

PPRP

Environmental Review of the
1,000 MW Wildcat Point Project
Proposed by Old Dominion Electric
Cooperative (ODEC)

December 2014

**MARYLAND POWER PLANT
RESEARCH PROGRAM**



MARTIN O'MALLEY, GOVERNOR
ANTHONY G. BROWN, LT. GOVERNOR

"The Maryland Department of Natural Resources (DNR) seeks to preserve, protect, and enhance the living resources of the state. Working in partnership with the citizens of Maryland, this worthwhile goal will become a reality. This publication provides information that will increase your understanding of how DNR strives to reach that goal through its many diverse programs."

Joseph P. Gill, Secretary
Maryland Department of Natural Resources

This document is available in alternative format upon request from a qualified individual with a disability.

The facilities and services of the Maryland Department of Natural Resources are available to all without regard to race, color, religion, sex, sexual orientation, age, national origin, or physical or mental disability.

Environmental Review of the 1,000 MW Wildcat Point Project Proposed by Old Dominion Electric Cooperative (ODEC)

Prepared by

D. Mountain, D. Goldstein, M. Johnson, R. Keating
Environmental Resources Management, Inc., Annapolis, MD

A. Yegnan, M. Garrison, S. Ramaswamy
Environmental Resources Management, Inc., Malvern, PA

S. Harriott
Versar, Inc. ESM Operations, Columbia, MD

P. Hall
Metametrics, Inc., Charlottesville, VA

Prepared for

**Maryland Department of Natural Resources
Power Plant Research Program
Annapolis, MD**

December 2014

FOREWORD

This report, *Environmental Review of the 1,000 MW Wildcat Point Project Proposed by Old Dominion Electric Cooperative (ODEC)*, was prepared under the direction of Susan T. Gray at the Maryland Department of Natural Resources, Power Plant Research Program (PPRP). Under contract to PPRP, the following individuals were responsible for conducting the work associated with this environmental review:

- Diane Mountain, Mitchell Johnson, Robert W. Keating, Environmental Resources Management, Inc. (ERM), Annapolis, MD under contract K00B0400122
- Daniel Goldstein, ERM, Annapolis, MD under contract K00B0400079
- Mark Garrison, Anand Yegnan, Surya Ramaswamy, ERM, Malvern, PA under contract K00B0400079
- Steve Harriott, Versar, Inc., Columbia, MD under contract K00B0200109
- Peter D. Hall, Metametrics, Inc., Charlottesville, VA under contract K00B0400131

ABSTRACT

This document summarizes the State of Maryland's evaluation of the proposed Old Dominion Electric Cooperative (ODEC) Wildcat Point Generating Facility in Cecil County, Maryland. The project received final approval from the Public Service Commission (PSC) on 8 April 2014.

The Maryland Public Service Commission (PSC) granted a Certificate of Public Convenience and Necessity (CPCN) to Old Dominion Electric Cooperative, Inc. (ODEC) for its original Rock Springs Generation Facility in Cecil County, Maryland in November 2000. The CPCN allowed for up to six CT units; however, based on market conditions, only four of the CT units were constructed. ODEC is now proposing to construct two natural gas-fired combined-cycle CT units, along with associated infrastructure, at the Rock Springs site. The 1,000 MW nominally rated project will be located adjacent to the existing generating station, on a portion of the site that was initially intended for the two unbuilt Rock Springs turbines.

The Department of Natural Resources (DNR) Power Plant Research Program (PPRP), coordinating with other State agencies, performed this environmental review of the Project as part of the licensing process administered by the Maryland PSC under Case No. 9327. PPRP's review was conducted to evaluate the potential impacts to environmental and cultural resources for the proposed facility, pursuant to Section 3-304 of the Natural Resources Article of the Annotated Code of Maryland.

PPRP used the analysis of potential impacts as the basis for establishing recommended license conditions for operating the proposed facility, pursuant to Section 3-306 of the Natural Resources Article. The recommended license conditions are included as Appendix A. PPRP's recommendations are made in concert with other units within DNR, as well as the Maryland Departments of Environment, Agriculture, Business and Economic Development, Planning, and Transportation, and the Maryland Energy Administration.

The PSC Administrative Law Judge issued a proposed order on 24 March 2014 granting a CPCN for ODEC Wildcat Point, and the order became final on 8 April 2014 (Order No. 86290).

TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	BACKGROUND	1
1.2	FINAL DISPOSITION OF THE CPCN LICENSING CASE	2
1.3	REPORT ORGANIZATION	2
2.0	PROJECT DESCRIPTION	4
2.1	EXISTING ROCK SPRINGS GENERATION FACILITY	4
2.2	PROPOSED WILDCAT POINT FACILITY	5
2.3	LINEAR FACILITIES	6
2.3.1	<i>Water Pipeline</i>	<i>7</i>
2.3.2	<i>Natural Gas Pipeline</i>	<i>7</i>
3.0	EXISTING CONDITIONS	9
3.1	TOPOGRAPHY AND SOILS	9
3.1.1	<i>Site Topography</i>	<i>9</i>
3.1.2	<i>Soils</i>	<i>9</i>
3.2	GEOLOGY AND GROUND WATER RESOURCES	10
3.2.1	<i>Regional Geology</i>	<i>10</i>
3.2.2	<i>Ground Water Resources</i>	<i>10</i>
3.2.3	<i>Local Ground Water Use</i>	<i>12</i>
3.3	SURFACE WATER RESOURCES	13
3.4	CLIMATOLOGY AND AIR QUALITY	13
3.4.1	<i>Climatology</i>	<i>13</i>
3.4.2	<i>Air Quality</i>	<i>14</i>
3.5	BIOLOGICAL RESOURCES	16
3.5.1	<i>Terrestrial Resources</i>	<i>16</i>
3.5.2	<i>Aquatic Resources</i>	<i>19</i>
3.6	REGIONAL SOCIOECONOMIC SETTING	19
3.6.1	<i>Population Trends</i>	<i>19</i>

3.6.2	<i>Employment and Income Trends</i>	20
3.6.3	<i>Land Use and Zoning</i>	21
3.6.4	<i>Transportation</i>	25
3.6.5	<i>Public Services and Safety</i>	28
3.6.6	<i>Cultural Setting</i>	29
3.7	NOISE	32
3.7.1	<i>Definition of Noise</i>	32
3.7.2	<i>Existing Noise Levels at the Site</i>	34
4.0	AIR QUALITY IMPACTS	36
4.1	AIR QUALITY IMPACT ASSESSMENT BACKGROUND AND METHODOLOGY	36
4.1.1	<i>Overview</i>	36
4.1.2	<i>Regulatory Considerations</i>	36
4.2	PROPOSED PROJECT SOURCE CHARACTERIZATION	38
4.2.1	<i>Overview</i>	38
4.3	PROJECT AIR EMISSIONS	42
4.3.1	<i>CTs/HRSGs and Duct Burners</i>	42
4.3.2	<i>Auxiliary Boiler</i>	49
4.3.3	<i>Dew Point Heater</i>	50
4.3.4	<i>Emergency Generator and Fire Water Pump Engine</i>	51
4.3.5	<i>Cooling Tower</i>	53
4.3.6	<i>Circuit Breakers</i>	54
4.3.7	<i>Fugitive Emissions</i>	54
4.3.8	<i>Fuel Oil Storage Tanks</i>	55
4.3.9	<i>Ammonia Emissions</i>	55
4.3.10	<i>Summary of Emissions</i>	56
4.3.11	<i>Construction Emissions</i>	59
4.4	PREVENTION OF SIGNIFICANT DETERIORATION (PSD)	60
4.4.1	<i>Applicability</i>	60
4.4.2	<i>Best Available Control Technology (BACT) Analyses</i>	61
4.4.3	<i>NAAQS and PSD Increment Compliance Demonstration</i>	88
4.5	NONATTAINMENT NEW SOURCE REVIEW (NA-NSR)	90
4.5.1	<i>LAER Evaluation</i>	91
4.5.2	<i>Offsets</i>	101
4.5.3	<i>Additional NA-NSR Requirements</i>	102
4.6	REGULATORY APPLICABILITY ANALYSIS	103
4.6.1	<i>Federal Regulatory Requirements</i>	103

4.6.2	<i>State Regulatory Requirements</i>	109
5.0	ANALYSIS OF OTHER ENVIRONMENTAL IMPACTS	112
5.1	IMPACTS TO WATER RESOURCES	112
5.1.1	<i>Surface Water</i>	112
5.1.2	<i>Ground Water</i>	114
5.2	BIOLOGICAL IMPACTS	120
5.2.1	<i>Terrestrial Resources</i>	120
5.2.2	<i>Aquatic Resources</i>	121
5.3	SOCIOECONOMIC AND CULTURAL IMPACTS	122
5.3.1	<i>Employment and Income</i>	122
5.3.2	<i>Population and Housing</i>	123
5.3.3	<i>Transportation</i>	123
5.3.4	<i>Land Use</i>	126
5.3.6	<i>Visual Quality</i>	127
5.3.7	<i>Government Finances</i>	128
5.3.8	<i>Cultural Impacts</i>	129
5.4	NOISE IMPACTS	131
5.4.1	<i>Summary of Regulatory Requirements</i>	131
5.4.2	<i>Estimates of Noise Emissions from the Generating Equipment</i>	132
6.0	SUMMARY	136
6.1	AIR IMPACTS	136
6.2	BIOLOGICAL IMPACTS	138
6.3	WATER IMPACTS	138
6.4	SOCIOECONOMIC IMPACTS	140
6.5	NOISE IMPACTS	141
7.0	REFERENCES	143

LIST OF APPENDICES

APPENDIX A FINAL RECOMMENDED LICENSE CONDITIONS

APPENDIX B DETAILED AIR EMISSIONS CALCULATIONS

APPENDIX C SUMMARY OF EPA'S RBLC DATABASE AND RECENT PERMIT DETERMINATIONS

APPENDIX D DETAILED REVIEW OF MODELING ANALYSIS

APPENDIX E FEDERAL AND STATE AIR REGULATORY REVIEW

APPENDIX F PPRP SUMMARY OF CONSTRUCTION PLAN MODIFICATIONS

LIST OF FIGURES	On or Following Page No.
2-1 <i>Project Location Map</i>	4
2-2 <i>Site Layout</i>	5
2-3 <i>Visual Rendering of Project</i>	5
2-4 <i>Linear Facilities</i>	7
3-1 <i>Fracture Trace Analysis Map</i>	11
3-2 <i>Ground Water Table Elevation Contour Map</i>	12
3-3 <i>Zoning Districts in Vicinity of Rock Springs Site</i>	22
3-4 <i>Land Use in Cecil County</i>	23
3-5 <i>Protected Lands in Cecil County</i>	25
3-6 <i>Functional Classification of Roads in Project Area</i>	26
3-7 <i>Noise Measuring Point Locations</i>	34
5-1 <i>Modeled Sound Pressure Level Contours</i>	135

LIST OF TABLES	
3-1 <i>Cecil County Traffic Volumes</i>	27
3-2 <i>Typical Sound Levels for Common Sources</i>	33
3-3 <i>Existing Ambient Sound Levels</i>	35
4-1 <i>Wildcat Point Project Air Emission Sources</i>	41
4-2 <i>Projected Number of Annual Startup and Shutdown Events - Total Plant Startup/Shutdown</i>	45
4-3 <i>Projected Criteria Pollutant Emissions During Startup and Shutdown Periods – Combined for Both CTs</i>	45
4-4 <i>PPRP and MDE-ARMA Calculated Potential Emissions from the Proposed CTs/HRSGs</i>	47
4-5 <i>Projected HAP Emissions from CTs/HRSGs – Both CTs Combined</i>	47

4-6	<i>Summary of HAP Emissions Associated with CTs/HRSGs – Startup and Shutdown Conditions</i>	49
4-7	<i>Summary of CT/HRSG Projected Emissions</i>	49
4-8	<i>Potential Emissions from the Auxiliary Boiler</i>	50
4-9	<i>Potential Emissions from the Dew Point Heater</i>	51
4-10	<i>Potential Emissions from the 2,250 kW Emergency Generator</i>	52
4-11	<i>Potential Emissions from the Fire Water Pump Engine</i>	53
4-12	<i>Potential PM/PM10/PM2.5 Emissions from the Cooling Tower</i>	54
4-13	<i>Potential Fugitive GHG Emissions</i>	55
4-14	<i>Short-Term Emissions Summary for the Wildcat Point Project</i>	57
4-15	<i>Annual Potential Emissions Summary for the Wildcat Point Project</i>	58
4-16	<i>Emissions Associated with Construction Activities</i>	59
4-17	<i>PSD/NSR Applicability Analysis for the Project</i>	61
4-18	<i>Proposed PM, PM10, PM2.5 BACT Determinations</i>	70
4-19	<i>Proposed CO BACT Determinations</i>	76
4-20	<i>Proposed SO₂ BACT Determinations</i>	78
4-21	<i>Proposed SAM BACT Determinations</i>	80
4-22	<i>Recent GHG Permit Determinations for Mitsubishi Units</i>	83
4-23	<i>Proposed GHG BACT Determinations</i>	88
4-24	<i>Proposed NO_x LAER Limitations</i>	96
4-25	<i>Proposed VOC LAER Determinations</i>	101
4-26	<i>Emission Standards for the Emergency Engines (g/hp-hr)</i>	105
4-27	<i>Screening Analysis for TAPs Emissions from Cooling Tower</i>	111
5-1	<i>ODEC Wildcat Point Water Requirements</i>	113
5-2	<i>Dewatering Calculation</i>	115
5-3	<i>Maximum Allowable Noise Levels (dBA) for Receiving Land Use Categories</i>	132
5-4	<i>Equipment Sound Power Levels</i>	133
5-5	<i>Estimated Sound Pressure Levels at Monitoring Point Locations without Noise Abatement (dBA)</i>	134

1.0 INTRODUCTION

1.1 BACKGROUND

Old Dominion Electric Cooperative, Inc. (ODEC) is a not-for-profit, electric generation and transmission cooperative serving approximately 1.2 million people throughout Delaware, Maryland, and Virginia, and in some parts of Washington, D.C., and North Carolina. Of the 11 member cooperatives within ODEC, Choptank Electric Cooperative is the only one with service territory in Maryland; Choptank supplies electricity to customers on the Eastern Shore. ODEC owns several generation assets, including a 50 percent ownership of the Rock Springs Generation Facility in Cecil County, Maryland.

The Rock Springs plant includes four natural gas-fired simple-cycle combustion turbine (CT) units. ODEC owns two of the CT units, with a total nominal generation capacity of 336 megawatts (MW). ODEC and its partner each have a 50 percent undivided interest in certain common facilities (e.g., water treatment) and property at the Rock Springs facility. The Maryland Public Service Commission (PSC) granted ODEC a Certificate of Public Convenience and Necessity (CPCN) for the original facility in November 2000. The CPCN allowed for up to six CT units; however, based on market conditions, only four of the CT units were constructed.

ODEC is now proposing to construct two natural gas-fired combined-cycle CT units, along with associated infrastructure, at the Rock Springs site. These new CT units would be a separate station, known as Wildcat Point Generation Facility. Although some common facilities (e.g., electrical switchyard, water storage and treatment) will be shared with ODEC's partner at the Rock Springs plant, ODEC will be the sole developer and owner of the Wildcat Point project. The proposed facility will consist of a nominally rated 1,000 MW generating station, including two natural gas-fired CTs, two heat recovery steam generators (HRSGs), one steam turbine, and a number of auxiliary pieces of equipment. The project will be located adjacent to the existing generating station, on a portion of the site that was initially intended for the two unbuilt Rock Springs turbines.

The Department of Natural Resources (DNR) Power Plant Research Program (PPRP), coordinating with other State agencies, performed this environmental review of the Project as part of the licensing process administered by the Maryland PSC. Before the facility can be constructed, ODEC must obtain a CPCN from the PSC. PPRP's review was conducted to evaluate the potential impacts to environmental and cultural resources

for the proposed facility, pursuant to Section 3-304 of the Natural Resources Article of the Annotated Code of Maryland.

PPRP used the analysis of potential impacts as the basis for establishing recommended license conditions for operating the proposed facility, pursuant to Section 3-306 of the Natural Resources Article. The recommended license conditions are included as Appendix A. PPRP's recommendations are made in concert with other units within DNR, as well as the Maryland Departments of Environment, Agriculture, Business and Economic Development, Planning, and Transportation, and the Maryland Energy Administration.

1.2 *FINAL DISPOSITION OF THE CPCN LICENSING CASE*

The PSC Administrative Law Judge issued a proposed order on 24 March 2014 granting a CPCN for ODEC Wildcat Point, subject to the license conditions included in Appendix A, and the order became final on 8 April 2014 (Order No. 86290).

As ODEC developed its detailed construction plans for the Wildcat Point facility, the company acquired additional properties contiguous to the site and requested PSC approval to include those properties as part of the certificated power plant project, subject to the CPCN granted in Case No. 9327. PPRP evaluated this request and recommended to the PSC that it approve ODEC's adjustment to the construction plans; the PSC granted its approval in December 2014. A summary of PPRP's evaluation is included in Appendix F.

The remainder of this document contains no substantive changes from the draft Environmental Review Document that PPRP filed in December 2013 as part of PSC Case No. 9327.

1.3 *REPORT ORGANIZATION*

This report synthesizes the evaluations that PPRP has conducted. The information is organized into the following sections:

- Section 2 provides a description of the proposed project.
- Section 3 describes existing environmental and socioeconomic conditions at the site and in the vicinity.
- Section 4 presents a regulatory applicability and impact analysis with respect to air emissions from the proposed facility.

- Section 5 addresses other impacts, including biological and socioeconomic resources, and noise.
- Section 6 summarizes the findings of PPRP's evaluations.

The Project involves the installation of a natural gas-fired combined-cycle generating station, nominally rated at 1,000 MW. Although some common facilities (e.g., electrical switchyard, water storage and treatment) will be shared with ODEC's partner at the Rock Springs generating facility, the Wildcat Point project will be developed and owned solely by ODEC. The new generating station will include two natural gas-fired CTs, two HRSGs, one steam turbine, mechanical draft cooling tower, auxiliary boiler, emergency generator, and fire water pump.

ODEC is proposing to construct the project at the existing Rock Springs site, in the northwestern portion of Cecil County, Maryland (Figure 2-1). The Project will be located adjacent to the existing generation units. This area was initially intended for two peaking CT units at the Rock Springs generating facility. However, due to market conditions, the two units were never built. ODEC is now proposing to construct the Wildcat Point Generation Facility to provide intermediate and baseload capacity.

The proposed project will share some common facilities with the existing Rock Springs plant. For example, the existing water storage tank and the 500-kV switchyard for electrical interconnection will be shared between the two facilities. The Wildcat Point project does not require any new power lines to connect to the electrical grid and a portion of the project site has already been graded and surfaced. The project will require additional resources, such as cooling water and natural gas for fuel, and a wastewater discharge line to handle the increased wastewater volumes. The project will draw its cooling water supply from the Susquehanna River. More detail is provided in Section 2.2 below.

EXISTING ROCK SPRINGS GENERATION FACILITY

Rock Springs Generating Facility, which is jointly owned by ODEC and Essential Power Rock Springs, LLC, was constructed after obtaining a CPCN on November 30, 2000. The CPCN permitted the construction of six combustion turbines, but only four have been constructed; the existing nameplate capacity is 770 MW.

The facility is located on a 96-acre parcel of land, which is bounded on the east by US Route 222/Rock Springs Road, on the north by the Maryland-Pennsylvania state border, on the south by Old Mill Road, and on the west by privately owned woods and farmland. Prior to construction of the Rock Springs plant, the land was used for row crop production, with rotations

of corn and soybeans. The land is mostly level with some gently rolling terrain and elevations ranging from 432 to 504 feet above mean sea level. Equipment and structures for the existing Rock Springs plant occupy approximately 26 acres (approximately 27 percent) of the site.

A natural gas pipeline runs diagonally across the eastern portion of the Rock Springs site and is used to support the existing facility. The location of the subsurface pipeline is identified by markers along a line extending from the northeastern corner of the site to a point approximately 1,000 feet west of the intersection of Old Mill Road and US 222.

Raw water supply for the existing Rock Springs generating station comes from an on-site retention pond. Storm water is collected in the pond, filtered, and pumped to a storage tank. This water is then distributed to the evaporative coolers at each of the existing CTs.

The proposed Wildcat Point project will make use of existing resources at Rock Springs, including tanks, electrical infrastructure, and staff.

2.2

PROPOSED WILDCAT POINT FACILITY

The proposed Wildcat Point Generation Facility will require new equipment and infrastructure, including the CTs, HRSGs, steam turbine, auxiliary generator, and cooling tower. Additionally, the project will require an expansion of the electrical substation, as well as new access roads, interior roads and parking. In total, the new equipment and infrastructure will occupy approximately 17 acres of the 96-acre site.

ODEC proposes to use natural gas-fired CTs with a two-on-one combined-cycle plant configuration. The CTs will power an electric generator to produce electricity and waste heat will be sent to the HRSGs. The two HRSGs will be equipped with duct burners and reheat capabilities for increased efficiency. The HRSGs will produce superheated steam that will drive the single steam turbine generator to produce additional electricity. A deaerating surface condenser and a mechanical draft wet cooling tower will be used to dissipate most of the remaining heat to the atmosphere. Additional facility equipment includes one natural gas-fired auxiliary boiler, one emergency generator, one fire water pump, and other ancillary equipment necessary for generation of electric energy. The site layout is shown in Figures 2-2 and 2-3.

The Project requires both potable and non-potable water. Potable water will only be used for sanitary purposes and ODEC intends to install a well to meet this need, estimated at less than 2,500 gallons per day. Non-

potable water will be used for fire protection, cooling tower make-up, evaporative cooler make-up, service water uses, and feedwater treatment system supply. The source of non-potable water will be the Susquehanna River, and a clarifier will be used to remove total suspended solids (TSS) before plant use. ODEC estimates its demand for non-potable water will be 3.56 million gallons per day (mgd) on average. The majority of the water that is used will be vented to the atmosphere during evaporation in the cooling towers.

The existing stormwater management plan for the site will be revised in order to accommodate site modifications. The existing stormwater retention pond will no longer be used for water supply and will be converted to traditional stormwater management use. Susquehanna River water will supply the Rock Springs evaporative coolers as well as the non-potable needs for the new Wildcat Point project.

