for EUs EDG and FP are consistent with manufacturer's certifications using gaseous testing procedures in accordance with 40 CFR Part 89.
3. Maximum fuel heat input (total) for each combustion turbine calculated using 5,256 hours of operation per 12 month rolling period at 100% load and 50°F ambient temperature (980 MMBtu/hr, HHV). Maximum total fuel heat input (ULSD) for each combustion turbine calculated using 720 hours of operation per 12 month rolling period at 100% load and 50°F ambient temperature (946 MMBtu/hr, HHV).
4. The pound per megawatt-hour emission limits calculated using 100% load using lb/hr emissions and MW-hr gross electrical output.
5. The pound per megawatt-hour emission limit calculated using the 100% load emission factor and gross electrical output, corrected to ISO conditions (59°F, 14.7 psia and 60% humidity). Emissions calculations use a natural gas CO₂e emission factor of 119.0 lb/MMBtu. This emission factor is based on a CO₂ emission factor of 118.9 lb/MMBtu calculated from Equation G-4 of 40 CFR 75 Appendix G plus an emission factor of 0.1 lb/MMBtu for other greenhouse gases (methane and nitrous oxide) calculated using the emission factors for these two pollutants from Table C-2 of 40 CFR 98 Subpart C and the global warming potentials for these two pollutants from Table A-1 of 40 CFR 98 Subpart A. Compliance shall be determined during the initial compliance test performed within 180 days after initial firing of the EUs. Similarly, ULSD emissions are calculated using a ULSD CO₂e emission factor of 163.64 lb/MMBtu. The annual average pound per megawatt-hour value is calculated monthly on a rolling 12-month period by summing all mass emissions of CO₂e during the given 12-month period and dividing by all MW-h output within the given 12-month period.
6. The TPY emission limits apply to the emissions from EUs J4, J5, EDG and FP combined.
7. The TPY emission limits are for a 12-month rolling period, calculated monthly.

Table 2a			
Operational/Production and Emission Limits during Startup and Shutdown			
EU	Operational / Production Limit	Air Contaminant	Emission Limit
J4 and J5	1. Operation during startups (from first combustion of fuel to compliance with the NOx emission limits) but no more than 30 minutes.	NOx (natural gas)	22 pounds per startup event
		NOx (ULSD)	39 pounds per startup event
	2. Operation during shutdowns (from 25% load firing natural gas or 50% load firing ULSD to flame out) but no more than 13 minutes.	NOx (natural gas)	6 pounds per shutdown event
		NOx (ULSD)	7 pounds per shutdown event

Table 2a Key:

EU = Emission Unit
NOx = Nitrogen oxides
ULSD = Ultra Low Sulfur Diesel

IV. MONITORING AND TESTING REQUIREMENTS

Table 3	
EU	Monitoring and Testing Requirements
J4 and J5	1. The Permittee shall install, calibrate, certify, maintain and continuously operate a DAHS, and a Continuous Emission Monitoring System (CEMS) in an accurate operating condition to measure and record emissions of NOx in the stacks and to measure and record fuel flow.
	2. The Permittee shall install, calibrate, certify, maintain, and operate the CEMS in accordance with 40 CFR 60 Appendix B (Performance Specifications) and 40 CFR 60 Appendix F (Quality Control Procedures).
	3. The Permittee shall program a calibration error check sequence for each CEMS unit into the DAHS and perform the error check sequence at least daily.
	4. The Permittee shall obtain and record emissions data from each CEMS unit serving EUs J4 and J5 at all times EUs J4 and J5 are firing except for periods of CEMS calibration error checks, zero and span adjustments, maintenance, and periods of malfunction.
	5. The Permittee shall obtain and record emissions data from each CEMS serving EUs J4 and J5 for at least ninety five (95) percent of EUs J4's and J5's operating hours every calendar quarter, except for periods of CEMS calibration error checks, zero and span adjustments, and preventive maintenance.
	6. The Permittee shall continuously monitor NOx and CO and compile one-hour block average emission concentrations. The DAHS shall calculate the emissions in lbs/hr, lbs/MMBtu and ppmvd at 15% O ₂ to determine compliance with the applicable emission limits in Table 2 of this PSD Permit.
	7. The Permittee shall equip the CEMS with properly operated and properly maintained audible and visible alarms. The alarms shall be set to activate whenever emissions from the Project are within 5% of the lb/hr emission limits in Table 2 of this PSD Permit.
	8. The Permittee shall conform with the EPA monitoring specifications at 40 CFR 60.13 and 40 CFR 60 Appendices B and F, and all applicable portions of 40 CFR 72 and 75, 310 CMR 7.32, and 310 CMR 7.70 for all emission monitors and recorders serving EUs J4 and J5.