HRSG blowdown will be treated with a condensate polishing system and recycled to the cooling towers. This will create a resin that can be dewatered for off-site disposal. Cooling tower blowdown is dechlorinated before discharge to the Susquehanna River. A new discharge pipeline will be constructed along the same route as the water supply line, to transport wastewater from the Project site directly to an outfall on the Susquehanna River. The surface water intake and wastewater discharge point will be located in Pennsylvania.

Emission control systems will be implemented to reduce air pollution impacts. Dry low nitrogen oxide (NO_x) combustors for the CTs and selective catalytic reduction (SCR) systems in the HRSGs will reduce NO_x emissions. An oxidation catalyst will be utilized to control the emission of carbon monoxide (CO).

The existing 500 kV switchyard at the Rock Springs site will be shared with the Project. The electrical switchyard provides an interface between the combined-cycle plant transformers and the existing Rock Springs Generation Facility switchyard. Two generator interconnection requests have been filed with PJM for the project.

ODEC proposes to begin construction in 2014 following issuance of the CPCN, with a target in-service date of June 2017.

2.3 *LINEAR FACILITIES*

The Wildcat Point project will require a water supply pipeline (and a wastewater discharge line along the same route) as well as a new lateral

line to deliver natural gas to the site (see Figure 2-4). Existing electrical transmission to the site is currently adequate to support both the Rock Springs and Wildcat Point facilities, so new transmission lines will not be necessary as part of this Project.

2.3.1 *Water Pipeline*

ODEC is proposing to construct a pipeline approximately five miles in length to bring water from the Susquehanna River. The proposed pipeline route would lie entirely within Pennsylvania (Response to Data Request 5-1). ODEC will need to obtain approvals from Pennsylvania Department of Environmental Protection (PaDEP) and the U.S. Army Corps of Engineers regarding wetlands and waterway impacts to construct the intake at the river and the pipeline. The Federal Energy Regulatory Commission (FERC) will also need to approve the intake structure because it is proposed for construction on property that is part of the Conowingo Dam project lands, owned by Exelon and under FERC jurisdiction.

In its response to DNR Data Request 5-1, ODEC indicated that it expected to complete all agreements with property owners along the proposed pipeline right-of-way by the end of November 2013. The applicant is conducting the design engineering work that is necessary to support its permit applications for the intake structure and pipeline route, and those applications are scheduled for submittal during the first quarter of 2014.

ODEC is also in the process of obtaining approval from the Susquehanna River Basin Commission (SRBC) to withdraw and consumptively use water from the river. Section 5.1.1 of this report has further discussion of water supply for Wildcat Point.

2.3.2 *Natural Gas Pipeline*

ODEC has contracted with Transcontinental Gas Pipe Line Company (Transco) to provide 192,000 dekatherms/day of incremental year-round firm gas delivery for the Project. A 10.65-mile, 20-inch diameter lateral line from Transco's mainline in Lancaster County, Pennsylvania, to the Wildcat Point Generating Facility is proposed. Other facilities associated with this pipeline project include a compressor station and metering facilities on the Wildcat Point site, a back-pressure control regulator near the mainline in Pennsylvania, and appurtenant underground and aboveground facilities.

Transco has provided information to the Federal Energy Regulatory Commission (FERC) in advance of its filing an application to obtain FERC approval for the new pipeline lateral. The proposed route will include a length of approximately 1.7 miles within Maryland, along Old Mill Road,

before entering the Wildcat Point site. PPRP has filed a request to be a cooperating agency in the FERC review of the Transco pipeline (in accordance with 40 CFR 1508.5), and as such will participate in FERC's evaluation of the potential impacts from pipeline construction and operation.

3.0 *EXISTING CONDITIONS*

3.1 *TOPOGRAPHY AND SOILS*

3.1.1 *Site Topography*

The Wildcat Point/Rock Springs site is approximately 93 acres in size and lies within the eastern boundary of the Conowingo Creek watershed of the Susquehanna River Basin. The site topography is generally characterized by gently rolling hills with elevations ranging from about 437 to 504 feet above mean sea level. The proposed Wildcat Point Generation Facility will be constructed on approximately 17 acres of the existing site.

3.1.2 *Soils*

The site is located on soils of the Chrome-Conowingo association (Anderson and Matthews 1973). These soils are deep to moderately deep, well drained to somewhat poorly drained, gently sloping to steep, loamy soils derived from serpentine and serpentinized bedrock. The seven specific soil types in the Project area are described below (Anderson and Matthews 1973).

- Aldino silt loams consist of nearly level and gently sloping, loamy soils on uplands that are formed in material weathered from serpentine, gabbro, or similar rocks.
- Beltsville silt loams consist of nearly level to moderately sloping, moderately well drained soils that are dominantly yellowish brown and loamy.
- Chrome silt loams consist of moderately deep, gently sloping to steep, well drained soils that are formed in residuum from serpentine and similar rocks.
- Conowingo silt loams consist of gently sloping to strongly sloping, moderately well drained to somewhat poorly drained, loamy soils that are formed in material weathered from serpentine and similar rocks.
- Montalto silt loams consist of nearly level to moderately sloping, well drained, brown, loamy soils on uplands that are weathered from gabbro and diorite.
- Neshaminy silt loams consist of nearly level to strongly sloping, well drained, loamy soils that are formed from mixed basic and acidic rocks.
- Watchung very stony silt loams consist of gently sloping, poorly drained soils at the heads of drainage ways and in depressions.

3.2 ***GEOLOGY AND GROUND WATER RESOURCES***

3.2.1 ***Regional Geology***

The Project is located in the eastern portion of the Piedmont Physiographic Province of northern Maryland and southern Pennsylvania. This area of the Piedmont is underlain primarily by a northeast trending belt of crystalline bedrock approximately three miles wide, commonly referred to as the Baltimore Complex. The bedrock immediately beneath the Project site is a serpentinite of late Precambrian origin. Higgins and Conant (1990) described the bedrock as a “highly sheared and fractured, bluish-green, talcos serpentinite and schistose soapstone with minor amounts of unserpentinized rocks.” The upper portion of the bedrock weathers into an unconsolidated soil, termed saprolite. Geotechnical studies conducted by ODEC indicate that the soil/bedrock interface is between 3 and 15 feet below ground surface at the Wildcat Point site.

3.2.2 ***Ground Water Resources***

3.2.2.1 ***Regional Conditions***

The crystalline bedrock of the Piedmont extends to great depths; however, the zone of ground water circulation primarily occurs in the upper 300 feet of saprolite or bedrock (Nutter 1977). The crystalline bedrock contains ground water in secondary porosity features associated with fractures or at locations where it decomposed by weathering (saprolite). At the Wildcat Point site, ground water occurs in saprolite and the underlying bedrock under unconfined conditions. The ground water in the saprolite drains into the bedrock fractures, which ultimately supply water to wells (Otton *et al.* 1988).

In this region of the Piedmont, infiltrating precipitation (recharge) primarily maintains the ground water table. The ground water table fluctuates in response to precipitation, the demands of vegetation (transpiration), and pumping. The availability of ground water in this area of the Piedmont depends upon the nature and distribution of fractures in the bedrock (secondary porosity). Ground water in the Piedmont bedrock typically follows a subdued reflection of the land surface and flows from areas of higher elevation to areas of lower elevation. Ground water discharges into streams in the valleys as baseflow.

Ground water studies in the Piedmont indicate that wells located on hilltops generally have lower yields than wells located in valleys. Valleys typically contain higher concentrations of joints and fractures, promoting greater availability of water. The location of fractures in crystalline rocks

may show up on maps and aerial photographs as straight stream segments or linear features where the fractures intersect the ground surface (“fracture traces”). Consequently, fracture trace analysis is often used as a tool for locating large quantities of ground water wells in crystalline rocks.

3.2.2.2 *Site-Specific Ground Water Conditions*

The Wildcat Point/Rock Springs site rests atop a northeast trending ridge within the Conowingo Creek watershed. This ridge creates a surface drainage divide between the Conowingo Creek watershed to the west and the Octoraro Creek watershed to the east. The site is located in a recharge area in which ground water is derived from the infiltration of precipitation falling onto the land surface.

Schnabel (2013) observed ground water during drilling of soil borings at depths as shallow as 3 feet and as deep as 13.5 feet below the current land surface. The soil borings were completed at the top of the competent serpentine bedrock. Schnabel (2013) reported that the ground water encountered in the soil borings is perched above or within the low permeability weathered rock and saprolite above more competent bedrock. Ground water at these depths would be encountered during construction of foundations, footers and subgrade structures, and would require ground water dewatering during construction.

In the Rock Springs CPCN application, ODEC/Reliant retained Schnabel Engineering Associates, Inc. to investigate ground water resources in bedrock at the Rock Springs site.

Schnabel installed two monitoring wells at the Rock Springs site in December 1999, labeled W-1 and W-2 on Figure 3-1. The wells were 162 feet apart. Specific conditions encountered in each well are described below.

- Well W-1 was drilled to a depth of 200 feet. The drilling encountered about 10 feet of sandy clay soil above the serpentinite bedrock. A water bearing zone was encountered from 89 to 92 feet below the ground surface. The zone was estimated by the driller to yield between 60 to 80 gallons per minute (gpm). No other significant water bearing zones were encountered. The water level was measured to be 5.0 feet below the ground surface. Well W-1 was proposed as the pumping well for the RSGF and was pumped during the aquifer test conducted by Schnabel.
- Well W-2 was drilled to a depth of 350 feet. The drilling encountered about 4 feet of sandy clay soil above the serpentinite bedrock. A water bearing zone was encountered from 62 to 66 feet below the ground

surface. The zone was estimated by the driller to yield between 70 and 80 gpm. No other significant water bearing zones were encountered. The water level was measured to be 5.5 feet below the water surface.

Figure 3-2 illustrates the conceptualized elevation of the ground water table based on stream elevations in the site region. As shown on Figure 3-2, flow is from areas of higher elevation to areas of lower elevation via fractures in the bedrock and saprolitic overburden. Ground water at the Rock Springs site is expected to flow principally northwest toward the unnamed tributary of Conowingo Creek. Ground water flow from the Rock Springs site may also be directed toward the streams located to the west and north.

3.2.3 *Local Ground Water Use*

Wells in the vicinity of the Rock Springs site draw water principally from the crystalline bedrock, with their primary use being domestic and public potable supply. Residences and businesses in the Rock Springs area rely on private domestic wells to supply water for drinking and other purposes. During the Rock Springs environmental review, PPRP prepared an inventory of permitted wells within a one-half mile radius of the Rock Springs site using information obtained from four sources: 1) Ground Water Permits Program of the Maryland Department of the Environment (MDE); 2) Cecil County Environmental Health Services; 3) Pennsylvania Geological Survey; and 4) MGS publications (Otton *et al.* 1988, Willey *et al.* 1987). The well inventory from these four sources indicated that a large number of the residences and businesses in the vicinity of the Rock Springs site were not identified as having wells, although ground water use is the sole source of potable water in the Rock Springs area. Therefore, to supplement the four data sources, a roadside survey was conducted to identify well locations in the immediate vicinity of the Rock Springs site, and in particular along Rock Springs Road/Route 222 and Old Mill Road. The well inventory review indicated that most of the wells in the area have well depths less than 250 feet below ground surface and generally encountered water between 5 and 20 feet below grade. The average well yields range from 5 to 20 gpm, with a few wells having yields greater than 50 gpm.

Some of the wells in the area produce high volumes of water, indicating that they intercept significant fractures. The Penn/MD Materials quarry is located about one mile to the northeast of the Rock Springs site, along Quarry Road in Pennsylvania. Schnabel reported several high yield wells located on the quarry site.

3.3

SURFACE WATER RESOURCES

The ODEC Wildcat Point site at the overall Rock Springs site is within the Susquehanna River drainage basin. The Conowingo Reservoir, formed by the Conowingo Dam on the Susquehanna River, is approximately five miles south of the Project site. Octoraro Creek is the closest perennial stream to the site, about one mile to the east. Within the vicinity of the Wildcat Point site, Octoraro Creek is sinuous, and flows generally from north to south; it flows into the Susquehanna River approximately 0.8 miles downstream of Conowingo Dam. Based on data from the U.S. Geological Survey (USGS) gaging station near Rising Sun, Maryland, the median flow in Octoraro Creek is about 115 mgd. Conowingo Creek, about one mile west of the Project site, is the only other perennial stream in the vicinity of the site. Conowingo Creek is much smaller than Octoraro Creek and does not have a gaging station. The creek flows from north to south, and empties into Conowingo Reservoir. The Project site is located on the eastern edge of the Conowingo Creek watershed.

3.4

CLIMATOLOGY AND AIR QUALITY

3.4.1

Climatology

This discussion of climatology of the region is based on summarized meteorological data from the closest meteorological station with archived climatological data located at Conowingo Dam in Oakwood, MD. The Conowingo Dam is located approximately 7.5 kilometers (km) to the southwest of the ODEC facility.

The climate in northeast Maryland is classified as temperate with maritime influences from the Atlantic Ocean and the Chesapeake Bay. Based on climate normal data from 1981 through 2010,¹ the normal average annual temperature at the Conowingo Dam is 55.4 degrees Fahrenheit (°F). Summers are warm and relatively humid, and winters are generally mild because of the moderating influence from being in close proximity to the Atlantic Ocean and the Chesapeake Bay. The average minimum temperature during winter is 24.4°F, and the average maximum temperature during summer is 87.5°F.

Rainfall distribution throughout the year is generally uniform; the greatest intensities are confined to the late spring and summer, when the

¹ <http://www1.ncdc.noaa.gov/pub/data/normals/1981-2010/products/station/>

probability of the occurrence of severe thunderstorms is greatest. The normal annual precipitation is 47.45 inches.

3.4.2 *Air Quality*

Air quality measurements have been taken at thousands of monitoring stations across the country for several decades, producing data that reflects ambient air concentrations of the “criteria” pollutants, nitrogen oxides (NO_x), sulfur dioxide (SO₂), particulate matter (PM₁₀ and PM_{2.5}), ozone (O₃), carbon monoxide (CO), and lead (Pb). State, local and tribal air quality agencies operate and maintain most of the stations following nationally consistent procedures established by the U.S. Environmental Protection Agency (EPA). Data are routinely reported to and summarized by EPA in its Air Quality System (AQS) that may be accessed on the internet.²

The pollutant monitors are situated above the ground to represent the human breathing height. If ambient air quality monitoring indicates that the concentration of a pollutant exceeds a National Ambient Air Quality Standard (NAAQS) in any area of the country, that area is classified as a “nonattainment area” for that pollutant, meaning that the area is not meeting the NAAQS. Conversely, any area in which the concentration of a criteria pollutant is below the NAAQS is classified an “attainment area” indicating that the NAAQS is being met.

The attainment/nonattainment designation is made by states and EPA on a pollutant-by-pollutant basis. Therefore, the air quality in an area may be designated attainment for some pollutants and nonattainment for other pollutants at the same time. For example, many cities are designated nonattainment for ozone, but are in attainment for the other criteria pollutants.

Since the late 1980s, the NAAQS for PM covered “PM₁₀,” which represents PM less than 10 microns in diameter. In 1997, EPA revised the NAAQS for PM and added a standard for a new form of PM known as PM_{2.5}, PM that is less than 2.5 microns in diameter. Further revisions to the PM_{2.5} NAAQS were published in 2006 (24-hour NAAQS) and in 2012 (annual NAAQS). PM_{2.5}, or “fine particulates,” is of concern because the small particle size allows them to be inhaled deeply into the lungs, and because these fine particles contribute to haze and other air quality issues. In February 2011, EPA published updated designations of PM_{2.5} nonattainment areas.

² <http://www.epa.gov/airdata/>

EPA and states make attainment designations based on air quality surveillance programs that measure pollutants in a network of nationwide monitoring stations. Historically, these networks were known as the State and Local Air Monitoring Stations (SLAMS), National Air Monitoring Stations (NAMS), and Photochemical Air Monitoring Stations (PAMS) (USEPA 1998a). The SLAMS network designation is still maintained; however, NAMS and PAMS have been folded into the National Core (NCore) Multipollutant Network and the PM_{2.5} Chemical Speciation Network that provide specialized measurements focused on understanding the underlying causes of (and potential solutions to) nonattainment of the ozone and PM_{2.5} NAAQS.

EPA's six stated objectives for the monitoring network design for the SLAMS are to:

- Determine highest concentrations expected to occur in the area covered by the network;
- Determine representative concentrations in the areas of high population density;
- Determine the impact on ambient pollution levels of significant sources or source categories;
- Determine general background concentration levels;
- Determine the extent of regional pollutant transport among populated areas, and in support of secondary standards; and
- Determine the welfare-related impacts in more rural and remote areas (such as visibility impairment and effects on vegetation).

EPA further explains that SLAMS monitors are intended to be located so that the samples they collect are representative of air quality over the entire area they are intended to cover. EPA established "spatial scales of representativeness" to ensure that monitoring of specific pollutants is appropriate and representative. The scales of representativeness include microscale, middle scale, neighborhood scale, urban scale, and regional scale. The scale takes into consideration such factors as local terrain, pollutant-specific criteria, and population density. EPA reviews the program annually to "...improve the network to ensure that it provides adequate, representative, and useful air quality data" (USEPA 1998a).

Cecil County is in attainment for all criteria air pollutants except for ozone which is designated as a “marginal” ozone nonattainment area (on a scale that ranges from worst to best air quality of extreme – severe – serious – moderate – marginal).

3.5 **BIOLOGICAL RESOURCES**

A variety of biological habitats exist in the vicinity of the Rock Springs site, and the Wildcat Point sub-site. These habitats include upland mixed deciduous forest (mature and second growth), oldfield, agricultural fields, and hedgerows. One small wetland, associated with an old farm pond, is located adjacent to the west of the Rock Springs site. Several ground water-fed springs (i.e., seeps) exist at the Rock Springs site; these are not included as map features on the USGS topographic quadrangles that cover the Rock Springs site. Biological resources are described individually below.

3.5.1 **Terrestrial Resources**

3.5.1.1 *Vegetation and Land Cover*

Forest currently covers about 17 acres of the existing 93-acre Rock Springs site. Mixed deciduous forest occurs in parts of the northern and northwestern areas of the Rock Springs site, and is dominated primarily by hardwood species. The most mature forest is located in the northern-most parts of the Rock Springs site, adjacent to the Maryland-Pennsylvania border. The predominant tree species varies within different areas of this forest. Predominant tree species include black jack oak (*Quercus marilandica*), black oak (*Quercus velutina*), red oak (*Quercus borealis*), post oak (*Quercus stellata*), white oak (*Quercus alba*), red maple (*Acer rubrum*), and Virginia pine (*Pinus virginiana*). Trees in the forest average about 15 to 18 inches diameter at breast height (dbh); the largest trees (all oaks) are 27 to 30 inches dbh. The understory of the forest is dominated by saplings of the principal tree species and by black cherry (*Prunus serotina*), red cedar (*Juniperus virginiana*), greenbrier (*Smilax rotundifolia*), Japanese honeysuckle (*Lonicera japonica*), and blackberry (*Rubus* spp.). The northern-most part of the forest also possesses an herbaceous layer consisting of field garlic (*Allium vineale*) and fescue grass (*Festuca pratensis*). The southern-most end of the forest is immature and is densely vegetated with sapling trees. This area of forest is dominated by red maple, greenbrier, and Japanese honeysuckle. Also present are black cherry, staghorn sumac (*Rhus typhina*), and multiflora rose (*Rosa multiflora*).

A parcel in the northeastern part of the Rock Springs site is used as a cultivated field. Between the cultivated field and the forest are narrow oldfield areas dominated by fescue, blackberry, Canada goldenrod (*Solidago canadensis*), multiflora rose, and Japanese honeysuckle.

It must also be noted that serpentine barrens occur to the north of the Rock Springs site in Lancaster County, Pennsylvania, on an adjacent The Nature Conservancy (TNC) preserve. Serpentine barrens are rare grassland areas that exist on areas possessing bedrock containing high quantities of magnesium silicate. Only four major remnant parcels of serpentine barrens are known to exist in Maryland. They were originally called “barrens” because of the fact that they are open grasslands. Serpentine barrens sites tend to possess very thin, dry soils over the magnesium silicate bedrock, which makes them difficult to cultivate and provides specialized conditions amenable only to certain grassland species. These herb-dominated areas are known to contain rare, threatened, and endangered (RTE) plant species. The serpentine barrens on the adjacent TNC preserve are known to contain and provide habitats for several listed Maryland and Pennsylvania RTE plants. However, these habitats do not occur at the Rock Springs site.

3.5.1.2 Wetlands

One small herbaceous wetland (total size of about 0.10 acre), apparently a former farm pond, is present in the northwestern part of the Rock Springs site. The wetland appears to be primarily spring-fed and is surrounded by a man-made berm on three sides. Small seeps immediately above the pond provide water to the wetland. The majority of the wetland is dominated by reed canary grass (*Phalaris arundinacea*) and broadleaf cattail (*Typha latifolia*). Other plants in the wetland include sensitive fern (*Onoclea sensibilis*), spikerushes (*Eleocharis* spp.), and soft rush (*Juncus effusus*). Several small trees on the berm of the pond include red maple, black willow (*Salix nigra*), and Virginia pine. The entire wetland is permanently saturated at the surface and contains hydric soils. Ground water-fed wetlands such as this often possess very stable water levels, regardless of ambient weather.

3.5.1.3 Wildlife

The greatest variety of wildlife at the Rock Springs site likely occurs in the forest habitats. PPRP and Versar made several observations of wildlife during the May 29, 2013 field visit to the Rock Springs site. White-tailed deer (*Odocoileus virginianus*) and gray squirrel (*Sciurus carolinensis*) occur throughout the Rock Springs site and squirrel nests were observed in trees at the edge of the forest. Birds observed or heard in or near the mature

forest include Carolina wren (*Thryothorus ludovicianus*), blue jay (*Cyanocitta cristata*), hairy woodpecker (*Picoides villosus*), and red-bellied woodpecker (*Melanerpes carolinus*). Birds observed in other parts of the Rock Springs site include eastern bluebird (*Sialia sialis*), red-winged blackbird (*Agelaius phoeniceus*), northern cardinal (*Cardinalis cardinalis*), mourning dove (*Zenaidura macroura*), and American robin (*Turdus migratorius*). Additionally, American crows (*Corvus brachyrhynchos*) were observed foraging in agricultural fields at the Rock Springs site, and black vultures (*Cathartes atratus*) were observed flying over the Rock Springs site.