Table 3	
EU	Monitoring and Testing Requirements
J4 and J5	9. The Permittee shall monitor emissions during all periods that emissions are above the emission limits in Tables 2 and 2a of this PSD Permit, even if the exceedance is attributable to startup, shutdown, malfunction, emergency, equipment cleaning, and upsets or failures associated with the emission control system or the CEMS. An exceedance of emission limits in Tables 2 or 2a of this PSD Permit due to an emergency or malfunction shall not be deemed a federally permitted release as that term is used in 42 U.S.C. 9601(10).
	10. The Permittee shall use and maintain the CEMS serving EUs J4 and J5 as “direct-compliance” monitors to measure emissions of NO _x and CO. “Direct-compliance” monitors generate data that legally documents the compliance status of a source.
	11. The Permittee shall not certify the CEMS during SCR or oxidation catalyst startup, during malfunction or maintenance.
	12. The Permittee shall conduct Relative Accuracy Test Audits (RATA) on the NO _x CEMS units at a frequency determined in accordance with 40 CFR 75.
	13. The Permittee shall develop and implement a quality assurance/quality control program for the long-term operation of the CEMS serving EUs J4 and J5 before the commencement of commercial operations so as to conform with 40 CFR 60 Appendices B and F, all applicable portions of 40 CFR 72 and 75, 310 CMR 7.32, and 310 CMR 7.70.
	14. Whenever the NO _x CEMS unit is not available for more than two hours, the Permittee shall monitor the following parameters to assure that the NO _x emissions are consistent with prior NO _x compliant operation: (a) ammonia CEMS unit, (b) temperature of SCR and oxidation catalyst inlet, (c) temperature of ammonia injection system, (d) ammonia injection rate, and (e) pressure drop across the SCR and oxidation catalyst.
	15. The Permittee shall monitor the date and hours that EUs J4 and J5 operate.
	16. The Permittee shall install and continuously operate monitors fitted with alarms to monitor the temperatures at the inlets to the SCR and oxidation catalysts serving EUs J4 and J5. The alarms shall be set to activate when temperatures at the inlets to the SCR and oxidation catalysts deviate from normal operating temperatures. In addition, the Permittee shall monitor the ambient temperature.
	17. The Permittee shall install, calibrate, certify, maintain and continuously operate fuel flow monitors that monitor the amount of natural gas and ULSD used to fire EUs J4 and J5

Table 3

EU	Monitoring and Testing Requirements
J4 and J5	18. The Permittee shall monitor fuel heat input rate (MMBtu/hr, HHV), natural gas heat input (MMBtu), ULSD heat input (MMBtu), natural gas consumption (scf) and ULSD consumption (gallons) for EUs J4 and J5.
	19. The Permittee shall monitor the load, startup and shutdown duration, and mass emissions (lb/event) of NO _x during startup and shutdown of EUs J4 and J5.
	20. The Permittee shall continuously monitor the gross electrical output of the Project.
	21. The Permittee shall monitor the sulfur content of the fuel combusted by EUs J4 and J5 in accordance with 40 CFR 60 Subpart KKKK, or pursuant to any alternative fuel monitoring schedule in accordance with 40 CFR 60 Subpart KKKK unless the Permittee elects not to monitor the sulfur content of the fuel and makes a demonstration required in 40 CFR 60.4365.
	22. The Permittee shall monitor the Greenhouse Gas emission rate using the calculation procedures in 40 CFR 98.
	23. The Permittee shall conduct initial compliance testing of EUs J4 and J5 within 180 days of the initial firing of EUs J4 and J5 to determine the compliance status with the emission limits in Tables 2 and 2a of this PSD Permit. Initial compliance testing shall be conducted in accordance with MassDEP's "Guidelines for Source Emissions Testing," in accordance with EPA reference test methods in 40 CFR 60, Appendix A or by another method that has been approved in writing by MassDEP, and in accordance with the emission testing protocol required by Table 5 Condition 2 below.
	24. The Permittee shall construct the Project to accommodate the emissions testing requirements in 40 CFR 60 Appendix A. The two outlet sampling ports (90 degrees apart from each other) for each emission unit must be located at a minimum of one duct diameter upstream and two duct diameters downstream of any flow disturbance. In addition, the Permittee shall facilitate access to the sampling ports and testing equipment by constructing platforms, ladders, or other necessary equipment.
	25. The Permittee shall conduct initial compliance testing of EUs J4 and J5 within 180 days of the initial firing of EUs J4 and J5 to determine their compliance status with the emission limits (in lb/hr, lb/MMBtu, and ppmvd, as applicable) in Tables 2 and 2a of this PSD Permit while firing natural gas and ULSD for the following pollutants: NO _x , total PM ¹ and H ₂ SO ₄ .
	26. The Permittee shall conduct initial compliance testing of EUs J4 and J5: <ul style="list-style-type: none"> (a) at representative operating conditions, (b) at no less than the following load conditions while testing for NO_x: while firing natural gas; 25%, 50%, 75% and 100%, and while firing ULSD; 50%, 75% and 100%, (c) at no less than the following load conditions while testing for total PM¹: while firing natural gas; 25% and 100%, and while firing ULSD; 50% and 100%, and (d) at no less than the following load conditions while testing for H₂SO₄: while firing natural gas; 100%, and while firing ULSD; 100%.

Table 3	
EU	Monitoring and Testing Requirements
J4 and J5	27. The Permittee shall comply with the parametric monitoring methodology approved by MassDEP for PM, PM ₁₀ , PM _{2.5} , and H ₂ SO ₄ emissions from EUs J4 and J5. The Permittee shall use the turbine load as a parametric to document compliance with PM, PM ₁₀ , and PM _{2.5} emission limits. The Permittee shall use the fuel sulfur content as the parametric to document compliance with H ₂ SO ₄ emission limits
	28. The Permittee shall sample and analyze the natural gas and ULSD used during the initial compliance testing to determine their compliance status with the sulfur in fuel emission limit in Table 2 of this Permit.
	29. The Permittee shall conduct initial compliance tests of EUs J4 and J5 to determine their compliance status with the startup and shutdown emission limits for NO _x . Startup is the period from first combustion of fuel to compliance with the NO _x emission limits in Table 2a of this PSD Permit, but no more than 30 minutes. Shutdown is the period from 25% load while firing natural gas or 50% load while firing ULSD to flame out, but no more than 13 minutes.
	30. The Permittee shall conduct initial compliance testing to determine compliance with all lb/MW-hr emission limits in Table 2 of this PSD Permit within 180 days of initial firing of each EU. The Permittee shall conduct this initial compliance test at 100% load and calculate lb/MW-hr emissions using gross electrical output.
	31. The Permittee shall conduct emission tests for PM and H ₂ SO ₄ that meet the requirements for initial compliance tests in Table 2 Conditions 25 and 26 above, every five years.
Project-wide	32. The Permittee shall monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	33. If and when MassDEP requires it, the Permittee shall conduct emission testing in accordance with EPA Reference Test Methods and 310 CMR 7.13.
	34. The Permittee shall monitor the sulfur content of each shipment of ULSD received. The Permittee may determine the sulfur content of ULSD by analyzing the sulfur content of the ULSD or by relying on ULSD suppliers to provide the sulfur content of ULSD received. The analysis of sulfur content of ULSD shall be in accordance with the applicable ASTM International test methods or any other method approved by MassDEP and EPA
	35. The Permittee shall monitor emissions of CO _{2e} from all emission units associated with the Project

Table 3Key:

CO₂ = Carbon dioxide
CFR = Code of Federal Regulations
CMR = Code of Massachusetts Regulations
CEMS = Continuous Emission Monitors

DAHs= Data Acquisition and Handling System
EU = Emission Unit
EPA = Environmental Protection Agency
H₂SO₄ = Sulfuric acid mist
HHV = Higher heating value
lb/event = Pounds per event
lb/hr = Pounds per hour
lb/MW-hr = Pounds per megawatt-hour
lb/MMBtu = Pounds per million British thermal units
MMBtu = Million British thermal units
MMBtu/hr = Million British thermal units per hour
NO_x = Nitrogen oxides
PM =Particulate matter
PM_{2.5} = Particulate matter less than or equal to 2.5 microns in diameter
PM₁₀ = Particulate matter less than or equal to 10 microns in diameter
% = percent
ppmvd = parts per million by volume, dry basis
PSD = Prevention of Significant Deterioration
RATA = Relative Accuracy Test Audits
scf = standard cubic feet
SCR = Selective Catalytic Reduction
ULSD = Ultra Low Sulfur Diesel
U.S.C. = United States Code

Table 3 Notes:

1. The Permittee shall test PM by using EPA Method 5 for PM or EPA Method 201A for PM₁₀ and EPA Method 202 for condensable particulate matter, adding those emissions, and comparing that sum to the PM/PM₁₀/PM_{2.5} emission limit.

V. RECORD KEEPING REQUIREMENTS

Table 4	
EU	Record Keeping Requirements
J4 and J5	1. The Permittee shall maintain on-site permanent records of output from all continuous monitors (including CEMS) for flue gas emissions, natural gas consumption (scf) and ULSD consumption (gallons).
	2. The Permittee shall maintain records of the load, startup and shutdown duration, and mass emissions (lb/event) of NO _x during startup and shutdown of EUs J4 and J5.
	3. The Permittee shall maintain records of the hourly fuel heat input rate (MMBtu/hr, HHV), NO _x hourly emissions natural gas heat input (MMBtu), ULSD heat input (MMBtu), natural gas consumption (scf), ULSD consumption (gallons) and purchase records for natural gas and ULSD per month and on a twelve month rolling period basis for EUs J4 and J5.