3.5.1.4 *Threatened and Endangered Species*

Listed flora include those plant species classified as endangered or threatened by the U.S. Fish and Wildlife Service (USFWS) under the Endangered Species Act (ESA) or protected by Maryland under state regulations. In Cecil County, the USFWS lists one plant species, swamp pink (*Helonius bullata*), as Threatened (federal). Maryland lists 84 plants as state threatened or endangered (state). The Rock Springs site is adjacent to serpentine barren habitats to the north, but previous biological and habitat surveys indicate that these habitats do not exist on the Rock Springs site.

Listed fauna species are those animal species classified as endangered or threatened by the USFWS under the ESA, otherwise protected by the USFWS under other regulations and guidelines, or protected by Maryland under state regulations. The USFWS lists two animal species in Cecil County as threatened: bog turtle (*Clemmys muhlenbergii*) and puritan tiger beetle (*Cicindela puritan*). Additionally, bald eagles (*Haliaeetus leucocephalus*) are protected under the Bald and Golden Eagle Protection Act (BGEPA), and the National Bald Eagle Management Guidelines of 2007 by the USFWS. Maryland lists seven animal species as threatened or endangered in Cecil County.

Based on the May 2013 field visit to the Wildcat Point site by PPRP and Versar, as well as the evidence presented in ODEC's CPCN application materials, PPRP concurs that no RTE species or their habitats are likely to occur on or adjacent to the Project site. No serpentine barrens (and their accompanying suite of RTE species) apparently occur anywhere on the Wildcat Point site. PPRP also concurs that the small on-site wetland is too small in size (and is perhaps too ephemeral) to support bog turtles. The wetland does not provide the appropriate deep organic substrate necessary for bog turtles.

3.5.2 *Aquatic Resources*

No perennial streams occur on the Wildcat Point site. As a result of its position within the watershed, the site is in a headwaters area. For this reason, the only aquatic resources on the site are small seeps and one very small wetland (a former farm pond, created by the construction of berms on three sides). On a field visit to this site during the previous Rock Springs licensing case, Versar observed a mass of salamander eggs, likely those of spotted salamander (*Ambystoma maculatum*), in a ponded area of the wetland. Versar also observed a few aquatic invertebrates in the small seeps downslope of the wetland; it is uncertain whether these seeps are perennial. It is likely that there are also other permanent residents of the wetland and the seeps, such as spring peeper (*Pseudacris crucifer*), chorus frog (*Pseudacris* spp.), and other salamander species.

3.6 *REGIONAL SOCIOECONOMIC SETTING*

Cecil County, with a land area of 348 square miles, is in northeast Maryland, bordering both Pennsylvania and Delaware. The county is bordered on the west by the Susquehanna River and the Chesapeake Bay, and by Kent County and the Sassafras River to the south. The county seat is Elkton, located near the Delaware border. Elkton is about 50 miles from both Baltimore and Philadelphia, and approximately 20 miles from Wilmington, Delaware.

Interstate Highway 95 (I-95) and the Northeast Corridor railway line bisect Cecil County, connecting the Baltimore-Washington metropolitan area to Philadelphia and New York/New Jersey to the northeast. The Chesapeake and Delaware Canal is a west-to-east water transportation artery connecting the Chesapeake Bay to the Delaware River via the Elk River. US 1, which enters Cecil County from Harford County near Conowingo, traverses the western part of the county. There are eight incorporated towns in Cecil County: Cecilton, Charlestown, Chesapeake City, Elkton, North East, Perryville, Port Deposit, and Rising Sun.

Although predominantly rural, Cecil County is on the verge of significant suburban growth because of its location near the Philadelphia, Wilmington, and Baltimore metropolitan areas.

3.6.1 *Population Trends*

In 2012, the population of Cecil County was 101,696, an increase of about 0.6 percent from April 2010 (MDP 2013a). There were 36,875 households in the county in 2010. The population is projected to grow to 155,200 by 2040,

an increase of more than 50 percent from 2010, while the number of households is projected to increase to 58,925 (MDP 2012a, MDP 2012b).

About one-quarter of Cecil County's population lived in incorporated towns in 2010 (BCC 2010). Elkton was the most populated place (11,894) followed by Perryville (3,672), North East (2,747), and Rising Sun (1,751). The county's Comprehensive Plan predicts that approximately 80 percent of population growth between 2010 and 2030 will occur in designated growth areas, with most of the remaining growth occurring in the North Rural area, which includes the Project site.

The county's population growth has been shaped by the suburbanization of the Philadelphia/Wilmington and Baltimore metropolitan areas, and the Department of Defense Base Realignment and Closure (BRAC) program. BRAC has brought almost 28,000 direct, indirect and induced jobs to neighboring Harford County and the surrounding areas. Cecil County's BRAC action plan estimated that the county's share of BRAC growth would amount to more than 5,000 additional residents and 1,400 new jobs.

3.6.2 *Employment and Income Trends*

In 2013, Cecil County's labor force averaged 51,210 workers, with an unemployment rate of 8.6 percent (DLLR 2013a). In contrast, Maryland's unemployment rate was close to 6.9 percent. More than one-half of employed persons living in Cecil County commute to jobs outside the county. Between 2006 and 2010, 25,643 commuted to jobs in New Castle County (Delaware), Harford County, Baltimore County, Baltimore City and bordering counties in Pennsylvania (MDP 2013b). In contrast, about 9,300 commuted into Cecil County, primarily from New Castle County and Harford County. More than 22,500 people were intra-county commuters.

In 2011, there were 40,241 full and part-time jobs in Cecil County, an increase of 2.2 percent from 2006 (MDP 2013c). Most jobs were in retail trade (4,724), manufacturing (4,284), local government (4,020), and health care and social assistance (3,991). Major employers in Cecil County (January, 2012) are the Cecil County Board of Education, W.L. Gore & Associates, Perry Point VA Medical Center, and Union Hospital/ Affinity Health System (OED 2012).

Per capita personal income in Cecil County rose to \$39,689 in 2011 (current dollars), up from \$34,332 in 2006 (MDP 2013d). The per capita income is seventeenth highest among Maryland's 24 counties. Highest earnings in 2010 were associated with local government, utilities, construction,

ambulatory health care services, professional and technical services, administrative and support services, and food services and drinking places.

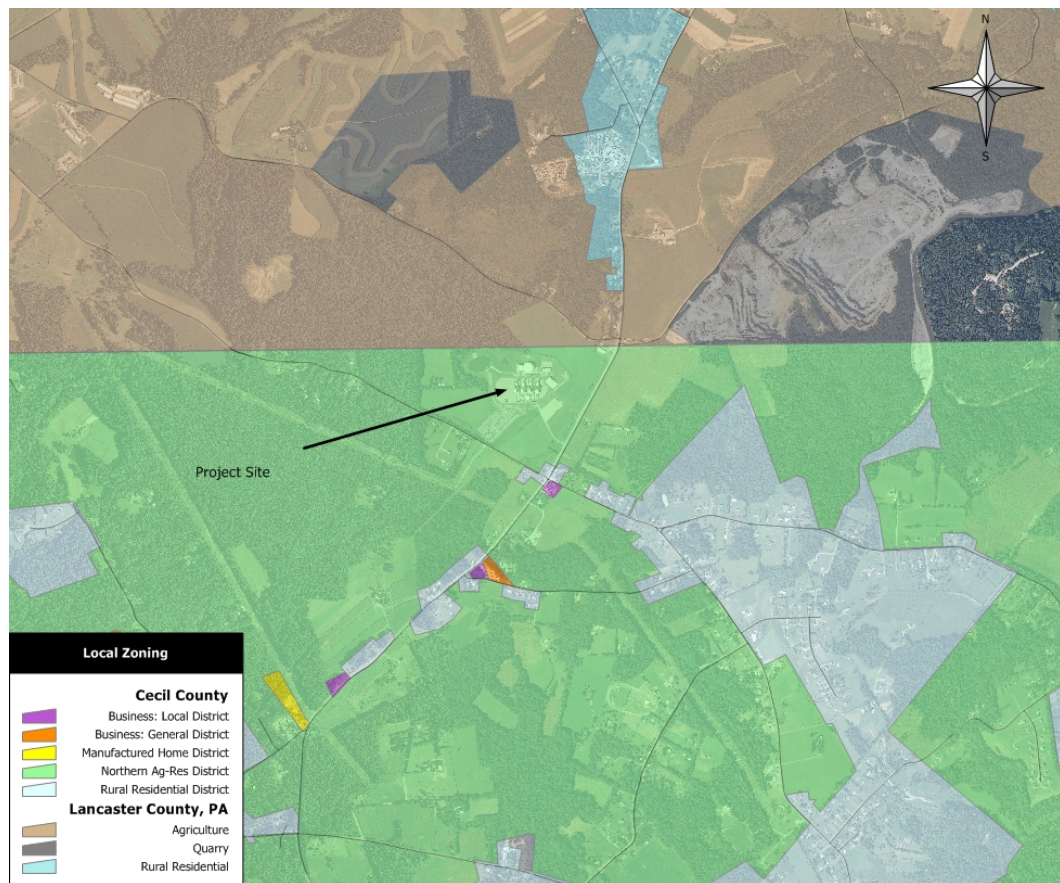
Traditional industries of farming, forestry, and fishing have remained relatively stable in Cecil County. In 2011, 506 farm proprietors were in the county, up from 461 in 2006 (MDP 2013e). Employment in forestry, fishing, and related activities increased from 324 to 371 over the same period. In 2011, earnings in forestry and fishing amounted to \$11.3 million out of more than \$1.367 billion (current dollars) in total private earnings in the county (MDP 2013f). A total of 85,026 acres, on 583 farms, were cultivated in 2007, down 2.1 percent from the 86,861 acres on 501 farms in 1987 (MDP 2009). Acreage devoted to corn and soybeans has increased in recent years in response to commodity prices. In 2012, 3,035,000 bushels of corn and 1,031,000 bushels of soybeans were harvested (USDA 2013). However, acreage planted in wheat, forage, or other crops has declined (BCC 2010). The county's horse breeding industry is also in decline.

3.6.3 *Land Use and Zoning*

The project would be located on 17 acres within a 96-acre parcel in Cecil County, near the crossroads community of Rock Springs, next to the Pennsylvania border. The property is within the county's Rural Area zone, which includes the Resource Preservation and Rural Conservation land use districts. The land exhibits little terrain relief within the parcel which is, for the most part, cleared. Much of the acreage outside of the footprint of the existing generating equipment is used for forage (hay) production. The project site is not within the Chesapeake Bay Critical Area.

Zoning districts are defined in the Cecil County Zoning Ordinance (BCC 2011). Residential areas are zoned in one of eight zoning categories, including the Residential Mixed Use (RMU) District. Much of the county is in either a Northern or Southern agricultural-residential (NAR or SAR) district. Land in the vicinity of the project site is zoned NAR, Rural Residential (RR), and Mineral Extraction (a Special Overlay District of an NAR zone). Adjacent land north of the Mason-Dixon Line in Pennsylvania is primarily zoned for Agriculture (A), although there are also nearby Rural Residential (RR) and Quarry (Q) zones. The Rock Springs parcel is zoned Northern Agricultural-Residential (NAR) (Figure 3-3). While the Cecil County Zoning Ordinance permits power generating facilities as a Special Exception in the NAR zone, provided that the power is generated solely from solar, wind, or water power sources, the CPCN process exempts power generation and transmission facilities from local zoning bylaws.

Figure 3-3 Zoning Districts in Vicinity of Rock Springs Site



Source: Maryland Department of Planning, Cecil County Government, Lancaster County

Of the total land area in the county, nearly 27,000 acres (12 percent) were in low, medium and high density residential land uses in 2010, an increase of only 1.3 percent from 2002. Industrial and institutional land acreage increased significantly, although from a small base. However, large lot subdivisions consumed nearly 14,000 acres. Between 2002 and 2010, more than 13,000 acres of agricultural lands and 3,500 acres of forest were lost. Cecil County land use in 2010 is shown in Figure 3-4.

Figure 3-4 *Land Use in Cecil County, 2010*



Source: Maryland Department of Planning

Land use in Cecil County is currently guided by the 2010 Cecil County Comprehensive Plan (BCC 2010). The plan promotes a balance of residential development and employment opportunities, primarily within growth areas where adequate public facilities will be provided. At the same time, it encourages controlled development adjacent to towns outside the Growth Corridor and encourages the conservation of agricultural and forested lands to encourage sustainable natural resource-based industries and to maintain the rural character of the county. Land use is also an integral component of the county's Land Preservation, Parks and Recreation Plan (BCC 2005), and the Master Water and Sewer Plan (URS 2013), among others.

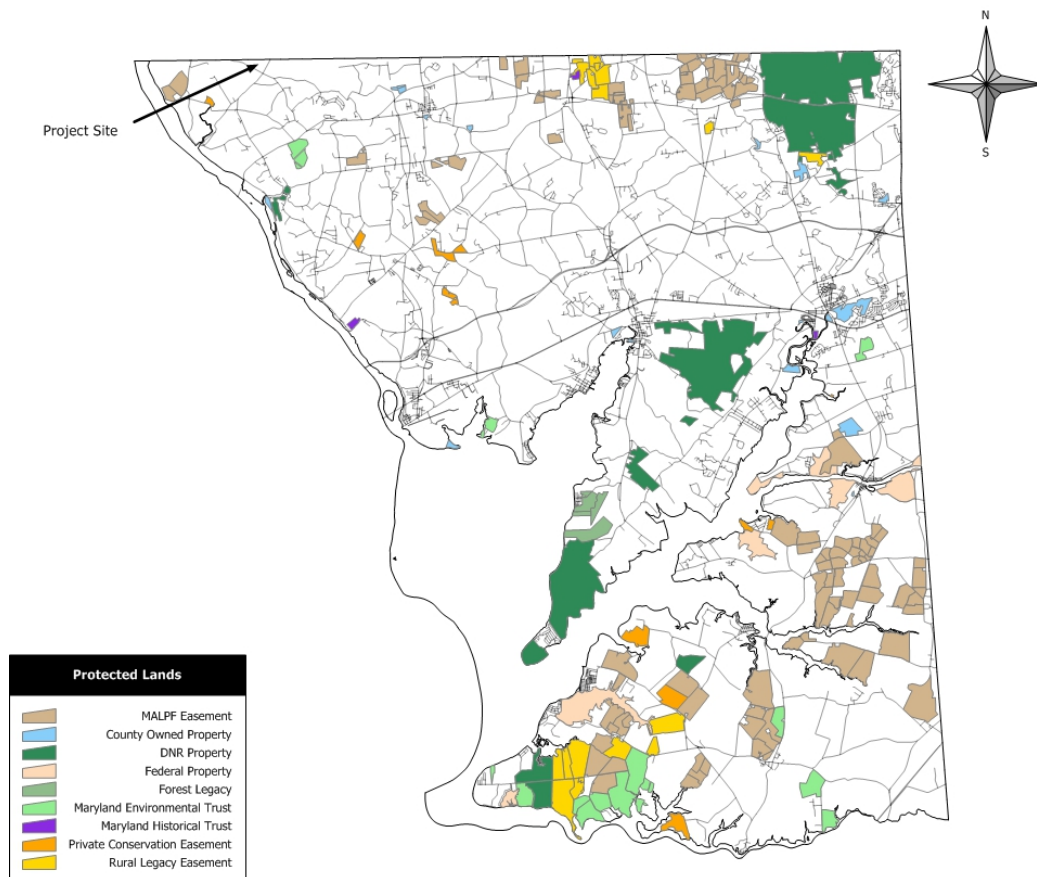
One of the goals of the Comprehensive Plan is to encourage the conservation of agricultural and forested lands by encouraging sustainable agribusiness and other natural resource based industries. The plan defines two rural districts to support this goal. The Rural Conservation District encompasses existing agricultural areas north of the Chesapeake and

Delaware Canal, including land north of the I-95 and US 40 corridors and the Rock Springs site. Covering about 43 percent of the county, the Rural Conservation District has experienced significant development pressure, and the County recognizes an acute need to protect agriculture in this area (BCC 2010). The Resource Protection District, which is south of the Chesapeake and Delaware Canal, covers about 28 percent of the county. This area has experienced less development pressure and a greater land preservation focus.

Expected population growth from the expanding Philadelphia, Wilmington and Baltimore metropolitan regions and job creation associated with BRAC has challenged Cecil County to manage its development while preserving its rural character and quality of life. Even with a significant supply of developable land and a transportation system that connects its residents to jobs in Maryland, Delaware and southeastern Pennsylvania, past land use policies have failed to constrain residential development to designated growth areas. Between 1997 and 2008, as many building permits were issued to non-growth areas as were issued to designated growth areas. Within non-growth areas, nearly 80 percent were for building within the Rural Conservation District (BCC 2010). Although Cecil County's zoning ordinance was amended in 2006 to reduce residential densities in agricultural residential zoning districts, the county's goals of focusing growth in designated growth areas is challenged by a fragmented public water and sewer infrastructure and the need to develop its economy to support the service demands of a growing population (BCC 2005).

In 2000, Cecil County adopted goals to achieve farmland preservation for 30,000 acres in the Resource Protection District, and 25,000 acres in the Rural Conservation District by the year 2025 (BCC 2005). As of 2011, more than 19,800 acres were under easement (Figure 3-5), of which 13,130 were held by the Maryland Agricultural Land Preservation Foundation (MALPF), part of the Maryland Department of Agriculture (MDP 2011). When Cecil County last reviewed farmland preservation policy in 2005, current funding levels were determined to be insufficient to meet its goals. Although approximately 20,100 acres were under easement in 2004 and an additional 6,430 acres were in MALPF districts, between 1998 and 2002, only 29 easement offers of 93 applicants had been accepted. In 2007, new county legislation ended the requirement for establishing districts prior to selling an easement to MALPF and, as of June 30, 2012, all MALPF districts were terminated by the State. With the continuing loss of farmland, Cecil County's land preservation goals are unlikely to be realized.

Figure 3-5 *Protected Lands in Cecil County*

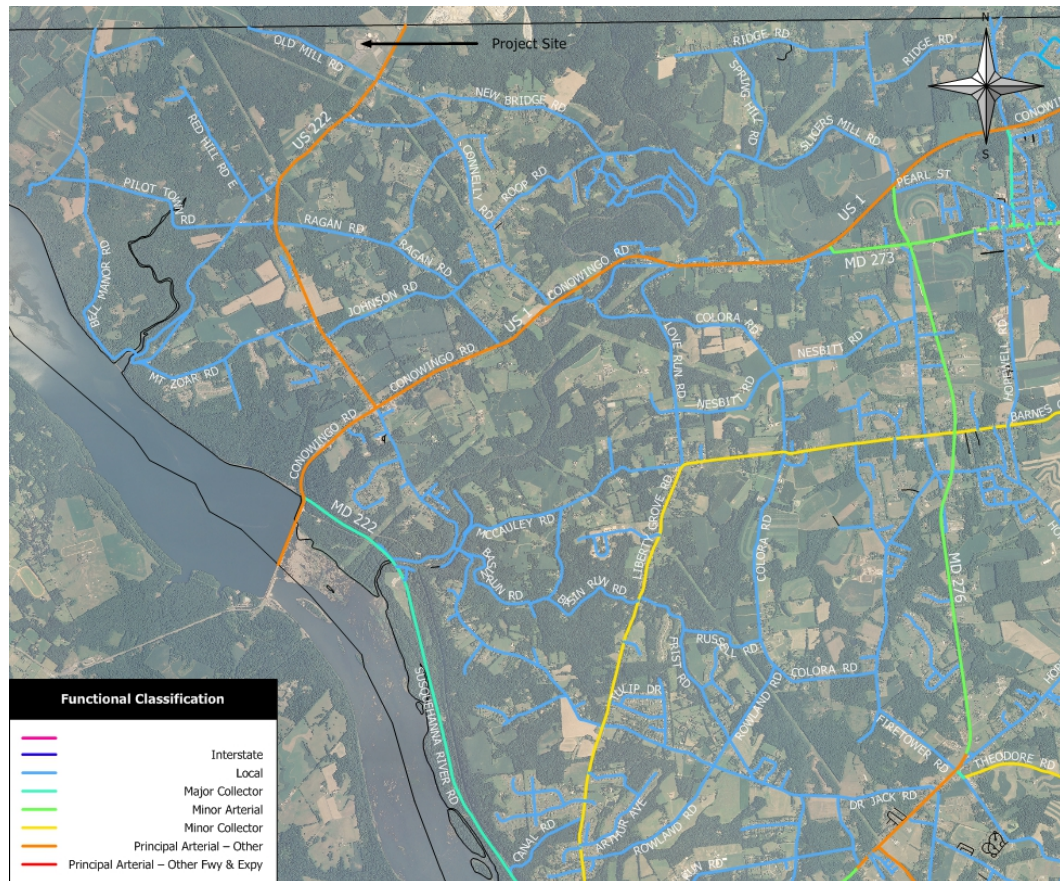


Source: Maryland Department of Planning

3.6.4 *Transportation*

Cecil County is bisected in an east-west direction by the I-95 corridor, which includes US 40 and the Amtrak and CSX rail lines. Other major roads include US 1, a north-south federal highway in the western part of the county, and MD 273, an east-west arterial highway connecting Rising Sun, MD to Newark, DE. MD 213 connects Cecil County to the Delmarva Peninsula. US 1 enters Cecil County from Harford County near Conowingo and bears north at Rising Sun before exiting into West Nottingham Township in Pennsylvania. US 222 (Rock Springs Road) is the closest Maryland highway to the project site. A north-south highway, it is accessed from the south via US 1 at Conowingo, and exits Maryland just north of the Rock Springs site into Fulton Township in Lancaster County, Pennsylvania. Rock Springs Road is classified as a principal arterial. All other roads in the vicinity of the project are local roads (Figure 3-6). There are no active railroads or public use airports in the vicinity of the project.

Figure 3-6 *Functional Classification of Roads in Project Area*



Source: Maryland State Highway Administration

In general, traffic volume growth on federal and State highways in the county has slowed since the financial crisis of 2007 to 2009 (Table 3-1). In 2012, the annual average daily traffic (AADT) on US 222, about two miles south of Rock Springs, was 3,760 vehicles per day, down six percent from 2006. The AADT on US 222 in Pennsylvania just north of the Mason-Dixon Line was 3,200 in 2011. Roads in the vicinity of Rock Springs are uncongested during peak hours (BCC 2010).

Table 3-1 *Cecil County Traffic Volumes*

Highway	Location	AADT 2006 (vehicles per day)	AADT 2012 (vehicles per day)
US 1	Harford County Line	10,152	12,270
US 1	US 222	12,032	10,662
US 1	MD 273	5,592	4,802
US 222	US 1	6,470	6,280
US 222	Benjamin Landing Road	3,990	3,760

Source: SHA, 2012.