Table 4

EU	Record Keeping Requirements
J4 and J5	4. The Permittee shall maintain continuous records of the SCR and oxidation catalyst: <ul style="list-style-type: none"> • inlet temperature, • the ambient temperature, and • the pressure drop across the SCR and the oxidation catalyst.
	5. The Permittee shall maintain records of gross electrical output from the Project on a daily basis.
	6. The Permittee shall maintain records of the date and hours that EUs J4 and J5 operate per month and per twelve month rolling period.
	7. The Permittee shall maintain a log to record problems, upsets or failures associated with the emission control systems, DAHS, and CEMS serving EUs J4 and J5.
	8. The Permittee shall keep records of the CEMS unit's calibration error check sequences.
	9. The Permittee shall continuously record the following: <ul style="list-style-type: none"> • ammonia injection rate, and • temperature of the injected ammonia.
	10. The Permittee shall record the date, time of observation and name of the observer (if applicable) of the following: <ul style="list-style-type: none"> • the condition of the ammonia system, daily, and • alarm event when triggered on the ammonia leak detection system.
	11. The Permittee shall maintain records all of manufacturer's required monitoring protocols and inspections included in the SOMP for each CEMS, the SCR, the oxidation catalyst and the ammonia handling system. The records shall include: the date, time of monitoring and/or inspection, the results of inspection, and the name of the staff member performing the monitoring and/or inspection.
	12. The Permittee shall maintain adequate records on-site to demonstrate the compliance status with all operational/production limits and emission limits in Tables 2 and 2a above: <ol style="list-style-type: none"> (a) the records shall include all associated calculations and supporting data, (b) the records shall include the actual emissions of air contaminants emitted for each calendar month and for each consecutive twelve-month period, (c) the records shall include the actual emissions of air contaminants for each calendar month, and for each consecutive twelve month period, and (d) the Permittee shall compile these records no later than the 15th day following each month. <p>The Permittee may download an electronic version of the MassDEP approved record keeping form, in Microsoft Excel format, at: http://www.mass.gov/eea/agencies/massdep/air/approvals/limited-emissions-record-keeping-and-reporting.html#WorkbookforReportingOn-SiteRecordKeeping.</p>

Table 4	
EU	Record Keeping Requirements
J4 and J5	13. The Permittee shall maintain records of the sulfur content of the fuel fired by EUs J4 and J5 at the frequency required by 40 CFR 60 Subpart KKKK, or pursuant to any alternative fuel monitoring schedule in accordance with 40 CFR 60 Subpart KKKK
	14. The Permittee shall maintain a record of the sulfur content of each ULSD delivery made to the Project
	15. The Permittee shall maintain all records required by 40 CFR 98 (Mandatory Greenhouse Gas Emissions Reporting) at the Project.
	16. The Permittee shall maintain the following records: (a) the dates ULSD was fired, (b) the specific condition of Table 6 Condition 6 under which ULSD was allowed to be fired for each period of ULSD firing, (c) for any ULSD firing under Table 6 Condition 6(a), the price comparison required by Table 6 Condition 6(a) Error! Reference source not found. , (d) the heat input when firing ULSD under Table 6 Condition 6(a), and (e) the heat input when firing ULSD under Table 6 Condition 6(b).
	17. The Permittee shall maintain records of monitoring and testing as required by Table 3 of this PSD Permit.
	18. The Permittee shall maintain records to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	19. The Permittee shall maintain a copy of this PSD Permit, its underlying Application, and the most up-to-date SOMP at the Facility.
	20. The Permittee shall maintain records required by this PSD Permit on-site for a minimum of five (5) years.
	21. The Permittee shall make records required by this PSD Permit available to MassDEP and EPA personnel upon request.
EDG, FP	22. The Permittee shall maintain a record of the hours of operation of EUs EDG and FP per month and per twelve month rolling period and the reason EUs EDG and FP operated.

Table 4	
EU	Record Keeping Requirements
Project-wide	<p>23. The Permittee shall establish and maintain a record keeping system for the Project so that year-to-date information is readily available. Record keeping shall, at a minimum, include:</p> <ul style="list-style-type: none"> (a) Compliance records sufficient to document actual emissions from the Project to determine compliance with the operational/production limits and emission limits in Tables 2 and 2a of this PSD Permit. Such records shall include, but are not limited to, fuel usage rates, emissions test results, and monitoring equipment data and reports, (b) Maintenance: A record of maintenance, repair and inspection activities performed on all emission units and their associated equipment, control equipment and their associated equipment and monitoring equipment. The records shall include, at a minimum, the type or a description of the maintenance, repair or inspection performed and the date and time the work was commenced and completed, and (c) Malfunctions: A record of all malfunctions of the control and monitoring equipment serving EUs J4 and J5 including, at a minimum: the date and time the malfunction occurred; a description of the malfunction and the corrective action taken; the date and time corrective actions began; and the date and time corrective actions were completed.
	<p>24. The Permittee shall record the total emissions of CO_{2e} from all emission units associated with the Project in each calendar year.</p>

Table 4 Key:

CFR = Code of Federal Regulations
CMR = Code of Massachusetts Regulations
CEMS = Continuous Emission Monitors
DAHS = Data Acquisition and Handling System
EU = Emission Unit
EPA = Environmental Protection Agency
HHV = Higher heating value
lb/event = pounds per event
MMBtu = Million British thermal units
MMBtu/hr = Million British thermal units per hour
NO_x = Nitrogen oxides
PSD = Prevention of Significant Deterioration
scf = standard cubic feet
SCR = Selective Catalytic Reduction
SOMP = Standard Operating and Maintenance Procedures
ULSD = Ultra Low Sulfur Diesel

VI. REPORTING REQUIREMENTS

Table 5	
EU	Reporting Requirements
J4 and J5	1. The Permittee shall submit a QA/QC program plan for the CEMS serving EUs J4 and J5 to MassDEP, in writing, at least 30 days before commencement of commercial operation of EUs J4 and J5. The Permittee shall implement the QA/QC program approved by MassDEP. The Permittee shall submit subsequent changes to the QA/QC program plan to MassDEP for MassDEP approval prior to their implementation.
	2. The Permittee shall submit a written test protocol to MassDEP at least 45 days before initial compliance testing and obtain written MassDEP approval of an emissions test protocol before conducting initial compliance testing of EUs J4 and J5. The protocol shall include, but not be limited to: <ul style="list-style-type: none"> (a) A detailed description of sampling port locations, sampling equipment, sampling and analytical procedures, and operating conditions for the initial compliance testing, (b) Procedures for initial compliance testing of startup and shutdown emissions, and (c) Procedures to confirm the parametric monitoring methodology for particulate emissions and sulfuric acid mist approved by MassDEP.
	3. The Permittee shall notify MassDEP of the proposed schedule for initial compliance testing at least 30 days prior to conducting the initial compliance testing.
	4. The Permittee shall submit a final emissions test results report to MassDEP within 45 days of completion of the initial compliance testing.
	5. The Permittee shall submit to MassDEP for approval a proposed parametric monitoring methodology to assure emissions of particulate matter and sulfuric acid mist comply with the emission limits in Table 2 of this PSD Permit. The Permittee shall submit the proposed parametric monitoring methodology within 60 days after commencement of commercial operations. The Permittee shall implement the parametric monitoring methodology approved by MassDEP.
	6. The Permittee shall submit a quarterly Excess Emissions Report to MassDEP by the thirtieth (30th) day of April, July, October, and January each year. The Excess Emissions Report shall include at least the information listed below for the previous calendar periods of January through March, April through June, July through September, and October through December, respectively. <ul style="list-style-type: none"> (a) CEMS excess emissions data, in a format acceptable to MassDEP, (b) exceedances of operational/production limits, (c) for each period of excess emissions or exceedances of operational/production limits for EUs J4 and J5, the Permittee shall list the duration, cause, the response taken, and the amount of excess emissions. Periods of excess emissions shall include excess emissions during startup and shutdown, malfunction,

Table 5

EU	Reporting Requirements
J4 and J5	<p>emergency, equipment cleaning, and upsets or failures associated with the emission control system or CEMS. (“Malfunction” means any sudden and unavoidable failure of air pollution control equipment or process equipment or of a process to operate in a normal or usual manner. Failures caused entirely or in part by poor maintenance, careless operation, or any other preventable upset condition or preventable equipment breakdown are not malfunctions. “Emergency” means any situation arising from sudden and reasonably unforeseeable events beyond the control of the Permittee, including acts of God, which would require immediate corrective action to restore normal operation, and that causes the Project to exceed a technology based limitation in this PSD Permit, due to unavoidable increases in emissions attributable to the emergency. An emergency does not include noncompliance caused by improperly designed equipment, lack of maintenance, careless or improper operations, operator error or decision to keep operating despite knowledge of these things.),</p> <p>(d) A tabulation of periods of operation of each emission unit and total hours of operation of each emission unit during the calendar quarter, and</p> <p>(e) The number of hours each of the CEMS collected data and the percent data capture for each CEMS when EUs J4 and J5 were operating.</p> <p>7. The Permittee shall comply with all applicable reporting requirements of and 40 CFR 98 (Mandatory Greenhouse Gas Emissions Reporting).</p>
EDG and FP	<p>8. The Permittee shall submit to MassDEP a certification for EUs EDG and FP not later than 30 days before their construction or installation begins.</p>
Project-wide	<p>9. The Permittee shall submit a semi-annual report to MassDEP by January 30 and July 30 of each year to demonstrate the Project’s compliance status regarding the Project-wide emission limits (TPY) and annual operational/production limits in Tables 2 and 2a. (The Permittee may download the optional MassDEP format at: http://www.mass.gov/eea/docs/dep/air/approvals/aq/aqsarpt.doc).</p> <p>The Permittee shall include in its calculation of actual emissions, emissions during steady state operation, startup, shutdown, malfunction, emergency, equipment cleaning, and upsets or failures associated with the emission control system or CEMS.</p> <p>The semi-annual report shall include, but not be limited to:</p> <p>(a) actual emissions for each month of the previous 12-month period,</p> <p>(b) the maximum hourly fuel heat input rate (MMBtu/hr, HHV), natural gas heat input (MMBtu), ULSD heat input (MMBtu), natural gas consumption (scf), and ULSD consumption (gallons) per month and on a twelve month rolling period basis,</p> <p>(c) a list of deviations from the conditions of the PSD Permit, and</p> <p>(d) in the semi-annual report required by July 30 each year for the period of the previous July through June, the following information regarding ULSD firing pursuant to Table 6 Condition 6:</p> <p>i. the dates ULSD was fired,</p> <p>ii. the specific condition of Table 6 Condition 6 under which ULSD was allowed to be fired for each day of ULSD firing,</p> <p>iii. for any ULSD firing under Table 6 Condition 6(a), the price comparison required by Table 6 Condition 6(a),</p>