Major transportation investments in Cecil County are mostly targeted towards the county's growth areas, and are particularly aimed at improving north-south connections between US 40 and I-95, increasing connectivity within the Designated Growth Area, and expanding I-95 (DPW 2007). No major road projects are planned for northwest Cecil County.

Federal Regulation Title 14 Part 77 establishes standards and notification requirements for objects affecting navigable airspace, including determining the potential hazardous effect of the proposed construction on air navigation. Notice must be filed with the Federal Aviation Administration (FAA) if any construction is more than 200 feet high, or exceeds an imaginary surface with any of the following: a slope of 100 to 1 up to a distance of 20,000 feet from the nearest point of a public use or military runway of more than 3,200 feet in length; a slope of 50 to 1 up to a distance of 10,000 feet from a runway of 3,200 feet or less; or with a slope of 25 to 1 for a distance of 5,000 feet from a heliport. Maryland Aviation Administration (MAA) notification requirements, which use the same standard, are codified in the Code of Maryland Regulations (COMAR) 11.03.05.05. The closest airport to the project is Pembroke Farm Airport (6MD4), a private-use airport. Harford County Airport (0W3) is the closest public use airport, nearly 11 miles from the project site.

The Maryland Scenic Byways Program identifies three scenic byways that traverse Cecil County. The Chesapeake Scenic Byway, also an American Scenic Byway, meanders up the eastern shore to Chesapeake City on MD 213. The Lower Susquehanna Scenic Byway is a 33-mile loop from Havre de Grace to Perryville, along both shores of the Susquehanna River. The Mason and Dixon Scenic Byway follows a route south of the Pennsylvania border that traces the progress of Charles Mason and Jeremiah Dixon in the establishment of boundaries between Maryland, Pennsylvania,

Delaware and Virginia. The easternmost part of the route enters Cecil County on US 1 at Conowingo before diverting east on MD 273 near Rising Sun. There are five statewide designated bicycle routes in Cecil County, although none in the vicinity of the project. The closest route is US 1, from the Susquehanna River to MD 273. US 222 is not an existing or proposed on-road countywide bikeway in the Cecil County Bicycle Plan (WILMAPCO 2012).

3.6.5 *Public Services and Safety*

The Cecil County Department of Public Works (DPW) operates no public water system and only one public wastewater collection and treatment system. The eight incorporated municipalities in the county operate public water and sewer services within their boundaries. About 44 percent of county dwelling units are serviced by public systems. Most (65 percent) of Cecil County's public water is sourced from surface water. Private water providers and individual wells supply water to the remaining homes in the county. Domestic use accounted for 52 percent of the county's ground water withdrawals in 2000. Industrial ground water appropriation permits totaled 0.4 mgd in 2004. Most public systems currently have excess capacity although several are projected to be unable to support projected population growth through 2030 without major upgrades and expansions (BCC 2010). Rock Springs is not within one of Cecil County's water service areas (URS 2004).

Cecil County operates the Central Landfill, which is located west of Elkton, and two transfer stations: Stemmer's Run Transfer Station near Earleville, and Woodlawn Transfer Station near Rising Sun. Woodlawn Transfer Station serves residents in the northern part of the county. The county does not provide door-to-door pickup service although some communities are serviced by waste collection companies. Businesses can haul waste directly to the Central Landfill. Projections indicate that the Central Landfill is expected to use up its permitted capacity by 2017. However, the site contains 75 to 100 acres of unpermitted land area and options are being considered for vertically and horizontally expanding existing disposal areas, suggesting additional solid waste capacity can be added to the facility (Golder Associates 2009).

There are 17 elementary schools, six middle schools, five high schools and two special education schools in Cecil County. Public school enrollment was 15,937 students in 2012, and is projected to increase to more than 18,000 students by 2019, and 22,570 students by 2030. Two projects – the Comprehensive Career and Technology High School, and a new middle school – are expected to increase capacity to meet 2019 demand. However, an additional four elementary schools and one high school will be needed

to accommodate projected 2030 enrollment (Golder Associates 2009). The closest school to the project site is Conowingo Elementary, which was over capacity in 2009. Middle and high school students in the Rock Springs area attend facilities in Rising Sun.

Public safety is a shared responsibility of the Cecil County Department of Emergency Services (DES), the Cecil County Sheriff's Office and police departments in four municipalities. The Maryland State Police operate out of Barrack "F" in North East. DES is the county's public safety agency responsible for 9-1-1 emergency communications, emergency medical service, Hazmat response, and emergency management operations. There are nine volunteer companies and one career fire company operating out of 18 stations in the county. Station 73 of the Water Witch Fire Company is about 2.5 miles from the project site.

The project site is within the boundary of the Peach Bottom Station Emergency Planning Zone (EPZ). Rising Sun High School is one of two designated reception centers for evacuation in Cecil County. Southbound US 222 (Rock Springs Road) and northbound US 1 to MD 273 east are primary evacuation routes for populations within the EPZ (Arcadis 2012).

Union Hospital is the only acute care facility in Cecil County. Located in Elkton, the hospital has 149 beds and offers outpatient, surgery, and emergency services.

3.6.6 *Cultural Setting*

Cecil County was established from Baltimore and Kent counties in 1674 by Lord Baltimore. Inhabited by Native Americans for thousands of years, first contact with Europeans occurred in 1608 during Captain John Smith's exploration of the Chesapeake Bay. In the early days of colonization, Cecil County's economy was resource-based, dependent on agricultural products, primarily tobacco, fishing and trapping. However, by the 1740s the agricultural economy was already transitioning from tobacco to grains. Most farms in the Piedmont part of the county were smaller than the plantations found in the coastal plain. The Post Road (now MD 7), laid out in colonial times to connect Baltimore and Philadelphia, ran through Cecil County and was a frequent stopping point for travelers and source of income for a nascent hospitality industry. During the Revolutionary War, Cecil County farmers found themselves on the army's line of march and lost wagons, livestock, grain and property to the military. In 1777, the British Navy under General Howe disembarked on the shores of the Elk River and camped in Elkton before marching to Brandywine and

Philadelphia. The county was also overrun by the British Navy under Admiral Cockburn during the War of 1812.

The Chesapeake and Delaware (C&D) Canal, connecting the Chesapeake Bay and the Delaware River was opened in 1829. Before and after the Civil War, the mid-1800s saw the incorporation of many of Cecil County's towns. Agriculture still predominated, assisted by road and rail networks that connected the county to markets, but resource extraction for minerals such as chrome, granite and iron ore, became an important source of wealth in the nineteenth century. Iron manufacturing works at Principio and North East followed. Paper manufacturing was second in importance to iron in the 1800s.

While much of Maryland has developed its industrial and commercial base, Cecil County has remained largely rural. Many nineteenth century industries declined without succession, leaving agriculture as a mainstay of the economy. The Conowingo Dam on the Susquehanna River was built by the Arundel Corporation in 1926, during the third term of Governor Richie, to provide power to northeast Maryland and southern Pennsylvania. Planned as the Northeastern Expressway, the Cecil County segment of I-95 was built between January 1962 and November 1963. Opened by President Kennedy just eight days before his assassination, the Northeastern Expressway was renamed the John F. Kennedy Memorial Highway in his honor in 1964. The I-95 corridor has become the catalyst for Cecil County's recent economic development and harbinger of its future.

While Cecil County has a rich historical heritage, historic preservation has not been a primary area of concern in its comprehensive planning process. Prior to 2000, Cecil County was one of twelve jurisdictions in Maryland with no authority to prevent the destruction of historic resources. Although recommended in the 1990 Comprehensive Plan, it wasn't until 2000 that the county amended its zoning ordinance to include a historic district overlay zone and create a Historic District Commission (HDC). The HDC makes recommendations on applications for historic designation, rescinds or amends designations, issues certificates of appropriateness for designated structures, and informs and educates citizens on the historic and architectural heritage of the county (CCG 2013). Properties located within municipalities are not eligible for designation by the HDC, but are instead designated by town historic district commissions. A historic district overlay zone is initiated by a nomination to the HDC by the owners of the property (BCC 2011). The overlay zone currently covers 28 districts.

The 2010 Comprehensive Plan recognizes that scenic and historic views from many county roads contribute significantly to the Cecil County's local character. The Plan recognizes the need to protect these resources but has yet to integrate the protection of scenic and historic roads into the development planning process, instead proposing an inventory of county scenic roads to determine whether a protection program is warranted (BCC 2010).

Cecil County's cultural heritage is evidenced in more than 1,500 properties listed in the Maryland Inventory of Historic Places (MIHP), 48 National Register sites, and 22 historic properties protected under easement to the Maryland Historical Trust (MHT). Two incorporated towns, Historic South Chesapeake City and the Town of Port Deposit are listed on the National Register.

The county also shares the Lower Susquehanna Heritage Greenway Certified Heritage Area (CHA) with Harford County. The CHA is a 45,000-acre greenway extending from the Conowingo Dam to the head of the Chesapeake Bay. The Maryland Heritage Areas Program preserves the State's historical, cultural, archeological, and natural resources for sustainable economic development through heritage tourism. This is accomplished through the local designation and state certification of Heritage Areas, defined by a distinct focus or theme that makes a place or region, including its natural landscapes, different from other areas of the state. The Lower Susquehanna Heritage Area is dotted with natural resources, historical sites and cultural resources that span pre-colonial Native American occupancy, European contact, Revolutionary and Civil wars, industrial and transportation development, and agrarian landscapes (Redman/Johnston Associates 2000).

At the federal level, Congress established the Captain John Smith Chesapeake National Historic Trail, the first water trail in the United States. Administered in coordination with the National Park Service and Chesapeake Bay Gateways Network, the trail encompasses the routes of Captain John Smith's two voyages around the Chesapeake Bay in 1608, and includes the Lower Susquehanna River in Cecil County (NPS 2010).

The Star-Spangled Banner National Historic Trail is a 560-mile land and water route that tells the story of the War of 1812 in the Chesapeake Bay region. Elkton/Fort Defiance, the site of a military battery that repulsed British barges, is identified as a resource in the trail's feasibility study (NPS 2004).

Many other programmatic activities in Maryland, such as the Site Highway Administration's (SHA's) Scenic Byways' Mason Dixon Byway

(SHA undated) and the Maryland Women's Heritage Trail (MWHC 2003), are associated with cultural resources in Cecil County.

3.7 *NOISE*

3.7.1 *Definition of Noise*

Noise generally consists of many frequency constituents of varying loudness. Three decibels (dB) is approximately the smallest change in sound intensity that can be detected by the human ear. A tenfold increase in the intensity of sound is expressed by an additional 10 units on the dB scale, a 100-fold increase by an additional 20 dB. Because the sensitivity of the human ear varies according to the frequency of sound, a weighted noise scale is used to determine impacts of noise on humans. This A-weighted decibel (dBA) scale assigns weights to the various components of noise based on the human ear's response to these components. For example, the ear perceives middle frequencies better than low or very high frequencies; therefore, noise composed predominantly of the middle frequencies is assigned a higher loudness value on the dBA scale. Subjectively, a tenfold increase in sound intensity (10 dB increase) is perceived as an approximate doubling of sound. Typical A-weighted sound levels for various noise sources are shown in Table 3-2.

Table 3-2 Typical Sound Levels for Common Sources (dBA)

Noise Source	Typical Sound Pressure Level
Lowest sound audible to human ear	10
Soft whisper in a quiet library	30-40
Light traffic, refrigerator motor, gentle breeze	50
Air conditioner at 6 meters, conversation	60
Busy traffic, noisy restaurant, freight train moving 30 mph at 30 meters	70
Subway, heavy city traffic, factory noise	80
Truck traffic, boiler room, lawnmower	90
Chain saw, pneumatic drill	100
Rock concert in front of speakers, sand blasting, thunder clap	120
Gunshot, jet plane	140

Noise monitoring is typically conducted continuously over a period of time to obtain a representative picture of the acoustic environment. The length of time required for noise monitoring, and the frequency of individual measurements, will vary depending upon a number of factors, including surrounding land use, time of day, the purpose of noise monitoring, the number of locations at which sound levels are being measured, and the capabilities of the monitoring equipment being used.

Ambient sound pressure levels can also be expressed in various ways. Quite often, noise levels are measured or reported as equivalent sound levels, L_{eq} , over a given time period. A one-hour L_{eq} , for instance, is the constant sound level that has the same energy content as the actual sound variations over a one-hour monitoring period. Monitoring of the ambient noise levels in a community is often reported as L_{eq} as well as L_{90} , the sound pressure level that is exceeded 90 percent of the time. The L_{90} is also called the “noise floor,” the minimum background noise level that is characteristic of that monitoring location. The difference between the L_{90} and the L_{eq} is an indication of the variability of noise at a given location.

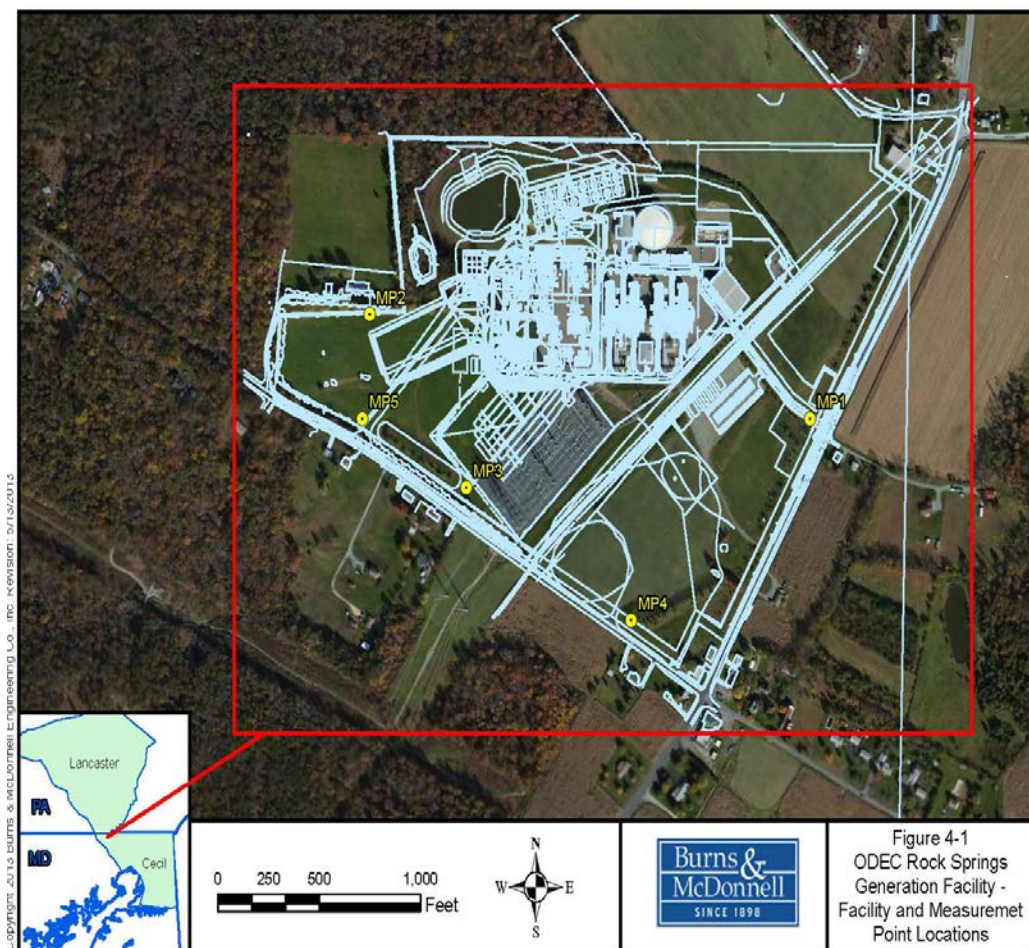
Since sound levels are expressed as relative intensities, multiple sound sources are not directly additive. Rather, the total noise is primarily a result of the source of highest intensity. For example, two sources, each having a noise rating of 50 dBA, will together be heard as 53 dBA; a source

of 65 dBA combined with a source of 85 dBA will result in a noise level of 85.1 dBA. As the intensity difference between the two sources increases, the effects of the lower sound sources become negligible.

3.7.2 *Existing Noise Levels at the Site*

ODEC performed an ambient noise survey on 3-4 October 2012, measuring sound pressure levels at five different locations around the Rock Springs/Wildcat Point site. Each measuring point (MP) represents an abutting residential property boundary. The sound meter used during the survey was a Larson-Davis Model 831 meter, calibrated before and after each measurement and mounted five feet above ground level. Receptor locations are shown in Figure 3-7.

Figure 3-7 *Noise Measuring Point Locations*



Source: 2013 Burns & McDonnell Engineering Co., Inc. Revision: 5/13/2013

On October 3, 2012, measurements for each location were taken in the evening (6 PM to 8 PM) and nighttime (12 AM to 2 AM). The weather conditions were calm with no precipitation. During these periods, each measurement was carried out for a 15-minute period. On October 4, 2012, measurements for each location were taken in the morning (6 AM to 8 AM) and afternoon (12 PM to 2 PM). Imminent rain showers caused the measurements to be shortened to 5-minute periods.

Vehicular traffic noise from US 222 and other local roads was prominent during the evening and afternoon measurements. Animal noises, primarily insect noises, were prominent during the morning and evening measurements. The operating conditions for the existing Rock Springs generating station differed during each time period. During the evening period (6 PM to 8 PM), Rock Springs Units 3 and 4 were at full operation. During the nighttime (12 AM to 2 AM) and morning (6 AM to 8 AM) periods, no units were operating. During the afternoon (12 PM to 2 PM) period, Rock Springs Units 3 and 1 were operating through a wash cycle.

When evaluating community noise levels, the L_{90} is frequently used to indicate the baseline conditions. L_{90} is defined as the sound pressure level that is exceeded 90 percent of the time; it represents a noise “floor,” independent of the short-term loud noises that contribute to higher average noise levels. The noise monitoring results at Wildcat Point indicated that insect noise contributed to higher L_{90} levels during morning and evening. For this reason, the L_{90} levels measured during the afternoon time period (12 PM to 2 PM) most accurately represent the ambient noise levels at each receptor location. These are presented in Table 3-3.

Table 3-3 *Existing Ambient Sound Levels (dBA)*

	MP1	MP2	MP3	MP4	MP5
Existing L_{90}	53.0	46.0	45.0	47.0	48.0

Note: Ambient sound levels measured on October 4, 2012 from 12 PM to 2 PM.

4.0 AIR QUALITY IMPACTS

4.1 AIR QUALITY IMPACT ASSESSMENT BACKGROUND AND METHODOLOGY

4.1.1 Overview

As part of the Certificate of Public Convenience and Necessity (CPCN) application process, the Power Plant Research Program (PPRP), in conjunction with the Maryland Department of Environment-Air and Radiation Management Administration (MDE-ARMA), evaluates potential impacts to air quality resulting from proposed projects to be licensed in Maryland under the Code of Maryland Regulations (COMAR) 20.79. This evaluation includes emissions investigations and other studies, including air dispersion modeling assessments, to ensure that impacts to air quality from proposed projects are acceptable. PPRP and MDE-ARMA also conduct a complete air quality regulatory review for two purposes: 1) to assist in the impact assessment, because air quality regulatory standards and emissions limitations define levels to protect against adverse health, welfare, and environmental effects and 2) to ensure that the proposed Project will meet all applicable regulatory requirements.

PPRP and MDE-ARMA conducted an air quality evaluation of the proposed ODEC Wildcat Point Generation Facility (Wildcat Point Project or Project) to confirm that projected maximum potential air pollutant emissions meet applicable regulatory thresholds and limits. The proposed Project was also evaluated to determine whether emissions from the Project would have significant impacts on the existing ambient air quality in the region. Effects on current ambient air quality were assessed by performing air dispersion modeling that predicts the future ambient air concentrations resulting from emissions from the proposed Project.

4.1.2 Regulatory Considerations

EPA defines concentration-based NAAQS for several pollutants, which are set at levels considered to be protective of the public health and welfare. Specifically, NAAQS have been defined for six “criteria” pollutants, including particulate matter (PM), sulfur dioxide (SO₂), carbon monoxide (CO), nitrogen dioxide (NO₂), ozone, and lead (Pb). Three forms of PM are regulated: total particulate matter (PM or TSP), particulate matter less than 10 microns (PM₁₀) and particulate matter less than 2.5 microns (PM_{2.5}).

Air emissions limitations and pollution control requirements are generally more stringent for sources located in areas that do not currently meet a NAAQS for a particular pollutant. Areas not meeting a NAAQS are designated as nonattainment areas.

Cecil County, where the Project would be located, is currently designated as attainment for all pollutants except ozone. EPA treats the Northeastern United States, from northern Virginia to Maine, as an ozone nonattainment area known as the Northeast Ozone Transport Region. Because of the elevated levels of ozone historically measured in Cecil County during the ozone season (May-October), Cecil County has been designated a “marginal” ozone nonattainment area. Emissions of the two pollutants that contribute to the formation of ozone, volatile organic compounds (VOCs) and nitrogen oxides (NO_x), are regulated more stringently in ozone nonattainment areas such as Cecil County. This is to ensure that air quality is not further degraded (i.e., the ambient air concentration of ozone does not continue to increase as new sources of ozone forming pollutant emissions are constructed).

Potential emissions from new and modified sources in nonattainment areas are evaluated through the Nonattainment New Source Review (NA-NSR) regulatory program. Major new and modified sources in nonattainment areas in Maryland must meet the regulatory requirements of COMAR 26.11.17. The goal of the NA-NSR program is to allow construction of new emission sources and modifications to existing sources, while ensuring that progress is made towards meeting, or attaining, the NAAQS. NA-NSR requires major sources to limit emissions of effected pollutants through the implementation of the most stringent levels of pollution control, known as Lowest Achievable Emission Rate (LAER). In addition, NA-NSR requires pollutant offsets to be obtained for every ton of pollutant emitted at a given ratio. In Cecil County, the offset ratio for the ozone precursors VOCs and NO_x is 1.3 to 1.0 (COMAR 26.11.17.03B.(3)(a)).

Potential emissions from new and modified sources located in attainment areas are evaluated through the Prevention of Significant Deterioration (PSD) program. The goal of the PSD program is to ensure that emissions from major sources do not degrade air quality in areas where NAAQS are currently being met. Triggering PSD requires use of the Best Available Control Technology (BACT) and requires affected sources to evaluate potential impacts of Project emissions, usually through dispersion modeling analyses.

Activities associated with the proposed Wildcat Point Project have the potential to emit the following regulated pollutants: PM, PM₁₀, PM_{2.5},

CO, NO₂, SO₂, sulfuric acid mist (SAM), lead (Pb), ozone precursors (VOC and NO_x), greenhouse gases (GHGs) measured as carbon dioxide equivalent (CO₂e), hazardous air pollutants (HAPs), and Toxic Air Pollutants (TAPs). The potential emissions associated with the Project are discussed in Section 4.3. The applicability of, and compliance with, PSD is presented in Section 4.4 and with NA-NSR in Section 4.5.

Other federal and State air quality regulations also apply to the Project. These regulations apply either as a result of the type of emission source that is to be constructed, or the pollutants to be emitted. These regulations, discussed in Section 4.6, specify pollutant emission limitations and specify notification, monitoring, testing, recordkeeping, and reporting requirements.

4.2 PROPOSED PROJECT SOURCE CHARACTERIZATION

4.2.1 Overview

The Wildcat Point Project involves the construction of a new combined cycle combustion turbine facility with a nominal rated capacity of 1,000 megawatts (MW). The combustion turbines will be fired exclusively on natural gas. The air emission sources to be installed and operated as part of the Project are described below and are summarized in Table 4-1.

4.2.1.1 Combustion Turbines

The Wildcat Point Project will include two Mitsubishi M501GAC combustion turbine generators (CTs) each with a nominal 270-megawatt (MW) operating capacity. Each CT will include a heat recovery steam generator (HRSG) equipped with duct burners, each with a rated capacity of 892 million British thermal units per hour (MMBtu/hr). The heat in the exhaust gas from the CTs will be recovered in the HRSGs and further heated by using duct burners to produce steam, for a steam turbine generator (STG) rated at 500 MW. This 2 X 1 configuration (two CTs feeding one STG) will be operated to generate electricity to be supplied to the PJM Interconnection power grid.

Emissions from the CT/HRSGs will be controlled using a selective catalytic reduction (SCR) system for NO_x and an oxidation catalyst system for CO and VOC. NO_x emissions will also be controlled using dry Low NO_x (DLN) combustors. The use of pipeline quality natural gas at 0.75 grains per 100 dry standard cubic feet (gr/100 dscf)³ will limit the

³ Response to DNR Data Request No. 1-5

emissions of SO₂, sulfuric acid mist, and particulate matter (PM₁₀ and PM_{2.5}).

4.2.1.2 Ancillary Units

Auxiliary Boiler (AB1)

The Wildcat Point Project will include one auxiliary boiler rated at 45 MMBtu/hr to be fueled exclusively with natural gas. The auxiliary boiler will be operated for no more than 2,000 hours per year (equivalent to 90,000 MMBtu per year). The boiler will be equipped with ultra-low NO_x burners (ULNB) and designed to operate using good combustion practices.

Dew Point Heater (DP1)

The Wildcat Point Project will include a 5-MMBtu/hr natural gas-fired heater to heat the natural gas prior to combustion in the CTs. The dew point heater is expected to operate 8,760 hours per year and will be fueled exclusively on natural gas.

Emergency Engines

The Project will include two diesel-fired emergency engines intended to provide back-up power to the Wildcat Point Project and one diesel-fired fire water pump engine used for emergency purposes. The engine ratings include one 2,250-kilowatt (kW) emergency generator, one 1,500-kW emergency generator, and one 477-kW firewater pump engine. The 2,250-kW generator (EG1) will be installed to provide back-up power to support the combustion turbines. The 1,500-kW generator (EG2) will be installed at the location of the water intake structure approximately 6 kilometers from the facility on the Susquehanna River and will be used in the event of failure of the electric water pump. EG2 has been listed here as part of the Wildcat Point Project for completeness; however, since EG2 will be located in Pennsylvania, it is not subject to requirements of the CPCN. The firewater pump engine (FP1) will be used to provide emergency water in the event of a fire. All engines will burn only ultra-low sulfur diesel (ULSD) will be limited to no more than 100 hours per year of maintenance and readiness testing.

Cooling Tower (CTW1)

One new 16-cell, wet, mechanical draft cooling tower will be installed to remove the heat from the water associated with the steam turbine. The cooling water will be obtained from the Susquehanna River and will potentially contain some total dissolved solids (TDS) that will be emitted

as “drift” from the cooling tower resulting in particulate matter (PM) emissions. The cooling tower will be equipped with high efficiency drift eliminators with a drift rate of 0.0005% of circulating water rate, which is considered state-of-the-art for cooling towers.

Circuit Breakers (CB1)

The Wildcat Point Project will involve upgrades to the existing substation located at the site. Three new 525-kilovolts (kV) and two new 19-kV circuit breakers will be installed at the existing substation to support this Project. The circuit breakers will contain sulfur hexafluoride (SF₆), which is considered a greenhouse gas (GHG). The circuit breakers will be sealed and designed to operate with minimal leaks.

Fugitive Emissions (FUG1, FUG2)

The Wildcat Point Project will include fugitive emissions from various equipment components (i.e. connectors, valves, flanges, etc.) used to transport pipeline quality natural gas within the facility boundary (FUG1). The Project will also include paved and unpaved roads on-site that will be used to transport ammonia and other materials associated with Project sources (FUG2).

Storage Tanks

The Project will include three fuel oil storage tanks, one each associated with each of emergency generators. These include one 600-gallon tank for the firewater pump engine, one 3,400-gallon tank for the EG1 emergency generator, and one 1,200-gallon tank for the EG2 emergency generator. The tanks will be equipped with fixed roofs, which will reduce the emissions of VOCs and HAPs. Since the 1,200-gallon tank is located in Pennsylvania, it is not subject to this CPCN, but noted here for completeness to describe the Project equipment.

Table 4-1 summarizes the specifications of the proposed units included in the Wildcat Point Project.

Table 4-1 Wildcat Point Project Air Emission Sources

Component (Number of Units) [Unit ID]	Type/Model	Rated Capacity of Each Unit	Fuel	Maximum Allowable Operations
Combustion Turbines (2)	Mitsubishi M501GAC	270-MW nominal	Natural gas	8,760 hr/yr per CT
Duct Burners (2)	To be determined prior to construction	892.3 MMBtu/hour each (at 54°F)	Natural gas	4,000 hr/yr per duct burner (equivalent to 7,138,400 MMBtu/yr combined for both duct burners)
Auxiliary Boiler [AB1]	To be determined prior to construction	45 MMBtu/hr	Natural gas	2,000 hr/yr (90,000 MMBtu/yr)
Emergency Generator #1 [EG1]	To be determined prior to construction	2,250-kW	Ultra low-sulfur diesel fuel	Limited to emergency use and 100 hr/yr for maintenance and readiness testing
Emergency Generator #2 [EG2] (see note)	To be determined prior to construction	1,500-kW	Ultra low-sulfur diesel fuel	Limited to emergency use and 100 hr/yr for maintenance and readiness testing
Emergency Fire Water Pump Engine [FP1]	To be determined prior to construction	477-hp	Ultra low-sulfur diesel fuel	Limited to emergency use and 100 hr/yr for maintenance and readiness testing
Dew Point Heater [DP1]	To be determined prior to construction	5 MMBtu/hr	Natural gas	8,760 hr/yr
Cooling Tower [CTW1]	To be determined prior to construction	~371,000 gallons per minute recirculation rate	-	8,760 hr/yr
Circuit Breakers [CB1]	To be determined prior to construction	Three 525-kV and two 19-kV	-	8,760 hr/yr
Fugitive sources [FUG1 and FUG2]	To be determined prior to construction	-	-	8,760 hr/yr
Fuel Oil Storage Tanks (3) (see note)	To be determined prior to construction	3,400 gallon, 1,200 gallon, and 600 gallon	-	8,760 hr/yr

Source: May 2013 ODEC CPCN Application and responses to DNR Data Requests.

Note: EG2 and the 1,200-gallon storage tank are located in Pennsylvania.

PROJECT AIR EMISSIONS

ODEC, in its CPCN application, provided background information on the methods used to calculate potential emissions for the Project. PPRP and MDE-ARMA independently calculated emissions from the proposed Project; results of this analysis are summarized below. Potential emissions from the Project were estimated using vendor data where available, AP-42 emission factors, material balance calculations, New Source Performance Standards (NSPS) emission standards, and/or engineering calculations. Detailed backup emissions calculations performed by PPRP and MDE-ARMA are presented in Appendix B.

PPRP and MDE-ARMA are generally in agreement with the methodologies adopted by ODEC to determine emissions for the proposed Project. There are some differences in emission estimates, which are noted.

4.3.1***CTs/HRSGs and Duct Burners***

Potential emissions for most pollutants projected to be emitted by the CTs and associated HRSGs and duct burners were based on vendor specifications provided by ODEC as obtained from Mitsubishi. As noted in the application, normal operation of the CTs is expected to consist of both CT/HRSG units operating with or without supplemental duct burner (DB) firing, and operation of as low as 50% and up to 100% load. As is common with CT/HRSG operations, depending on power demands, alternate facility operating modes could include evaporative cooling of the inlet air, duct burner firing, and reduced load for either of the CT/HRSG units. The CTs are not designed with bypass stacks and will operate only in combined cycle mode. Furthermore, the CTs/HRSGs are designed for continuous operation (8,760 hours per year) and may operate at up to 100% annual capacity factor.

In the CPCN application, ODEC provided emission estimates from the Project for 30 operational scenarios associated with the CT, which represented a combination of different ambient temperatures, duct firing or not, with and without evaporative cooling, and various operational loads. Of these 30 operational scenarios, 12 independent scenarios, including with operation of duct burners, represented the worst-case emission rates for different ambient temperatures and generation load. The annual emissions for all criteria pollutants and hazardous air pollutants (HAPs) were calculated at a worst-case ambient temperature of -14°F, which represent worst-case emissions.

In addition to normal operation of the CTs/HRSGs, ODEC calculated the emissions associated with startup and shutdown periods for the CTs/HRSGs. These operating scenarios included emissions that would be expected from operating the CTs at various loads with and without duct burner firing, at varying ambient temperatures, including periods of inlet air evaporative cooling, and including periods of startups and shutdowns. Startups are defined as those periods when the CTs are operating from 0% up to 50% load, and shutdown when the CT operation drops below 50% load. Three types of startups are defined for these Mitsubishi combined cycle combustion turbines:

- Cold startup – a CT has been down for at least 72 hours after a shutdown, and can take up to 270 minutes to bring a CT up to 50% load;
- Warm startup – a CT has been idle for at least 8 hours but no more than 72 hours after a shutdown, and can take up to 174 minutes to bring a CT up to 50% load; and
- Hot startup – a CT has not been idle for at least 8 hours after a shutdown, and can take up to 96 minutes to bring a CT up to 50% load.

The emission factors for normal operations and startup and shutdown events for NO_x, CO, VOC, PM, PM₁₀, and PM_{2.5} were based on specifications provided to ODEC by the manufacturer, Mitsubishi, and the EPC contractor, ALSTOM, in response to DNR Data Request Nos. 2, 9, 11, and 12.

Emissions of SO₂ were based on a sulfur content of natural gas of 0.75 gr/100 dscf. The sulfur content of pipeline quality natural gas, by definition, is 20 gr/100 dscf.⁴ However, ODEC noted in response to DNR Data Request No. 1-5 that, based on data from their fuel supplier, typical average sulfur content in gas is approximately 0.75 gr/100 dscf. This value was used to estimate the annual emission estimates.

For calculation purposes, PM emissions are assumed equivalent to the filterable portion of PM only; by definition in Maryland, PM₁₀ and PM_{2.5} include both the filterable and condensable portions of PM.⁵ Therefore, PM₁₀ and PM_{2.5} emissions were calculated as the sum of the PM emissions (filterable emissions) and PM generated from sulfate formations (considered the condensable portion of PM). The filterable emission rates

⁴ 40 CFR §72.2

⁵ COMAR 26.11.01.01

of PM, PM10, and PM2.5 are 22.8 lb/hr with duct firing. These filterable emission rates together with the sulfate portion (condensables) result in a maximum short-term PM10 and PM2.5 emission rate of 38.0 lb/hr with duct firing equivalent.

SAM emissions from the CTs/HRSGs were calculated assuming that all the SO₂ in the natural gas would be converted to sulfur trioxide (SO₃) and combined with water vapor in the flue gas to form SAM.

Emission rates for lead were not available from the vendor and were therefore calculated using EPA's AP-42 emission factors (USEPA 1998b).

The vendor specification for the CTs/HRSGs did not include emission rates for greenhouse gases (GHGs). EPA defines GHG to include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), hydrofluorocarbons (HFCs), chlorofluorocarbons (CFCs), perfluorocarbons (PFCs), and other fluorinated greenhouse gases.⁶ For the CTs/HRSGs, the total GHG emissions are calculated as the sum of CO₂, CH₄, and N₂O and expressed as carbon dioxide equivalent (CO₂e). Each GHG pollutant has varying potential to cause global warming, which is expressed in terms of the global warming potential (GWP). The GWP potential for CO₂ is 1, CH₄ is 25, and N₂O is 298. The heat input for the CTs and HRSGs were available from the vendor specification sheets, which along with the emission factors, were used to calculate short-term (lb/hr) and annual GHG emissions (tpy). The annual GHG emissions associated with the CTs/HRSGs were calculated at operational conditions representing annual average ambient temperatures of 54.2°F.

In October 2013, the Maryland Climate Reduction Plan was released, which sets GHG emission targets for the entire state to be achieved by calendar year 2020. In efforts to support these state-wide GHG emission reduction goals, PPRP and MDE-ARMA reviewed different approaches to limiting GHG emissions from the Wildcat Point Project, which were discussed with ODEC and identified in Data Request No. 12. In response to DNR Data Request No. 12, ODEC provided revised emission estimates for GHGs from the CTs/HRSGs based on the following conditions:

- Using the short-term emission estimates associated with an ambient temperature of 54.2°F;
- Calculating future projected GHG emissions from the CTs/HRSGs using EPA's AP-42 emission factors for gas turbines, Section 3.1, Table 3.1-2a; and

⁶40 CFR Part 98, 75 FR 79091.

- Using a degradation factor of 10% to account for long-term reduction in efficiency of the turbines.

In addition to normal operations associated with the CTs/HRSGs, ODEC estimated emissions associated with startup and shutdown operations, which were independently verified and confirmed by PPRP and MDE-ARMA. Table 4-2 summarizes the number of projected startup and shutdown events for the Project CTs for a given year. This summary incorporates the information provided by ODEC in the CPCN application. Based on operating and startup/shutdown projections, ODEC estimated that each CTs/HRSGs may have “downtime” of up to approximately 2,960 hours per year (1,080 hours for cold startups + 480 hours for warm startups + 1,400 hours for hot startups).

Table 4-2 *Projected Number of Annual Startup and Shutdown Events - Total Plant Startup/Shutdown*

Type	Duration (min/event)	No. Events per Year	Total Hours/ year
Cold Startup	270	15	67.5
Warm Startup	174	60	174
Hot Startup	96	175	280
Shutdown	30	250	125

Emission factors associated with startup and shutdown events from the CT vendor were used to calculate emissions. Table 4-3 summarizes future projected emissions associated with startup and shutdown events.

Table 4-3 *Projected Criteria Pollutant Emissions During Startup and Shutdown Periods – Combined for Both CTs*

Event Type	Startup Type	Emissions (tpy)						
		NO _x	CO	VOC	PM/ PM10/ PM2.5	SO ₂	SAM	CO _{2e}
Startup	Cold	7	103	50	2	0.1	0.7	7,275
	Warm	18	115	129	4	0.3	1.7	21,000
	Hot	30	101	50	7	0.9	2.8	38,500
Shutdown	-	13	102	76	3	0.3	1.3	17,875
Total		67	422	304	17	1.5	6.4	84,650

The annual emissions associated with the CTs/HRSGs corresponding to each operating scenario (normal or normal with startup and shutdowns included) were estimated and the worst-case annualized emissions from

either scenario was used to represent the potential annual emissions for the CT/HRSG units.

The following operating scenarios represent worst-case emissions from the Project:

- CTs operating for 4,760 hours per year, duct firing for 4,000 hours per year, and no startup and shutdown events;
- CTs operating for 1,153 hours per year, duct firing for 4,000 hours per year, 2,960 hours per year of downtime, and 647 hours per year of startup and shutdown events.

PPRP and MDE-ARMA independently calculated the emissions associated with the Project based on the operational cases identified by ODEC in the CPCN application, which are summarized in Table 4-4.

In addition to criteria pollutants and GHG emissions, ODEC presented an estimate of HAP emissions from the Project. There were no vendor emission factors available for HAP emissions from the CT/HRSGs; therefore, ODEC used the emission factors from EPA's AP-42 emission factor for Large Combustion Turbines (AP-42 Section 3.1) for normal operation associated with the CTs (USEPA 2000). A summary of HAP emissions from the CTs/HRSGs during normal operations is included in Table 4-5.

Table 4-4 PPRP and MDE-ARMA Calculated Potential Emissions from the Proposed CTs/HRSGs

Regulated Pollutant	Maximum Annual Emissions for Two CT/HRSG units (tons per year)	Basis for Annual Emissions (Operating Cases)
VOCs	340.0	CTs only: 1,153 hrs at 100% load; DB: 4,000 hrs normal operations; SU/SD events
NO _x	228.4	CTs: 4,760 hrs, DB: 4,000 hrs
CO	506.2	CTs only: 1,153 hrs at 100%; DB: 4,000 hrs; SU/SD events
SO ₂	62.8	CTs: 4,760 hrs, DB: 4,000 hrs
PM10 and PM2.5	271.5	
PM	162.6	
Lead (Pb)	0.004	
SAM	96.2	
GHGs (as CO ₂ e)	3,489,558	

Notes: DB indicates duct burners, SU/SD indicates startup/shutdown

Table 4-5 Projected HAP Emissions from CTs/HRSGs - Both CTs Combined

(a) Short-term Emissions

HAP	CT Emission Factor (lb/MMBtu)	DB Emission Factor (lb/MMBtu)	CT (lb/hr)	DB (lb/hr)	CT + DB (lb/hr)
1,3-Butadiene	4.3E-07	NA	0.001	NA	0.001
Acetaldehyde	4.0E-05	NA	0.127	NA	0.127
Acrolein	6.4E-06	NA	0.020	NA	0.020
Benzene	1.2E-05	2.1E-06	0.038	0.004	0.042
Dichlorobenzene	NA	NA	NA	NA	NA
Ethylbenzene	3.2E-05	NA	0.102	NA	0.102
Formaldehyde	2.0E-05	7.4E-05	0.064	0.129	0.193
Hexane	NA	1.8E-03	NA	3.145	3.145
Naphthalene	1.3E-06	6.0E-07	0.004	0.001	0.005
Polycyclic Organic Matter (POM)	2.2E-06	NA	0.007	NA	0.007
Propylene Oxide	2.9E-05	NA	0.092	NA	0.092
Toluene	1.3E-04	3.3E-06	0.413	0.006	0.419
Xylene	6.4E-05	NA	0.203	NA	0.203

(b)

Annual Emissions

HAP	CTs/HRSGs (tpy)
1,3-Butadiene	0.004
Acetaldehyde	0.33
Acrolein	0.05
Benzene	0.03
Ethylbenzene	0.26
Formaldehyde	0.29
Hexane	6.29
Naphthalene	0.00
POM	0.02
Propylene Oxide	0.24
Toluene	0.25
Xylene	0.52
Max individual HAP	6.3
Total HAPs	8.3

ODEC did not initially present HAP emissions from startup and shutdown events in its CPCN application. In response to DNR Data Request No. 1-4, ODEC provided additional information on HAP emissions during startup and shutdown conditions.

The HAP startup and shutdown emissions were based on using CO as a surrogate for HAPs. Since estimates of HAPs from the CTs/HRSGs during startup and shutdown were not provided by the vendor, the use of a surrogate, or empirical data, was used to derive estimates of HAP emissions during these events. Generally, CO and VOC emission rates during combustion are generally directly related to each other, i.e., the CO and VOC emissions increase and decrease together. Many of the HAP pollutants generated during the combustion process are also considered VOCs. Therefore, the use of CO, a pollutant commonly monitored continuously, as a surrogate to determine HAP and VOC emissions is appropriate. The ratio of CO to HAPs during normal operation and CO emissions estimates during startup and shutdown conditions were used to calculate HAP emissions during these events. A summary of the HAP emissions during startup and shutdown conditions provided by ODEC (and which PPRP and MDE-ARMA agree are acceptable estimates) is presented in Table 4-6.

Table 4-6 Summary of HAP Emissions Associated with CTs/HRSGs – Startup and Shutdown Conditions – Both CTs/HRSGs Combined

HAP	Emissions (tpy)				
	Cold SU	Warm SU	Hot SU	SD	Total
1,3-Butadiene	5.41E-04	6.04E-04	5.30E-04	5.36E-04	0.00
Acetaldehyde	5.04E-02	5.62E-02	4.93E-02	4.99E-02	0.21
Acrolein	8.06E-03	8.99E-03	7.88E-03	7.98E-03	0.03
Benzene	1.51E-02	1.69E-02	1.48E-02	1.50E-02	0.06
Ethylbenzene	4.03E-02	4.50E-02	3.94E-02	3.99E-02	0.16
Formaldehyde	2.52E-01	2.81E-01	2.46E-01	2.49E-01	1.03
Hexane	7.13E-04	7.95E-04	6.97E-04	7.06E-04	0.003
Naphthalene	1.64E-03	1.83E-03	1.60E-03	1.62E-03	0.01
POM	2.77E-03	3.09E-03	2.71E-03	2.74E-03	0.01
Propylene Oxide	3.65E-02	4.07E-02	3.57E-02	3.62E-02	0.15
Toluene	1.64E-01	1.83E-01	1.60E-01	1.62E-01	0.67
Xylene	8.06E-02	8.99E-02	7.88E-02	7.98E-02	0.33
Max individual HAP	0.25	0.28	0.25	0.25	1.03
Total HAPs	0.90	0.73	0.64	0.65	2.66

A summary of the worst-case potential emissions from the CT/HRSG units calculated by PPRP and MDE-ARMA for the Wildcat Point Project is presented in Table 4-7.