Table 5	
EU	Reporting Requirements
Project-wide	<p>iv. the heat input when firing ULSD under Table 6 Condition 6(a), and</p> <p>v. the heat input when firing ULSD under Table 6 Condition 6(b).</p>
	<p>10. The Permittee shall submit, in writing, the following notifications to MassDEP within five (5) business days of:</p> <ul style="list-style-type: none"> (a) the date of commencement of construction of each Emission Unit, (b) the date each Emission Unit construction has been completed, (c) the date of initial firing of each Emission Unit, (d) the date CEMS is certified, and (e) the date of commencement of commercial operation.
	<p>11. The Permittee shall submit to MassDEP, in accordance with the provisions of 310 CMR 7.02(5)(c), plans and specifications for the main exhaust stacks, EUs J4 and J5, the SCR (including the ammonia handling and storage system), and the CEMS and DAHS once the specific information has been determined, but in any case, not later than 30 days before the construction or installation of each component.</p>
	<p>12. The Permittee shall submit to MassDEP for approval, a SOMP for:</p> <ul style="list-style-type: none"> (a) all emission units, (b) all emissions control equipment, (c) the ammonia handling system, (d) the CEMS, and (e) the DAHS, <p>no later than 45 days before commencement of commercial operation. The Permittee shall include in the SOMP, but not be limited to, all manufacturer's required monitoring protocols, schedules and inspections. The Permittee shall implement the SOMP approved by MassDEP. Thereafter, the Permittee shall submit updated versions of the SOMP to MassDEP no later than thirty (30) days before a significant change. The updated SOMP shall supersede prior versions of the SOMP.</p>
	<p>13. The Permittee shall submit to MassDEP, in accordance with the provisions of 310 CMR 7.02(5)(c), plans and specifications for all sound walls required by the Plan Approval no later than 14 days after the specific information has been determined.</p>
	<p>14. The Permittee shall submit an Operating Permit Application to MassDEP in accordance with 310 CMR 7.00: Appendix C(4)(b) at least nine months before the planned commencement of commercial operation.</p>
	<p>15. The Permittee shall notify the Central Regional Office of MassDEP, BAW Permit Chief by telephone: 508-767-2845, email: CERO.Air@state.ma.us and roseanna.stanley@state.ma.us, or fax: 508-792-7621, as soon as possible, but no later than three (3) business days after discovery of an exceedance(s) of Table 2 or 2a requirements. A written report shall be submitted to the Permit Chief at MassDEP within ten (10) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s).</p>

Table 5	
EU	Reporting Requirements
Project-wide	16. The Permittee shall notify MassDEP immediately by telephone or fax or e-mail [CERO.Air@state.ma.us and roseanna.stanley@state.ma.us] and within three (3) business days, in writing, of any upset or malfunction to the ammonia handling or delivery systems that resulted in a release or threat of release of ammonia to the ambient air. In addition, the Permittee shall comply with all notification procedures required under M.G.L. c. 21 E for any release or threat of release of ammonia.
	17. All notifications and reporting to MassDEP required by this PSD Permit shall be made, unless otherwise noted, to the attention of: Department of Environmental Protection Bureau of Air and Waste 8 New Bond Street Worcester, Massachusetts 01606 Attn: Permit Chief Phone: (508) 792-7650 Fax: (508) 792-7621 E-Mail: cero.air@state.ma.us and roseanna.stanley@state.ma.us
	18. The Permittee shall report annually to MassDEP, in accordance with 310 CMR 7.12, all information required by the Source Registration/Emission Statement Form. The Permittee shall note therein any minor changes which did not require plan approval.
	19. The Permittee shall submit to MassDEP all information required by this PSD Permit over the signature of a “Responsible Official” as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).
	20. The Permittee shall provide to MassDEP a copy of any record required by this PSD Permit within thirty (30) days of MassDEP’s request.
	21. If and when MassDEP requires emission testing, the Permittee shall submit to MassDEP for approval an emission pretest protocol, at least forty-five (45) days before emission testing.
	22. If and when MassDEP requires emission testing, the Permittee shall submit to MassDEP a final emission test results report, within forty five (45) days of completion of the emission testing.