Table 4-7 Summary of CT/HRSG Projected Emissions

Pollutant	Emissions (tpy)
NO _x	228.4
CO	506.2
VOC	340.0
PM10 and PM2.5	271.5
PM	162.6
SO ₂	62.8
SAM	96.2
CO ₂ e	3,489,558
Lead	0.004

4.3.2 Auxiliary Boiler

The auxiliary boiler has a rated capacity of 45 MMBtu/hr and is used to provide steam during periods of CT startup. At the time of the CPCN application, ODEC had not identified a specific vendor for the auxiliary boiler. ODEC used emission factors either based on EPA's AP-42 emission factors for Natural Gas Combustion, Section 1.4 or vendor performance specifications.

PPRP and MDE-ARMA independently verified the emission estimates presented by ODEC. Emissions of SO₂ and lead were based on AP-42 emission factors. SAM emissions were calculated assuming complete conversion of SO₂ to sulfur trioxide (SO₃). Emissions of GHGs were based on EPA's GHG Reporting Rule (40 CFR Part 98 Subpart C, Table C-2). PPRP and MDE-ARMA assumed that PM₁₀ and PM_{2.5} emissions would be equal to PM emissions, which is considered conservative. In addition, AP-42 factors were used to estimate emissions of HAPs from the boiler.

Potential emissions from the boiler were calculated based on a limit of 2,000 hours of total boiler operation per year. A summary of potential short-term and annual emissions from the boiler as calculated by PPRP and MDE-ARMA is presented in Table 4-8.

Table 4-8 *Potential Emissions from the Auxiliary Boiler*

Pollutant	Emissions (lb/hr)	Emissions (tpy)
NO _x	0.45	0.450
CO	1.62	1.62
VOC	0.15	0.149
PM	0.338	0.338
PM ₁₀	0.338	0.338
PM _{2.5}	0.338	0.338
SO ₂	0.027	0.027
SAM	4.13E-04	0.0004
Lead	2.25E-05	0.00002
CO _{2e}	5,264	5,264
HAPs	0.08	0.08

4.3.3 *Dew Point Heater*

A dew point heater (fuel gas heater) is proposed for the Project to heat natural gas before it is introduced into the combustion turbines.

At the time of the CPCN application, ODEC had not identified a specific vendor for the dew point heater. ODEC used emission factors either based on EPA's AP-42 emission factors for Natural Gas Combustion, Section 1.4 or vendor performance specifications.

PPRP and MDE-ARMA estimated the emissions of NO_x, CO, VOC, PM, PM₁₀ and PM_{2.5} based on applicable BACT or LAER limits. Emissions of SO₂ and lead were based on AP-42 emission factors. SAM emissions from the fuel gas heater were calculated based on the SO₂ emission rate. Emissions of GHGs were based on EPA's GHG Reporting Rule (40 CFR

Part 98 Subpart C, Table C-2). PPRP and MDE-ARMA assumed that PM10 and PM2.5 emissions will be equal to PM emissions, which is considered conservative. In addition, AP-42 factors were used to estimate emissions of HAPs from the heater.

Dew point heater emissions assume that the unit could operate continuously over the year (8,760 hr/yr). A summary of potential short-term and annual emissions from the heater as calculated by PPRP and MDE-ARMA is presented in Table 4-9.

Table 4-9 *Potential Emissions from the Dew Point Heater*

Pollutant	Emissions (lb/hr)	Emissions (tpy)
NO _x	0.25	1.073
CO	0.41	1.805
VOC	0.03	0.118
PM	0.038	0.164
PM10	0.038	0.164
PM2.5	0.038	0.164
SO ₂	0.003	0.013
SAM	4.6E-05	0.0002
Lead	2.50E-06	0.00001
CO ₂ e	585	2,560
HAPs	0.01	0.04

4.3.4 *Emergency Generator and Fire Water Pump Engine*

The two emergency units located at the Project site — one emergency generator and one fire water pump engine — will be diesel-fired and will operate only for maintenance and readiness testing purposes and in the event of an emergency. The emergency generator is rated at 2,250 kW and the fire water pump engine is rated at 477 hp. The emergency generator and the fire water pump engine are considered compression ignition (CI) reciprocating internal combustion engines (RICE) and are subject to the New Source Performance Standards (NSPS) for RICE codified at 40 CFR Part 60 Subpart IIII.

NSPS Subpart IIII specifies emission limits for non-methane hydrocarbon (NMHC)+NO_x, CO, and PM depending on the size and the model year of the engine. Total hydrocarbons are made up of methane, which typically forms the majority of the hydrocarbons, and NMHC, which is typically considered equivalent to VOC. NO_x emissions were assumed equal to 70% of the combined (NMHC+NO_x) emission limits and VOC was assumed to

be the remaining 30% of the emissions limit. Note that the NSPS limit for PM is based on filterable emissions only. ODEC conservatively assumed that the total PM emissions (PM10 and PM2.5, which includes filterable and condensable emissions) will be limited to the NSPS PM limit; this limit was used as the basis for the PM, PM10, and PM2.5 emissions calculations. The sulfur content of the fuel (15 ppm) and hourly rated fuel throughputs were used to calculate SO₂ emissions from the engines. HAP emissions from the engines were calculated using AP-42 emission factors (Section 3.4 for engines greater than 600 hp and Section 3.3 for the fire water pump engine). GHG emissions from the engines were calculated using emission factors in EPA's GHG Reporting Rule (40 CFR Part 98 Subpart C).

RICE engines are also subject to the RICE NESHAP (40 CFR 63, Subpart ZZZZ), which limits hours of operation for maintenance and readiness testing to 100 hours per year; therefore, potential emissions from the engines on an annual basis were calculated using the 100-hour per year limit. A summary of potential emissions from the emergency generator and fire water pump engine, as calculated by PPRP and MDE-ARMA are presented in Tables 4-10 and 4-11.

Table 4-10 *Potential Emissions from the 2,250 kW Emergency Generator*

Pollutant	Emissions (lb/hr)	Emissions (tpy)
NO _x	31.7	1.59
CO	17.36	0.87
VOC	1.94	0.09
SO ₂	0.04	0.002
PM	0.99	0.05
PM10, PM2.5	0.99	0.05
CO ₂ e	3,518	176
HAPs	0.037	0.002

Table 4-11 *Potential Emissions from the Fire Water Pump Engine*

Pollutant	Emissions (lb/hr)	Emissions (tpy)
NO _x	3.14	0.16
CO	2.74	0.14
VOC	1.18	0.06
SO ₂	0.005	0.0003
PM	0.16	0.0079
PM10, PM2.5	0.16	0.0079
CO ₂ e	558	28
HAPs	0.013	0.001

4.3.5 *Cooling Tower*

The Project will involve the construction and operation of a cooling tower, which will be used to cool non-contact cooling water before being discharged. The source of cooling water will be the Susquehanna River. Operation of the cooling tower will result in PM, PM10, and PM2.5 emissions resulting from TDS present in the intake water from the river. Particulate emissions from cooling towers are influenced by the water circulate rate, TDS content of the circulating cooling water, and the efficiency of drift elimination systems.

For the proposed Wildcat Point Project, the cooling tower will be a 16-cell mechanical draft cooling water tower. The cooling system will have a water circulation rate of approximately 370,768 gallons per minute (gpm) and will be equipped with drift elimination systems designed to achieve a drift loss rate of 0.0005%. ODEC reviewed historic water sampling data to determine the TDS content of 3,360 parts per million (ppm) as the average measured value based on historic sampling data (Response to DNR Data Request No. 2-6).

PPRP and MDE-ARMA generally concur with the methodology adopted by ODEC. However, to estimate emissions of fine particulate matter (PM10 and PM2.5) fractions of PM, PPRP and MDE-ARMA applied the Reisman/Frisbie methodology (Reisman and Frisbie 2004), calculated to be 45.2% for PM10 and 0.2% for PM2.5. A summary of PM, PM10, and PM2.5 emissions estimates as calculated by PPRP and MDE-ARMA for the cooling tower is presented in Table 4-12.

Table 4-12 *Potential PM/PM10/PM2.5 Emissions from the Cooling Tower*

	PM ¹	PM10 ²	PM2.5 ²
Hourly (lb/hr)	3.1	1.4	0.01
Daily (lb/day)	74.9	33.9	0.2
Annual (tpy)	13.7	6.2	0.03

¹ PM calculated based on flow rate, drift rate, and average total dissolved solids.

² Reisman, J. and Frisbie, G., "Calculating Realistic PM10 Emissions From Cooling Towers."

4.3.6 *Circuit Breakers*

As a part of the Project, ODEC proposes to install circuit breakers that contain the GHG sulfur hexafluoride (SF₆). ODEC proposes to install three 525-kV and two 19-kV circuit breakers. There is a potential for minor leaks of SF₆ from circuit breakers resulting in GHG emissions to the atmosphere. While SF₆ emissions from the proposed state-of-the-art circuit breakers are expected to be small, SF₆ has a high GWP (22,800), so even small amounts of SF₆ emissions can be a contributor to GHG emissions on a CO₂e basis.

Potential SF₆ emissions from the circuit breakers were calculated based on a leak rate of 0.5% of total SF₆ charged to the circuit breakers, which equates to a potential GHG emissions from the circuit breakers of 64.1 tpy CO₂e (refer to emission calculations in Appendix B). A leak rate of 0.5% is comparable to that from other similar sized circuit breakers approved in recent permits issued around the country in the last few years. Based on PPRP and MDE-ARMA's review, the circuit breakers are designed to limit the leak rate to a maximum of 0.5%; therefore, this leak rate is considered acceptable for use in emissions calculations.

4.3.7 *Fugitive Emissions*

The Wildcat Point Project will be served by a natural gas pipeline, which will be the source of fuel for the CTs, auxiliary boiler and fuel gas heater. The portion of the pipeline that is within ODEC's property line will include components such as valves, flanges, relief valves, compressors, and sampling lines, all of which can be sources of potential fugitive emissions. Fugitive emissions from pipeline components are minimized by routine and frequent inspection of the lines to detect leaks to enable timely repair.

Emissions of methane and CO₂, both GHGs, associated with fugitive leaks from system components were calculated by ODEC and independently

verified by PPRP and ARMA using emission factors and component counts provided by ODEC. Based on discussions with ODEC, the component count used in this calculation included the fugitive components associated with the compressor station (that includes an electric compressor) owned and operated by Williams/Transcontinental Pipe Line Company and dedicated to the Wildcat Point Project (Williams 2013). Potential fugitive GHG emissions associated with the natural gas pipeline components are presented in Table 4-13.

Table 4-13 Potential Fugitive GHG Emissions

Components	Number of Components	CH₄ (tpy)	CO₂ (tpy)	CO₂e (tpy)
Valves	490	2.25	1.18	50.78
Flanges	291	0.15	0.08	3.35
Sampling Connections	8	0.08	0.04	1.87
Compressors	2	4.53	2.38	102.11
Relief Valves	36	0.25	0.13	5.53
TOTAL		7.3	3.8	156.4

In addition to the emissions associated with fugitive pipeline components, the Project will include additional potential fugitives associated with paved and unpaved roads used to deliver ammonia used in the SCR system and other materials to the facility. The emissions associated with on-site paved and unpaved roads are expected to be insignificant. However, PPRP and MDE-ARMA have included a permit condition to implement best management practices to reduce PM, PM₁₀, and PM_{2.5} emissions from onsite roads as BACT, which is discussed later in this ERD.

4.3.8 Fuel Oil Storage Tanks

ODEC calculated potential emissions from the three fuel oil storage tanks (one of which will be located in Pennsylvania) using EPA's TANKS program. PPRP and MDE-ARMA verified the emissions associated with the fuel oil storage tank independently. Based on meteorological data for Baltimore, Maryland (which is the closest meteorological data station to the facility in EPA's TANKS database) and assuming a horizontal, fixed roof tank, VOC emissions from the two storage tanks to be located in Maryland are estimated to be 0.0003 tpy.

4.3.9 Ammonia Emissions

Ammonia is not a federally or State of Maryland regulated air pollutant; however, ammonia reacts with nitric acid and sulfuric acids in the

atmosphere to form fine particulate matter and so is of interest to the State. In this Project, ODEC is proposing to use aqueous ammonia as a reagent in the SCR system to control NO_x emissions. The catalyst bed provides active sites where, as the gases pass through the bed, ammonia reacts with NO_x in the exhaust stream. SCR systems utilize ammonia reagents efficiently, as evidenced by the fact that only one mole of ammonia is required to reduce one mole of NO_x for a properly designed unit. Unreacted ammonia that passes through the catalyst emitted to the atmosphere is known as "ammonia slip." The proposed SCR system will be limited to an ammonia slip of 5 ppm. Assuming 8,760 hours of operation of the CTs and the SCR, emissions associated with the ammonia slip were calculated by ODEC to be 971 tpy. PPRP and MDE-ARMA concur with this estimate of ammonia emissions for the Project.

4.3.10 *Summary of Emissions*

Summary of short-term and annual emissions associated with all proposed Wildcat Point Project sources are presented in Tables 4-14 and 4-15, respectively.

Table 4-14 Short-Term Emissions Summary for the Wildcat Point Project

Unit	NO _x	VOCs	CO	PM	PM10	PM2.5	SO _x	Pb	Sulfuric Acid Mist	CO _{2e}
CT/Duct Burners	29.7	8.1	18.1	22.8	38.0	38.0	8.2	4.4E-04	12.50	456,528
Auxiliary Boiler	0.45	0.15	1.62	0.34	0.34	0.34	0.03	2.3E-05	0.000	5,265
2,250-kW Generator	31.7	1.86	17.36	0.99	0.99	0.99	0.04	-	-	-
477-hp Fire Water Pump	3.14	1.13	2.74	0.16	0.16	0.16	0.01	-	-	-
Dew Point Heater	0.25	0.0	0.41	0.04	0.04	0.04	0.00	2.5E-06	0.00	585
Cooling Tower	-	-	-	3.12	1.41	0.01	-	-	-	-
Circuit Breakers	-	-	-	-	-	-	-	-	-	64
Fugitives	-	-	-	-	-	-	-	-	-	37
Fuel Oil Storage Tanks	-	-	-	-	-	-	-	-	-	-
Total	65.2	11.3	40.2	27.4	40.9	39.5	8.3	0.0005	12.5	462,479

Notes:

1. All emissions are in units of lb/hr

Table 4-15 Annual Potential Emissions Summary for the Wildcat Point Project

Unit	NO _x	VOCs	CO	PM	PM10	PM2.5	SO _x	Pb	Sulfuric Acid Mist	CO ₂ e
CT/Duct Burners	228.4	340.0	506.21	162.60	271.48	271.48	62.79	0.004	96.2	3,489,558
Auxiliary Boiler	0.45	0.15	1.62	0.34	0.34	0.34	0.03	2.3E-05	0.0004	5,265
2,250-kW Generator	1.59	0.09	0.87	0.05	0.05	0.05	0.002	-	-	176
477-hp Fire Water Pump	0.157	0.06	0.14	0.01	0.01	0.01	0.0003	-	-	27.90
Dew Point Heater	1.07	0.12	1.80	0.16	0.16	0.16	0.01	1.1E-05	2.0E-04	2,562.31
Cooling Tower	-	-	-	13.66	6.19	0.03	-	-	-	-
Circuit Breakers	-	-	-	-	-	-	-	-	-	280.73
Fugitives	-	-	-	-	-	-	-	-	-	156.38
Fuel Oil Storage Tanks	-	0.0003	-	-	-	-	-	-	-	-
Total	231.7	340.4	510.6	176.8	278.2	272.1	62.8	0.004	96.2	3,498,026

Notes:

1. All emissions are in units of tons per year.

4.3.11

Construction Emissions

Construction emissions were not originally addressed in ODEC's application; therefore, PPRP and MDE-ARMA requested that the construction emissions be estimated by ODEC (DNR Data Request No. 2-1). In ODEC's response to this data request, the company stated that construction activities for the Project would generate emissions from several activities: land clearing, site preparation, earth moving and material handling, and use of fossil fuel-fired construction equipment and vehicles. Site preparation activities, including excavation, fill, grading, vehicle use on unpaved roads and wind erosion of soil piles, may generate particulate matter (PM, PM10, and PM2.5) emissions over the three-year duration of the construction activities. To minimize the effects of fugitive dust, ODEC intends to employ appropriate dust-suppressing practices (Response to DNR Data Request No. 2-1).

Other emissions during construction result from the combustion of fuel in construction vehicles. The engines of these vehicles will produce emissions of NO_x, CO, SO₂, VOCs, particulates, lead and HAPs. To minimize these emissions, ODEC proposes to use ultra-low sulfur diesel fuel. Emissions associated with the construction activities as estimated by ODEC are presented in Table 4-16. The methodology used by ODEC for the construction emission estimates was reviewed and considered appropriate by PPRP and MDE-ARMA.

Table 4-16 *Emissions Associated with Construction Activities*

Pollutant	Emissions (tpy)		
	Year 1	Year 2	Year 3
PM	255.9	2.4	0.5
PM10	74.8	2.4	0.5
PM2.5	8.9	2.4	0.5
SO ₂	28.5	44.3	8.3
NO _x	29.4	40.3	7.5
CO	26.9	37.3	7.0

4.4 *PREVENTION OF SIGNIFICANT DETERIORATION (PSD)*

4.4.1 *Applicability*

The proposed Wildcat Point Project will be located adjacent to, and on the same property as, the existing Rock Springs Generation Facility. ODEC jointly owns the Rock Springs facility with Essential Power Rock Springs LLC (Essential Power). Essential Power currently operates the Rock Springs facility. The Wildcat Point Project will be owned and operated by ODEC. The two facilities (Rock Spring and Wildcat Point) are considered a single source for PSD applicability purposes. Therefore, the proposed Wildcat Point Project is considered a modification of an existing major source. The potential emissions of the Wildcat Point Project alone are greater than the major source threshold for several NSR pollutants; therefore, PSD applicability for the proposed Project is determined by evaluating if there is a significant net emissions increase of pollutants associated with the installation and operation of sources proposed by ODEC. As discussed in Section 3.4 of this document, the Wildcat Point Project is located in an attainment area for all pollutants except ozone; therefore, applicability with PSD regulations is evaluated for attainment pollutants against their respective Significant Emissions Rate (SER). Under PSD, the facility is considered to undergo a major modification if the net emissions increase of any NSR pollutant is greater than the SER for that pollutant. If the net emissions increase is equal to or higher than the SER, the proposed project is subject to PSD for that pollutant. Table 4-17 presents potential emissions from Wildcat Point, with an indication of whether the project triggers PSD.

Table 4-17 **PSD/NSR Applicability Analysis for the Project**

Pollutant	Potential Emissions (tpy)	Significant PSD/NA-NSR Emission Rate (tons)	PSD/NA-NSR Triggered? (Yes/No)
NO _x	231.7	40/25	Yes
CO	510.6	100	Yes
PM (TSP) (Filterable Only)	176.8	25	Yes
PM10 (Filterable and Condensable)	278.2	15	Yes
PM2.5 (Filterable and Condensable)	272.1	10	Yes
SO ₂	62.8	40	Yes
VOC	340.4	25	Yes
GHGs (as CO ₂ e)	3,498,026	75,000	Yes
Hydrogen Sulfide	Negligible	10	No
Sulfuric Acid Mist (SAM)	96.2	7	Yes
Lead	0.004	0.6	No

As noted in Table 4-17, potential NO_x, CO, PM, PM10, PM2.5, SO₂, SAM, and GHG emissions exceed the SERs. Therefore, the Project triggers PSD and must:

- Demonstrate use of BACT for pollutants with significant emissions (Section 4.4.2);
- Assess the ambient impact of emissions for specific pollutants through the use of dispersion modeling or other means. If the impacts are significant, evaluate (through cumulative multi-source modeling analysis) compliance with the NAAQS and consumption of PSD increments (Section 4.4.3 and Appendix D); and
- Conduct additional impact assessments that analyze the potential impairment to visibility, soils, and vegetation as a result of the modification, as well as impacts on Class I areas (Section 4.4.3).

4.4.2 Best Available Control Technology (BACT) Analyses

Based on potential emissions for the Project, ODEC must demonstrate BACT for NO_x, CO, PM, PM10, PM2.5, SO₂, SAM, and GHG emissions for all proposed Project emissions sources (combustion turbines, auxiliary boiler, dew point heater, emergency generators, fire water pump engine, cooling tower, circuit breakers, and fugitive sources of emissions). In the

May 2013 CPCN application, ODEC conducted a control technology analysis for these sources. PPRP and MDE-ARMA reviewed ODEC's control technology analysis and requested clarification on certain aspects of the analyses. PPRP and MDE-ARMA developed their BACT determination based on the information presented in ODEC's CPCN Application and additional information provided by ODEC in responses to DNR data requests. This section summarizes PPRP and MDE-ARMA review of the BACT assessment employed by ODEC, and provides a determination for each emission source for each pollutant that triggers PSD.

NO_x is subject to both PSD review (as a major source in a NO₂ attainment area) and NA-NSR (as a major source of the ozone precursor NO_x in an ozone nonattainment area). Because LAER, by definition, must be at least as stringent as BACT, the NO_x control technology demonstration is presented in the LAER discussion in Section 4.5; ODEC's compliance with LAER satisfies BACT.

4.4.2.1 *BACT Analysis Process*

BACT for any source is defined in COMAR 26.11.17.01(B)(5) as:

- (a)...an emissions limitation, including a visible emissions standard, based on the maximum degree of reduction for each regulated NSR pollutant which would be emitted from any proposed major stationary source or major modification which the MDE-ARMA, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for that source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combination techniques for control of the pollutant.
- (b) Application of best available control technology may not result in emissions of any pollutant which would exceed the emissions allowed by an applicable standard under 40 CFR 60 and 61.
- (c) If the MDE-ARMA determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination of these, may be prescribed instead to satisfy the requirement

for the application of best available control technology. This standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of the design, equipment, work practice, or operation, and shall provide for compliance by means which achieve equivalent results.

BACT analyses are conducted using EPA's "top-down" BACT approach, as described in EPA's *Draft New Source Review Workshop Manual* (USEPA 1990). The five basic steps of a top-down BACT analysis are listed below:

- Step 1: Identify potential control technologies;
- Step 2: Eliminate technically infeasible options;
- Step 3: Rank remaining control technologies by control effectiveness;
- Step 4: Evaluate the most effective controls and document results;
- Step 5: Select BACT.

The first step is to identify potentially "available" control options for each emission unit triggering PSD, for each pollutant under review. Available options consist of a comprehensive list of those technologies with a potentially practical application to the emission unit in question. The list includes technologies used to satisfy BACT requirements, innovative technologies, and controls applied to similar source categories.

For this analysis, PPRP and MDE-ARMA investigated the following sources to verify the potential control technologies presented by ODEC in the CPCN application:

- EPA's RACT/BACT/LAER Clearinghouse (RBLC) database;
- EPA's New Source Review website;
- In-house experts;
- State permits issued for similar sources that have not yet been entered into the RBLC; and
- Guidance documents and personal communications with state agencies.

After identifying potential technologies, the second step is to eliminate technically infeasible options from further consideration. To be

considered feasible for BACT, a technology must be both available and applicable.

The third step is to rank the technologies not eliminated in Step 2 in order of descending control effectiveness for each pollutant of concern. If the highest ranked technology is proposed as BACT, it is not necessary to perform any further technical or economic evaluation. Potential adverse impacts, however, must still be identified and evaluated.

The fourth step entails an evaluation of energy, environmental, and economic impacts for determining a final level of control. The evaluation begins with the most stringent control option and continues until a technology under consideration cannot be eliminated based on adverse energy, environmental, or economic impacts. The economic or “cost-effectiveness” analysis is conducted in a manner consistent with EPA’s *OAQPS Control Cost Manual, Sixth Edition* (USEPA 2002) and subsequent revisions.

The fifth and final step is to select as BACT the emission limit from application of the most effective of the remaining technologies under consideration for each pollutant of concern.

ODEC employed the top-down BACT process in their assessment of BACT for the Wildcat Point Project. PPRP and MDE-ARMA agree with the approach utilized in ODEC’s CPCN application, supplemented with responses to data requests that were generated during PPRP and MDE-ARMA’s review of the BACT assessment. A summary of our analysis of ODEC’s conclusions to the BACT assessment is discussed below by emission source.

PPRP and MDE-ARMA reviewed ODEC’s BACT analysis and have supplemented this analysis with additional information based on review of the RBLC, recently issued permits and other agency BACT determinations. PPRP and MDE-ARMA’s review utilizes ODEC’s BACT analysis approach, and either agrees with the conclusions on BACT, supplements ODEC’s conclusions, or disagrees with the conclusions, indicating where and providing justification for the resulting BACT determination for the Wildcat Point Project.

Tables 4-18 through 4-23 summarize the State’s BACT determinations for affected units. Appendix C has backup RBLC and permit information for the BACT evaluations. PPRP and MDE-ARMA’s recommended license conditions for the case are included in Appendix A.

4.4.2.2 *BACT Determinations*

4.4.2.2.1 *PM, PM10, PM2.5 BACT*

Particulate matter emissions are generated from each combustion source proposed by ODEC. The following provides a summary of the BACT evaluation conducted for each piece of equipment with respect to PM, PM10, and PM2.5 emissions.

Combustion Turbines

In the CPCN application, ODEC identified control technologies that could potentially be used to reduce PM emissions from combustion turbines. Based on a review of EPA's RBLC database and other recent permits, ODEC determined that add-on emission controls for PM, PM10, and PM2.5 have not been installed on any gas-fired combustion turbine. ODEC, therefore, determined that installation of add-on controls was not commercially demonstrated on natural gas-fired CTs and proposed the use of pipeline quality natural gas, efficient design of CTs, and good combustion practices as BACT for PM, PM10, and PM2.5. PPRP and MDE-ARMA agree with ODEC's BACT determination. In response to Data Request No. 3-3, ODEC proposed PM emission rate of 22.8 lb/hr and a PM10/PM2.5 emission rate of 38.0 lb/hr.

Emissions of PM, PM10, and PM2.5 achievable from CTs are primarily dependent on the sulfur content of gas. Based on sampling data from their fuel supplier as noted in response to DNR Data Request No. 1-5, ODEC confirmed that the annual average sulfur content of the gas supplied to the Wildcat Point Project will be 0.75 grains/100 dry standard cubic feet (0.75 gr/100 dscf). Comparison with the emission rates in the RBLC and other recently issued permits indicates that the PM emission rates proposed by ODEC are higher than some of those permitted projects. However, as noted, emissions are dependent on the sulfur content of the fuel, and those with lower emission rates either had lower fuel sulfur contents, or the limits for these facilities are based solely on filterable PM rather than Maryland's definition of PM10 and PM2.5 (filterable and condensable).

PPRP and MDE-ARMA concur that emission rates resulting from the use of good combustion practices and the exclusive use of pipeline quality natural gas constitutes BACT. ODEC's proposed BACT limit was based on CTs operating at 75% load and at an ambient temperature of -14°F, which does not represent the worst-case emissions associated with the CTs/HRSGs. As shown in Section 4.3, the worst-case emissions correspond to 100% load and an ambient temperature of -14°F. PPRP and

MDE-ARMA believe that the BACT limits need to include periods with and without duct firing and should represent the worst-case emission rates associated with the CTs/HRSGs. Therefore, PPRP and MDE-ARMA are proposing PM BACT limits of 15.0 lb/hr, which corresponds to 0.0047 lb/MMBtu without duct firing and 22.8 lb/hr which corresponds to 0.56 lb/MMBtu with duct firing. Similarly, for PM10 and PM2.5 emissions (filterable and condensable), PPRP and MDE-ARMA are proposing BACT limits of 25.1 lb/hr which corresponds to 0.0079 lb/MMBtu without duct firing and 38 lb/hr, which corresponds to 0.0093 lb/MMBtu with duct firing.

ODEC will be required to perform initial stack testing for PM using EPA Method 5, and for PM10 and PM2.5 using EPA Method 201A/202 to demonstrate compliance with the respective BACT limits. The averaging period for PM by Method 5 will be based on a 3-hour block average (average of three 1-hour stack test runs). However, given the longer run times potentially required for Methods 201A/202, the averaging period for PM10 and PM2.5 will be based on the duration of the three stack test runs, the duration of which could run up to 8-hours. PPRP and MDE-ARMA are not providing a specific averaging period for the PM10 and PM2.5 as the duration of the stack test could vary depending on the ambient and stack conditions at the time of the test. Continuous compliance with the BACT limits will be demonstrated based on data from the annual stack tests coupled with fuel use to calculate emissions for comparison with associated limits.

Emissions of PM, PM10, and PM2.5 during startup and shutdown conditions are not expected to be higher than emissions during normal operations; therefore, the BACT limits will apply at all times, inclusive of startups and shutdowns. Startup and shutdown emissions will be included in the Project-wide emissions cap.

Auxiliary Boiler

The auxiliary boiler will be fueled exclusively by pipeline quality natural gas. The boiler is intended to be operated for no more than 2,000 hour per year, as indicated by ODEC in their CPCN application.

Due to the limited usage of auxiliary boiler projected over the course of a year and the exclusive use of natural gas as fuel in the boilers, add-on PM controls have not been employed on these boilers. Combustion of natural gas generates low PM emissions compared to other fuel burning sources due to low ash and sulfur content. In the CPCN application, ODEC determined that add-on controls are not considered commercially demonstrated for these types of boilers. ODEC proposed the use of

pipeline quality natural gas and good combustion practice as BACT for PM, PM10, and PM2.5.

PPRP and MDE-ARMA reviewed recent permits and the RBLC database and determined that there are no small natural gas-fired boilers (10-100 MMBtu/hr) that employ post-combustion control technology for PM, PM10 or PM2.5. BACT determinations for small boilers are the use of clean fuels (i.e., low-sulfur, low-ash content) and good combustion practices to reduce PM, PM10, and PM2.5. Therefore, PPRP and MDE-ARMA concur with ODEC's BACT determination.

ODEC proposes PM, PM10, and PM2.5 BACT emission limits of 0.0075 lb/MMBtu for the auxiliary boiler. Based on a review of RBLC database, PM emission limits from similarly sized auxiliary boilers were at or above ODEC's proposed BACT limit for auxiliary boiler of 0.0075 lb/MMBtu, except in one permit (Redbud Power Plant in Oklahoma) in which the permit limit was 0.0074 lb/MMBtu; however, that permit limit was for filterable PM only. Therefore, the proposed BACT limit for PM, PM10, and PM2.5 at 0.0075 lb/MMBtu on a 3-hr block average basis is considered acceptable. Compliance with the emission limitation will be demonstrated based on vendor guaranteed emission rates.

Dew Point Heater

The dew point heater will be fueled exclusively by pipeline quality natural gas. ODEC proposed the use of natural gas only as the fuel to control emissions from the dew point heater. PPRP and MDE-ARMA reviewed the RBLC database and recent permits to evaluate if add-on controls have been required to reduce PM emissions from fuel gas heaters. Based on this review, no add-on controls were installed on small-sized heaters such as the dew point heater proposed for this Project. The use of natural gas as fuel and implementation of good combustion practices was the most commonly used BACT approach.

ODEC proposes PM BACT limits of 0.0075 lb/MMBtu for each form of PM. Based on PPRP's review of the RBLC database, there were no permits for similarly sized heaters (<100 MMBtu/hr) found with lower emissions limits than the proposed PM, PM10, and PM2.5 BACT limits of 0.0075 lb/MMBtu; therefore, the proposed limits for PM, PM10, and PM2.5 are considered acceptable as BACT. The averaging period is a 3-hr block average.

Compliance with the BACT limits for PM, PM10, and PM2.5 will be demonstrated based on vendor guarantees on emission rates. ODEC shall be required to obtain vendor guarantees to meet these BACT limits.

Emergency Engines

ODEC proposes to fuel the emergency generator and fire water pump engine using ultra low sulfur diesel (ULSD) to maintain PM, PM10, and PM2.5 emission rates of 0.15 g/hp-hr (0.20 g/kw-hr). The PM10 and PM2.5 emission rates represent a filterable portion equivalent to the NSPS for Internal Combustion Engines (40 CFR Part 60, Subpart IIII) PM limit. A review of the RBLC and other recently permitted emergency engines concluded that there are currently no facilities employing post-combustion controls on IC engines of a size similar to the proposed ODEC units for BACT for particulate emissions. Technologies that are listed in the summary of RBLC and permits recently reviewed (Appendix C) rely on the use of good combustion practices, NSPS compliant engines, limited operating hours, and fuels such as ULSD, to achieve BACT for PM, PM10, and PM2.5. PPRP and MDE-ARMA concur with ODEC's proposed BACT of complying with NSPS for the IC engines.

PPRP's review found a wide-range of emissions rates for emergency generators, with the lowest being 0.02 g/hp-hr (compared to ODEC's 0.15 g/hp-hr) at both the Moxie Energy and Moxie Liberty facilities. These facilities have not been built yet, nor have the limits been demonstrated in practice. If emissions from the ODEC engines were limited to the lower Moxie facility limits (a difference of 0.13 g/hp-hr), the reduction would result in a decrease of less than 0.1 tpy of PM emissions from the emergency generators, given the expected limited hours of operation for the emergency generator of 100 hours per year for maintenance and readiness testing.

PPRP and MDE-ARMA also found a range of permitted PM emissions for fire water pump engines, with the lowest being 0.07 g/hp-hr at the Mankato Power facility. This is a difference of 0.08 g/hp-hr compared to ODEC's proposed PM, PM10 and PM2.5 emission rates. PPRP and MDE-ARMA concur with ODEC's proposed BACT limits given the expected limited hours of operation for the fire water pump engine and given that the net potential decrease in emissions would be less than 0.004 tpy if the facility were to achieve the lower emission rate for PM, PM10 and PM2.5.

PPRP and MDE-ARMA determined that there is no material environmental benefit associated with requiring lower emission rates for the emergency engines, given that these sources will be used for emergency and testing purposes only. Therefore, for the emergency generator and fire water pump engine, BACT is the exclusive use of ULSD fuel, along with good combustion practices, and limited hours of operation, designed to achieve PM, PM10, and PM2.5 emission limits of 0.15 g/hp-hr. The emergency engines will be designed to meet these

emission limits, and ODEC will be required to supply a certification or similar information to demonstrate this level of performance. To monitor hours of operation, ODEC will be required to install a non-resettable operating hour meter (or equivalent software) on each emergency engine.

Cooling Tower

Based on PPRP and MDE-ARMA's review of recent permits and EPA's RBLC database, cooling towers were designed to be operated with high-efficiency drift eliminators to reduce particulate emissions. Actual drift loss rates from wet cooling systems, including those proposed by ODEC for this Project, are affected by a variety of factors. These include the type and design of the cooling system, capacity, velocity of air flow, density of the air in the cooling tower, and the TDS concentration in the circulating water.

ODEC is proposing to install a cooling tower equipped with high-efficiency drift eliminators that will achieve a minimum of a 0.0005 percent of the circulating water rate (0.0005 percent drift), which is the most effective technique to reduce PM emissions based on PPRP and MDE-ARMA's review of RBLC determinations and recent permits.

Based on a review of the RBLC data and permits for several other recently permitted cooling towers throughout the U.S., PPRP and MDE-ARMA conclude that the ODEC-proposed level of control achieved using the drift eliminators was either equivalent to or lower than those for other permitted sources. PPRP and MDE-ARMA are not proposing emission limits as BACT for the cooling towers as there are no performance testing approaches available to measure PM (PM10 and PM2.5 emissions). Therefore, PPRP and MDE-ARMA concur that BACT for the cooling towers is the installation of the high efficiency drift eliminators with a drift loss of 0.0005 percent of the circulating water rate.

Paved and Unpaved Roads

In the CPCN application, ODEC did not address emissions associated with routine traffic over paved and unpaved roads within the Project boundary as a source of PM emissions. Fugitive dust emissions from on-site traffic activities are expected to be negligible, but are required to be addressed as part of the PM, PM10, and PM2.5 BACT. PPRP and MDE-ARMA have determined PM, PM10, and PM2.5 BACT for these operations is taking all reasonable precautions to minimize particulate matter emissions from onsite roadways.

Table 4-18 Proposed PM, PM10, PM2.5 BACT Determinations

Emission Source	Proposed BACT Limit	Proposed Control
CTs/HRSGs	PM (filterable): 15.0 lb/hr without duct firing and 22.8 lb/hr with duct firing (3-hour block avg., Method 5 stack test or equivalent method approved by MDE-ARMA) at all times PM10 and PM2.5 (filterable + condensable): 25.1 lb/hr without duct firing and 38.0 lb/hr with duct firing (3-test runs, Method 201A/202 stack test or equivalent method approved by MDE-ARMA) at all times	Exclusive use of pipeline quality natural gas and efficient turbine design
Auxiliary Boiler	PM (filterable): 0.0075 lb/MMBtu (3-hr block average), at all times PM10 and PM2.5 (filterable + condensable): 0.0075 lb/MMBtu (3-test runs)	Exclusive use of pipeline quality natural gas and good combustion practices
Dew Point Heater	PM (filterable): 0.0075 lb/MMBtu (3-hr block average) PM10 and PM2.5 (filterable + condensable): 0.0075 lb/MMBtu (3-test runs)	Exclusive use of pipeline quality natural gas and good combustion practices
Emergency Generator	PM (filterable): 0.15 g/hp-hr (0.2 g/kW-hr) PM10 and PM2.5 (filterable + condensable): 0.15 g/hp-hr (0.23 g/kw-hr)	Exclusive use of ULSD fuel, good combustion practices, limited hours of operation, and designed to achieve emission limits
Fire Water Pump Engine	PM (filterable): 0.15 g/hp-hr (0.2 g/kW-hr) Design specification and installation of a non-resettable hour meter. PM10 and PM2.5 (filterable + condensable): 0.15 g/hp-hr (0.23 g/kw-hr) Design specification and installation of a non-resettable hour meter	Exclusive use of ULSD fuel, good combustion practices, limited hours of operation, and designed to achieve emission limits
Cooling Tower	NA	High efficiency drift eliminators (0.0005% drift rate efficiency)
Paved/Unpaved Roads	NA	Best management practices

4.4.2.2.2 CO BACT

Combustion Turbines

In the CPCN application, ODEC identified several control technologies that could be installed to reduce CO emissions from combustion turbines. Oxidation catalysts have the highest control efficiency of all the control options available and applicable to CTs/HRSGs. ODEC proposes the use of good combustion practices, oxidation catalyst, and the use of efficient combustion turbine design to achieve BACT for CO.

In its CPCN application, ODEC proposed a BACT limit of 1.5 ppm at 15% O₂ without duct firing and 2.4 ppm at 15% O₂ with duct firing during normal operations. In DNR Data Request No. 9-5, PPRP and MDE-ARMA requested additional justification from ODEC to support the proposed CO limits with duct firing, as the limits were greater than other comparable combustion turbines (including non-Mitsubishi units). In response to Data Request No. 9-5, ODEC indicated that:

- It is not appropriate to compare the proposed Mitsubishi units with other make/model of combustion turbines as the operations and emission guarantees are different; and
- The proposed BACT limits are consistent with more recent BACT determinations at Dominion's Warren County and Brunswick Power Plants in Virginia.

PPRP and MDE-ARMA's review of permits issued for CTs/HRSGs resulted in identification of permits of projects with comparable CT manufacturer (Mitsubishi) that included lower CO emissions when duct firing (see Appendix C) than those proposed by ODEC for the Wildcat Point Project. In response to DNR Data Request No. 11-5, ODEC indicated that based on further discussions with the Engineering, Procurement, and Construction (EPC) vendor for the Project, ODEC was able to obtain a lower vendor guarantee of 2 ppm at 15% O₂ during duct firing. This revised CO limit is consistent with other similar sized CTs/HRSGs permitted recently including Moxie Energy's Patriot and Liberty facilities, Pennsylvania; Pioneer Valley Energy Center, Massachusetts; and Huntington Beach, California (see Appendix C). Only one other permit reviewed (McDonough Plant, Georgia) had a lower CO emissions limit during duct firing of 1.8 ppm at 15% O₂. However, based on further review of the permit application, the McDonough plant did not trigger PSD requirements for NO_x; therefore, BACT to reduce NO_x emissions from the Project was not required to be established. Typically, lower NO_x

emissions would result in greater CO emissions. The NO_x emissions from the Wildcat Point Project are required to be limited to the lowest demonstrated in practice to meet the LAER requirements (discussed later in the ERD). Therefore, the CO emissions are likely to be greater than that for the McDonough Project. In reviewing the BACT determination, it was noted that the proposed size of the duct burner for the Wildcat Point Project is nearly 27% greater in size than the McDonough plant, to meet the longer-term energy needs of the customer base served by ODEC. The need for a larger size of duct firing for the Wildcat Point Project was discussed by ODEC in response to DNR Data Request No. 12-1, as the best design to achieve the power output required. Larger duct burners were the best alternative to smaller duct burners with an additional combustion turbine. Based on these factors, PPRP and MDE-ARMA conclude that the proposed CO emissions limit during normal operation (with and without duct firing) is BACT.

In its CPCN application and its response to Data Request No. 3-3, ODEC did not propose separate limits for CO during startup and shutdown conditions. The proposed CO emissions limit during startup and shutdown events are projected to be significantly greater than that permitted at other comparable facilities. PPRP and MDE-ARMA requested that ODEC provide additional justification for the higher CO emissions during these events or revise the emission limits based on revised vendor specifications. In response to DNR Data Request No. 12-4, ODEC indicated that lower emissions guaranteed were obtained from the EPC vendor and the emissions during startup and shutdown events were revised accordingly. These lower emission guarantees assume that the CO emissions would be reduced through implementation of oxidation catalyst during parts of the startup and shutdown process; earlier emission estimates for startup and shutdown events assumed no emission control for the entire duration of the event. PPRP and MDE-ARMA reviewed these revised emission estimates and concur that these emission limits represent BACT for CO. To ensure continuous compliance with BACT limits, PPRP and MDE-ARMA have proposed emission limits during periods of startup and shutdown as noted below:

- CO emissions will be limited to 13,767 lb/event (cold startup), 3,840 lb/event (warm startup), 1,154 lb/event (hot startup), and 818 lb/event (shutdown) for the entire project; and
- Project-wide CO emissions, including those from the CTs/HRSGs, will be limited to 506.2 tons per 12-month rolling period.

Compliance with the CO emissions during startup and shutdown periods will be demonstrated using data from certified CO CEMS.

In summary, PPRP and MDE-ARMA concur with ODEC's determination that the use of good combustion practices, efficient CT design, and the use of oxidation catalyst is BACT for the CTs/HRSGs. The proposed BACT limits are 1.5 ppm at 15% O₂ without duct firing and 2.0 ppm at 15% O₂ with duct firing during normal operations. In addition, CO emissions during startup and shutdown events cannot exceed the following: 13,767 lb/event (cold startup), 3,840 lb/event (warm startup), 1,154 lb/event (hot startup), and 818 lb/event (shutdown). Project-wide emissions of CO, inclusive of those from CT startup and shutdowns, shall not exceed 506 tpy on a rolling 12-month total basis. Compliance with all emission limits shall be demonstrated using data from CO CEMS.

Auxiliary Boiler

ODEC proposed the use of good combustion practice and exclusive use of natural gas as BACT for CO. Based on PPRP and MDE-ARMA's review of the RBLC database and other recent permits, add-on controls for reducing CO emissions from auxiliary boilers have not been proposed as BACT. Therefore, PPRP and MDE-ARMA concur with ODEC's determination that good combustion practice and exclusive use of natural gas is BACT for CO emissions from the auxiliary boiler.

In the CPCN application, ODEC proposed a CO BACT limit of 0.083 lb/MMBtu. PPRP and MDE-ARMA reviewed the RBLC database, identified other permitted auxiliary boilers with lower CO BACT limits, and required ODEC to provide additional justification for the proposed CO BACT limits. In response to DNR Data Request No. 9-6, ODEC proposed a revised CO BACT limit of 0.036 lb/MMBtu, which was noted as the lowest that the auxiliary boiler vendor would guarantee without increasing the proposed NO_x limit. As a part of justification for the proposed BACT, ODEC conducted a cost effectiveness evaluation of installing an oxidation catalyst on the auxiliary boiler to reduce the CO emissions beyond 0.036 lb/MMBtu. ODEC calculated a cost-effectiveness of reducing CO emissions as more than \$42,000 per ton of CO emissions removed, and that emission reductions beyond 0.036 lb/MMBtu were not cost effective.

Based on a review of the cost effectiveness evaluation presented by ODEC, PPRP and MDE-ARMA agree with ODEC that additional emission reductions beyond 0.036 lb/MMBtu would not be cost effective. Therefore, CO BACT limit of 0.036 lb/MMBtu on a 3-hour block average

basis is proposed as the BACT limit for the auxiliary boiler. Compliance with the CO BACT limit will be demonstrated based on vendor emission guarantees.