Table 5 Key:

BAW = Bureau of Air and Waste
CFR = Code of Federal Regulations
CMR = Code of Massachusetts Regulations
CEMS = Continuous Emission Monitors
DAHS = Data Acquisition and Handling System
EU = Emission Unit
HHV = Higher heating value
M.G.L. = Massachusetts General Laws
MMBtu = Million British thermal units

MMBtu/hr = Million British thermal units per hour
QA/QC = Quality assurance/quality control
PSD = Prevention of Significant Deterioration
scf = standard cubic feet
SCR = Selective Catalytic Reduction
SOMP = Standard Operation and Maintenance Procedures
TPY = Tons per 12-month rolling period
ULSD = Ultra Low Sulfur Diesel

VII. SPECIAL TERMS AND CONDITIONS

Table 6	
EU	Special Terms and Conditions
J4 and J5	1. The Permittee shall certify the CEMS serving EUs J4 and J5 according to the procedures and schedule in 40 CFR 75.
	2. The Permittee shall maintain an adequate supply of spare parts on-site to maximize the on-line availability and data capture of the CEMS equipment and to maximize the availability of the SCR.
	3. The Permittee shall operate the SCR serving EUs J4 and J5 whenever the flue gas temperature at the inlet to the SCR is above the minimum flue gas temperature specified by the SCR manufacturer and other system parameters are satisfied for SCR operation.
	4. The Permittee shall not operate EUs J4 and J5 at less than 25% load while firing natural gas or less than 50% load while firing ULSD, except during startups and shutdowns.
	5. The Permittee shall develop as part of the SOMP for EUs J4 and J5 an optimization protocol to establish conditions that maintain compliance with all emission limits at all ambient temperatures and conditions.
	6. The Permittee shall not operate EUs J4 and J5 firing ULSD except under the following conditions: <ul style="list-style-type: none"> (a) Up to a maximum heat input of 681,120, MMBtu during each period from July 1 through June 30, on any day the price of ULSD is less than the price of natural gas for the Project on a dollars per MMBtu basis. To compare the price of ULSD and the price of natural gas, the Permittee shall compare: for ULSD, the final "Settle" price for the prompt month NY Harbor ULSD Futures (or a successor product) as published by CME Group multiplied by 7.21 gallons per MMBtu, and for natural gas, the Midpoint price for Algonquin, city-gates (or a successor product) as published in Platt's Gas Daily multiplied by 1.1. The Permittee and MassDEP will designate a replacement price index if either price index is no longer provided by the above noted source or if a successor to either index above is not available, or, (b) Up to a maximum heat input of 1,362,240 MMBtu during each period from July 1 through June 30, except that this maximum heat input is reduced by the amount of any heat input used

Table 6	
EU	Special Terms and Conditions
J4 and J5	<p>under Table 6 Condition 6(a) above during the same period:</p> <ol style="list-style-type: none"> When ISO-NE declares an Emergency, an Energy Emergency, or a Capacity Scarcity Condition as defined in ISO New England's Tariff or as referenced in Operating Procedure No. 4, No. 7 or No. 21, or; When the natural gas supply (1) is curtailed by the pipeline operator; (2) cannot be procured or delivered at any price; or (3) is not available for purchase or delivery within the timeframe required to support operation of the Project. In this situation, the Permittee shall use all commercially reasonable efforts to switch to firing natural gas as soon as possible as allowed under ISO-NE market rules and without jeopardizing the safety of equipment or operating personnel, or; In the event the Project is operating on natural gas and the pipeline operator curtails the supply or delivery of natural gas. In this situation, the Permittee shall use all commercially reasonable efforts to switch back to firing natural gas as soon as possible as allowed under ISO-NE market rules and without jeopardizing the safety of equipment or operating personnel, or; In the Real-Time market when ISO-NE dispatches the Project at or above the Reserve Constraint Penalty Factor price applicable to either the System reserve requirements or local reserve requirements associated with the load zone in which the Project is located, or; In the event there is (1) a failure of any equipment (whether on-site or off-site) required to fire EUs J4 and J5 with natural gas; (2) a physical blockage of the supply pipeline; (3) or other pipeline or natural gas supply condition preventing the delivery of natural gas of appropriate quality and pressure. In this situation, the Permittee shall use all commercially reasonable efforts to switch back to firing natural gas as soon as possible as allowed under ISO-NE market rules and without jeopardizing the safety of equipment or operating personnel, or; During commissioning and start-up testing when EUs J4 and J5 are fired with ULSD, or; For emission testing purposes required by this Plan Approval or required by MassDEP or for testing required by ISO-NE or any other regulatory authority, or; During testing, modification, repair and maintenance if any equipment requires firing with ULSD. <p>The Permittee shall not operate EU J4 and J5 firing ULSD pursuant to Table 6 Conditions 6(a) and 6 (b)during the Ozone Season. "Ozone season" means the ozone monitoring season for Massachusetts as stated in 40 CFR 58 Appendix D Table D-3</p>
Project-wide	<ol style="list-style-type: none"> The Permittee shall properly train all personnel to operate the Project and the control and monitoring equipment in accordance with manufacturer specifications. All persons responsible for the operation of the Project shall sign a statement affirming that they have read and understand the approved SOMP. The Permittee shall give refresher training to Project personnel at least annually.

Table 6	
EU	Special Terms and Conditions
Project-wide	8. The Permittee shall determine compliance with the annual CO ₂ e emission limit in Table 2 of the PSD Permit using the calculation procedures in 40 CFR 98.
	9. The Permittee shall continue to operate the emission control system during periods of CEMS data unavailability.
	10. The Permittee shall only accept delivery of ULSD with a sulfur content no greater than 0.0015 percent by weight.
	11. The Permittee shall comply with all provisions of 40 CFR 72 and 75, 40 CFR 60, 40 CFR 63, 40 CFR 64, 40 CFR 68, 40 CFR Part 98, and 310 CMR 6.00 through 8.00 that are applicable to this Project.
	12. All requirements of this PSD Permit that apply to the Permittee shall apply to all subsequent owners and/or operators of the Project.

Table 6 Key:

CO₂e = Carbon dioxide equivalents
CFR = Code of Federal Regulations
CEMS = Continuous Emission Monitors
EU = Emission Unit
PSD = Prevention of Significant Deterioration
SOMP = Standard Operating and Maintenance Procedures
SCR = Selective Catalytic Reduction
ULSD = Ultra Low Sulfur Diesel

VIII. RIGHT OF ENTRY

The Permittee shall allow all authorized representatives of MassDEP and EPA, upon presentation of credentials, to enter upon or through the Project and anywhere records required under this PSD Permit are kept. The Permittee shall allow such authorized representatives, at reasonable times:

1. To access and copy any records that must be kept under this PSD Permit;
2. To inspect any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated under this PSD Permit; and
3. To monitor substances or parameters for purposes of assuring compliance with this PSD Permit.

IX. TRANSFER OF OWNERSHIP

In the event of any changes in control or ownership of the Facility, this PSD Permit shall be binding on all subsequent owners and operators. The Permittee shall notify the succeeding owner and operator of the existence of this PSD Permit and its conditions before such change, if possible, but in no case later than 14 days after such change. Notification shall be sent by letter with a copy forwarded within 5 days to MassDEP and EPA.

X. SEVERABILITY

The provisions of this PSD Permit are severable, and if any provision of the PSD Permit is held invalid, the remainder of this PSD Permit will not be affected thereby.

XI. CREDIBLE EVIDENCE

For the purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of any provision of this PSD Permit, the methods used in this PSD Permit shall be used, as applicable. However, nothing in this PSD Permit shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether the Permittee would have been in compliance with applicable requirements if the appropriate performance or compliance test procedures or methods had been performed.

XII. OTHER APPLICABLE REGULATIONS

The Permittee shall operate all equipment regulated herein in compliance with all other applicable provisions of federal and state air regulations.

The Permittee has addressed the PSD Environmental Justice (EJ) requirements as required by the April 11, 2011 PSD Delegation Agreement between EPA and MassDEP to “identify and address, as appropriate high and adverse human health or environmental effects of federal programs, policies and activities on minority and low income populations” in accordance with Executive Order 12898 (February 11, 1994). Additional EJ discussion is provided in the PSD Fact sheet for the Exelon West Medway II project.

XIII. AGENCY ADDRESS

Subject to change, all correspondence required by this PSD Permit shall be forwarded to:

Permit Chief, Bureau of Air and Waste
Department of Environmental Protection
Central Regional Office
8 New Bond Street
Worcester, Massachusetts 01606

XIV. APPEAL PROCEDURES

1. Within 30 days after the final PSD Permit decision has been issued under 40 CFR 124.15, any person who filed comments on the Draft Permit or participated in any public hearing may petition EPA's Environmental Appeals Board to review any condition of the Permit decision.
2. The effective date of the Permit is 30 days after service of notice to the Applicant and commenters of the final decision to issue, modify, or revoke and reissue the PSD Permit, unless review is requested on the Permit under 40 CFR 124.19 within the 30 day period.
3. If an appeal is made to the Environmental Appeals Board, the effective date of the Permit is suspended until the appeal is resolved.