Dew Point Heater

Similar to the auxiliary boiler, ODEC proposed the application of good combustion practices and exclusive use of natural gas as BACT for CO emissions from the dew point heater. Based on a review of RBLC database and other recent permits, PPRP and MDE-ARMA determined that add-on controls for reducing CO emissions have not been installed for small heaters such as that proposed in this Project.

In the CPCN application, ODEC proposed a CO BACT limit of 0.083 lb/MMBtu. In DNR Data Request No. 9-6, PPRP and MDE-ARMA requested additional justification for the proposed BACT limit, as other permits were issued for similarly sized heaters with lower CO limits. In response to the data request, ODEC indicated that vendors for the dew point heater would not be able to guarantee a lower CO emission rate than 0.083 lb/MMBtu. ODEC conducted an evaluation of costs associated with additional emission reductions beyond 0.083 lb/MMBtu, if an oxidation catalyst were to be installed. The costs associated with emission reductions beyond 0.083 lb/MMBtu using an oxidation catalyst were calculated to be more than \$14,000 per ton of CO removed. ODEC concluded that additional reduction in CO emissions was not cost effective.

Based on PPRP and MDE-ARMA's review, CO emission rates in the range of 0.022 lb/MMBtu have been achieved on similarly sized fuel gas heaters. However, as noted by ODEC in response to DNR Data Request No. 9-6, the application of add-on emission controls to achieve emission rates lower than 0.083 lb/MMBtu is not cost-effective. Therefore, PPRP and MDE-ARMA concur with ODEC's proposed BACT limit of 0.083 lb/MMBtu on a 3-hour block average basis. Compliance with the CO BACT limit will be demonstrated based on vendor provided emission guarantees.

Emergency Engines

ODEC proposes that CO BACT for the emergency generator and fire water pump engine is an emission rate of 2.6 g/hp-hr, which is equivalent to the NSPS limit provided in 40 CFR 60, Subpart IIII. Compliance with these emission rates will be met through the exclusive use of ULSD fuel, limited operating hours, and good combustion practices. Review of recent permits and the RBLC for similarly sized emergency engines indicates

BACT consistent with that proposed by ODEC for these emergency engines. However, there are lower emission rates for similarly sized units combusting ULSD. BACT determinations include CO emission levels that are lower than the limits proposed by ODEC, with the lowest being Moxie Energy and Moxie Liberty, both with CO emission rates of 0.13 g/hp-hr. These units have not been demonstrated in practice at this time.

Review of the RBLC and other recently permitted fire water pump engine permits indicate that there are certain BACT determinations with lower emissions limits than proposed by ODEC. The lowest CO emission rate identified for fire pumps of a similar size to those proposed by ODEC was for the Mankato Energy Center in Minnesota with four 290-hp fire water pump engines with an emission rate of 0.25 g/hp-hr. However, given the limited hours of use for maintenance and readiness testing of 100 hr/yr, and an insignificant emissions reduction (0.13 tpy), there is only a minimal net environmental benefit of achieving levels below 2.6 g/hp-hr.

Based on these findings, PPRP and MDE-ARMA concur that CO BACT for the emergency engine and fire water pump engine is good combustion practices, limited hours of operation and use of ULSD fuel oil, designed to achieve the NSPS Subpart IIII emissions limit of 2.6 g/hp-hr. ODEC will demonstrate compliance through submittal of a vendor guarantee that shows the units meet the applicable NSPS Subpart IIII CO emission limits, and the implementation of the requirements listed under 40 CFR 60, Subpart IIII. To monitor hours of operation, ODEC will be required to install a non-resettable operating hour meter (or equivalent software) on each emergency engine.

A summary of proposed CO BACT limitations is presented in Table 4-19.

Table 4-19 Proposed CO BACT Determinations

Emission Source	Proposed BACT limit	Proposed Controls
CTs/HRSGs	1.5 ppmvd at 15% O₂ without duct firing (3-hr block average), except during startup and shutdown events 2.0 ppmvd at 15% O₂ with duct firing (3-hr block average), except during startup and shutdown events 13,767 lb/event (cold startup), 3,840 lb/event (warm startup), 1,154 lb/event (hot startup), and 818 lb/event (shutdown) Project-wide CO emissions not to exceed 506 tons per 12-month rolling total.	Exclusive use of pipeline quality natural gas, use of an oxidation catalyst and efficient CT design
Auxiliary Boiler	0.036 lb/MMBtu (3-hr block avg)	Exclusive use of pipeline quality natural gas and good combustion practices
Dew Point Heater	0.083 lb/MMBtu (3-hr block avg)	Exclusive use of pipeline quality natural gas and good combustion practices
Emergency Generator	2.6 g/hp-hr (3.49 g/kW-hr)	Use of ULSD fuel, good combustion practices and hours of operation limited to 100 hours per year
Fire Water Pump Engine	2.6 g/hp-hr (3.49 g/kW/hr)	Use of ULSD fuel, good combustion practices and hours of operation limited to 100 hours per year

4.4.2.2.3 Sulfur Dioxide (SO₂) BACT

Combustion Turbines

In the CPCN application, ODEC indicated that no add-on controls have been installed to reduce SO₂ emissions from other permitted natural gas-fired combined cycle combustion turbines. ODEC proposes the exclusive use of natural gas, efficient turbine design, and good combustion practices as BACT for SO₂ for the combustion turbines. PPRP and MDE-ARMA

reviewed the RBLC database and other permits and agree with ODEC's determination on SO₂ BACT for the combustion turbines.

ODEC proposes a BACT limit of 8.2 lb SO₂/hr on a 30-day average basis. PPRP and MDE-ARMA determined that BACT limits need to be specified for the CTs/HRSGs with and without duct firing. Therefore, SO₂ BACT limits of 6.3 lb/hr without duct firing and 8.2 lb/hr with duct burning are proposed for the CTs/HRSGs, on a 3-hour block average basis. The limits will apply at all times, inclusive of startup and shutdown events.

ODEC will be required to perform stack testing for SO₂ to demonstrate compliance with the emissions limit. The stack testing will result in SO₂ emissions over a 3-hour block average period. Initial compliance with the BACT limits will be demonstrated based on a stack test. Continuous compliance will be demonstrated based on periodic stack tests at least once every five years.

Emissions of SO₂ emissions during startup and shutdown conditions are not expected to be higher than that during normal operations. Startup and shutdown emissions will be included in the project-wide emissions cap.

Auxiliary Boiler/Dew Point Heater

ODEC is proposing BACT as good combustion practices and the exclusive use of natural gas to achieve a SO₂ emission limit of 0.0006 lb/MMBtu for both the boiler and fuel gas heater. PPRP and MDE-ARMA reviewed the RBLC and recently issued permits and determined that the most stringent SO₂ limit for boilers of this size is the use of natural gas and good combustion practices. Therefore, PPRP and MDE-ARMA agree with ODEC's BACT determination for the auxiliary boiler and dew point heater.

ODEC proposes a BACT limit of 0.0006 lb/MMBtu for both the auxiliary boiler and the dew point heater. The SO₂ emissions from the auxiliary boiler and dew point heater are dependent on the sulfur content of the natural gas. ODEC assumed a sulfur content of 0.75 gr/100 dscf based on data available from the natural gas supplier. PPRP and MDE-ARMA determined that the proposed BACT limit is acceptable based on the sulfur content of the gas. The BACT limit shall be based on a 3-hour block average basis. Compliance shall be demonstrated based on vendor performance guarantees.

Emergency Engine/Fire Water Pump Engine

ODEC proposed the use of ultra-low sulfur diesel fuel, good combustion practices and limited hours of operation as BACT for SO₂ emissions from the emergency generator and fire water pump engine. PPRP and MDE-ARMA reviewed the RBLC database and other permits and determined that no add-on controls were installed on such emergency units. In its response to DNR Data Request No. 3-3, ODEC proposed a BACT limit of 0.006 g/bhp-hr for the emergency generator and 0.27 g/bhp-hr for the firewater pump. The SO₂ emissions associated with these engines are directly dependent on the sulfur content in the diesel fuel. With the use of ultra-low sulfur diesel fuel at 15 ppm sulfur content, SO₂ emissions are calculated to be 0.006 g/bhp-hr for the emergency generator and 0.0049 g/bhp-hr for the fire water pump engine. These limits will be demonstrated on a 3-hour block average basis. Compliance with these limits will be based on vendor performance guarantees.

A summary of the BACT determinations for SO₂ emissions from the proposed Project sources is presented in Table 4-20.

Table 4-20 Proposed SO₂ BACT Determinations

Emission Source	Proposed BACT limit	Proposed Controls
CTs/HRSGs	6.3 lb/hr without duct firing and 8.2 lb/hr with duct firing; 3-hr block average basis	Exclusive use of pipeline quality natural gas and efficient turbine design
Auxiliary Boiler	0.0006 lb/MMBtu; 3-hr block average basis	Exclusive use of pipeline quality natural gas and good combustion practices
Dew Point Heater	0.0006 lb/MMBtu; 3-hr block average basis	Exclusive use of pipeline quality natural gas and good combustion practices
Emergency Generator	0.006 g/bhp-hr; 3-hr block average basis	Use of ULSD fuel, good combustion practices, and limited hours of operation
Fire Water Pump Engine	0.0049 g/bhp-hr; 3-hr block average basis	Use of ULSD fuel, good combustion practices, and limited hours of operation

4.4.2.2.4 *Sulfuric Acid Mist (SAM) BACT*

Combustion Turbines

ODEC proposes the exclusive use of pipeline quality natural gas as BACT for SAM emissions from the CTs/HRSGs. PPRP and MDE-ARMA reviewed the RBLC database and determined that no add-on controls were installed on any combustion turbines to reduce SAM emissions.

ODEC proposed a SAM BACT limit of 12.5 lb/hr on a 30-day average basis. PPRP and MDE-ARMA are requiring a separate BACT limit for the CTs/HRSGs with and without a duct firing: 9.7 lb/hr without duct firing and 12.5 lb/hr with duct firing. Both these limits are specified on a 3-hour block average basis. The differences in the averaging periods between that proposed by ODEC and recommended by PPRP/ARMA is due to the different compliance demonstration approaches proposed. ODEC proposed compliance based on monthly monitoring of sulfur content of gas. PPRP and MDE-ARMA determine that initial compliance with the BACT limits will be demonstrated based on initial stack tests. Continuous compliance will be demonstrated based on periodic stack tests at least once every five years.

Auxiliary Boiler and Dew Point Heater

As with SO₂, ODEC indicated that there are no available add-on controls for controlling SAM from the auxiliary boiler and dew point heater. ODEC proposes the exclusive use of natural gas for the auxiliary boiler and dew point heater as BACT. PPRP and MDE-ARMA reviewed the RBLC database and other permits and agree with ODEC's determination on BACT for SAM emissions for the auxiliary boiler and dew point heater.

ODEC proposed a SAM BACT limit of 0.004 tpy for the auxiliary boiler and 0.002 tpy for the dew point heater. The proposed annual emissions limit was based on AP-42 emission factor for natural gas fired boilers, Table 1.4-2. PPRP and MDE-ARMA determined that the BACT limits need to be established on a short-term average basis, as the compliance demonstration for BACT is based on performance stack tests, which is three 1-hour stack tests. Therefore, BACT limits of 0.0004 lb/hr is proposed as BACT for SAM emissions from the auxiliary boiler and 0.00005 lb/hr is proposed as BACT for SAM emissions from the dew point heater. The BACT limits will be based on 3-hour block averaging periods for both units. Compliance with the BACT limits will be demonstrated based on vendor performance guarantees.

Emergency Generator/Fire Water Pump Engine

As with SO₂, ODEC noted that there are no available add-on controls for controlling SAM from the emergency diesel engines. ODEC proposes BACT for the emergency engines as the use of ultra-low diesel sulfur fuel, limited hours of operation and operating the engines designed to meet NSPS Subpart IIII emission limits.

ODEC proposes a BACT limit of 0.0003 tpy for the 2,250-kW emergency generator. As the compliance demonstration for the emergency generators and engines is based on vendor performance specification, PPRP and MDE-ARMA determined that a short-term averaging period is appropriate. PPRP and MDE-ARMA are therefore proposing a BACT limit of 0.006 g/bhp-hr for the emergency generator on a 3-hour block average basis. In addition, the proposed BACT limit for the fire water pump engine is 0.0049 g/bhp-hr on a 3-hour block average basis. Compliance with the BACT limits shall be demonstrated based on vendor provided performance guarantees.

A summary of SAM BACT determinations is presented in Table 4-21.

Table 4-21 Proposed SAM BACT Determinations

Emission Source	Proposed BACT limit	Proposed Controls
CTs/HRSGs	9.7 lb/hr without duct firing and 12.5 lb/hr with duct firing; 3-hr block average basis	Exclusive use of pipeline quality natural gas
Auxiliary Boiler	0.0004 lb/hr; 3-hr block average basis	Exclusive use of pipeline quality natural gas
Dew Point Heater	0.00005 lb/hr; 3-hr block average basis	Exclusive use of pipeline quality natural gas
Emergency Generator	0.006 g/bhp-hr; 3-hr block average basis	Use of ultra-low diesel sulfur fuel, limited hours of operation and designed to meet Subpart IIII limits
Fire Water Pump Engine	0.0049 g/bhp-hr; 3-hr block average basis	Use of ultra-low diesel sulfur fuel, limited hours of operation and designed to meet Subpart IIII limits

4.4.2.2.5 GREENHOUSE GAS BACT

The evaluation of technologies to minimize “GHG” (which by definition includes six individual compounds) from combustion sources typically focuses on CO₂ emissions and mechanisms to reduce CO₂ emissions, because CO₂ dominates the CO₂e emission value for combustion sources. As such, the BACT evaluation presented in this document refers to CO₂ as the primary GHG pollutant for the proposed combustion equipment. For proposed non-combustion sources of GHGs, components of the gas pipeline and circuit breakers, the focus is on methane, CO₂ and/or SF₆.

Combustion Turbines

In general, there are two strategies available to minimize GHG emissions from electric generating units (EGUs): energy efficiency methods and add-on control via carbon capture systems to strip CO₂ from the flue gas stream for subsequent re-use or sequestration. In the CPCN application, ODEC reviewed several options for reducing or mitigating GHG emissions. These included:

- a. Carbon capture and sequestration (CCS);
- b. Add-on control such as oxidation catalyst for methane reduction;
- c. Efficient power generation, and
- d. Low carbon fuel.

ODEC proposes the exclusive use of pipeline-quality natural gas, which is a lower carbon containing fuel, and installation of a high-efficiency CT (Mitsubishi GAC Model) as BACT for the GHGs.

There are several potential strategies for improving energy efficiency, including: selection of a more efficient electric generating unit, combustion air cooling, continuous excess air monitoring and control, and cogeneration/combined heat and power techniques. The proposed Mitsubishi GAC turbines are considered state-of-the-art for Mitsubishi turbines in terms of efficiency and continuous excess air monitoring and control come standard with the turbine design. ODEC did not propose the use of combined heat and power (CHP) in their application. A CHP system generates power to be supplied to the transmission grid and steam which could be used for general heat or in industrial processes. However, for the system to be economically viable, it would require a local need for steam without requiring transportation to greater distances. PPRP and

MDE-ARMA independently determined that a CHP system would not be cost effective due to the unidentified need for steam in the vicinity of the Project. However, use of the HRSGs as part of this Project, ensure efficient use of additional heat to generate power in the combined cycle configuration, rather than wasting that heat as is done in a simple cycle configuration.

In the CPCN application, ODEC determined that CCS is not technically feasible for the proposed Project. PPRP and MDE-ARMA reviewed the RBLC database and recent permits issued for combined cycle CTs to identify what BACT limits have been permitted. In the rulemaking for the GHG NSPS regulation (40 CFR Part 60 Subpart TTTT), EPA determined that CCS was technically feasible for reducing GHG emissions. There are neither local geologic reservoirs, nor pipelines dedicated to CO₂ transport available approximate to the Project at this time. In addition, carbon capture technologies have yet to be demonstrated on a full-scale power generation facility. Therefore, even if CCS was considered technically feasible, it would not be economical to reduce GHG emissions from the CTs/HRSGs using the CCS control option. Therefore, CCS is currently considered not economically feasible.

ODEC proposed a GHG BACT limit of 962 lb of CO₂/MWh (gross) on an annual average basis. ODEC revised this limit in response to DNR Data Request No. 9-1, where a BACT limit of 946 lb of CO₂/MWh (gross) was proposed. Additionally, ODEC proposed a heat rate limit of 8,070 Btu/kWh. PPRP and MDE-ARMA reviewed recent permits to identify applicable BACT limits and associated compliance demonstration approaches. Table 4-22 summarizes the determinations of GHG BACT for these recently permitted projects involving CTs, with emphasis on turbines of similar design and configuration (i.e., Mitsubishi turbines).

Table 4-22 Recent GHG Permit Determinations for Mitsubishi Units

Company	Project	Model	Rated Capacity	CO ₂ e Heat Rate Limit
Virginia Electric Power Company	Brunswick County Power Station	M501 GAC	3,442 MMBtu/hr	7,500 Btu/kWh net (HHV) (with and without duct firing)
Florida Power & Light Company	Broward County Station	J	2,744 MMBtu/hr	6,518 Btu/kWh
AES Southland Development, LLC	Huntington Beach	501DA	1,882 MMBtu/hr	8,236 Btu/kWh (net, HHV)
Moxie Energy LLC	Liberty	M501 GAC	2,879 MMBtu/hr	6,735 Btu/kWh (LLV) (without duct firing)
Moxie Energy LLC	Patriot	M501 GAC	2,905 MMBtu/hr	6,735 Btu/kWh (LLV) (without duct firing)
St. Josephs Energy Center, LLC	St. Josephs Energy Center, LLC	"F" class	2,300 MMBtu/hr	7,646 Btu/kWh (HHV-net)

As seen from the table, the heat rates for the CTs range from 6,518 Btu/kWh (LHV) without duct firing to 8,236 Btu/kWh (HHV) (equivalent of 7,500 Btu/KWh (LHV)) without duct firing. However, the operational conditions specified in permits for these CTs varied significantly. For example, some limits were specified with no duct firing (Moxie Energy LLC's Liberty and Freedom facilities). Additionally, there were different safety margins assumed in the establishment of heat rate limits. In particular, the degradation factors (which refers to the wear of the turbine and reduction in efficiencies over time) to account for the limits that can be achieved over the life of the equipment significantly influence the heat rate limits. These compliance margins have ranged from 3% to 15%, resulting in varying permitted heat rates. In response to DNR Data Request No. 12-2, ODEC reduced the degradation factor assumed to 10%.

Many of the recent permits issued for CTs have lower heat rates than that originally proposed by ODEC. PPRP and MDE-ARMA required ODEC to provide additional justification for the proposed heat rate limits and questioned why the proposed heat rate limits were higher than other comparable units such as that installed at the Brunswick, Virginia Energy Center. In response to Data Request No. 11-1, ODEC revised the heat rate limits to 7,500 Btu/KWh on a net basis at all times, including periods of duct firing. PPRP and MDE-ARMA determined that the proposed heat rate limit is comparable to other recent permits and is therefore acceptable as a BACT limit for the CTs/HRSGs.

Initial compliance with the heat rate limitation will be demonstrated using ASME PTC 46 test method. ODEC will be required to evaluate ongoing thermal efficiency of the turbines, by conducting an annual thermal efficiency test using a methodology approved by MDE-ARMA and comparing the results to the design thermal efficiency value.

In addition to the heat rate limitation, PPRP and MDE-ARMA are also proposing an emission limit of 946 lb of CO₂/MW-hr (gross) on a 12-month rolling average basis. This emission rate is lower than the proposed GHG NSPS limitation of 1,000 lb/MW-hr (USEPA 2012). Compliance with the emission rate will be demonstrated with CO₂ CEMS and by measuring contemporaneous generation load to calculate the emission rate (lb/MWh).

Furthermore, a GHG emission cap of 3,498,026 tons CO₂e on a 12-month rolling emissions basis will be established for the entire Project, including the CTs/HRSGs. CO₂ CEMS will be used to continuously monitor and record CO₂ emissions at all times when the CTs/HRSGs are operating, including startup and shutdown events.

Emissions from the CTs will be monitored continuously utilizing a CEMS. The CO₂ CEMS will be installed and operated as specified in 40 CFR 75 to monitor CO₂ emissions. The CO₂ CEMS will operate at all times, including during periods of startup and shutdown, and data from the CEMS will be used to calculate CO₂ emissions from the CTs. Methane and N₂O emissions from the CTs will be calculated in accordance with the methodology and emission factors noted in 40 CFR 98, Subpart D. On a monthly basis, fuel consumption, coupled with the appropriate emission factors and global warming potentials, will be used to calculate CH₄ and N₂O emissions. These emission rates, summed with the monthly CO₂ emissions from the CEMS, will establish GHG emissions from the CTs on a CO₂e basis. GHG emissions will be calculated for the CTs utilizing the methodology and emission factors noted in 40 CFR 98, Subpart D. An initial and annual performance test for CO₂ using EPA Method 3A or equivalent method approved by MDE-ARMA will be required.

BACT for Auxiliary Boiler and Dew Point Heater

ODEC has indicated that there is currently no technically feasible add-on control technology to reduce GHG emissions from the auxiliary boiler and dew point heater. Other methods to reduce GHGs from the boiler and process heater include efficient boiler design, cleaner fuels and good combustion practices, all of which ODEC is proposing for the project auxiliary boiler and dew point heater.

Based on a review of recent permit determinations, PPRP and MDE-ARMA determined that the proposed BACT is consistent with other permits for auxiliary boilers and process heaters. GHG emissions from the boiler and dew point heater will be limited with the use of pipeline-quality natural gas, as well as good combustion practices and the selection of an efficient CT design.

To demonstrate compliance with GHG BACT, ODEC will conduct an annual combustion tuning on the auxiliary boiler and the dew point heater. GHG emissions on a CO_{2e} basis from the auxiliary boiler and process heater will be calculated based on the methodology included in 40 CFR 98, Subpart C and included in the 12-month rolling CO_{2e} limit for the Project.

Emergency Engines

ODEC has indicated that there is currently no technically feasible add-on control technology to reduce GHG emissions from emergency engines. Therefore, ODEC proposes to limit GHG emissions from the emergency engine and fire water pump engine through the use of good combustion practices and limited hours of operation. Based on a review of recent permit determinations, PPRP and MDE-ARMA agree with ODEC's BACT determination. This GHG BACT requirement is similar to recently permitted projects that include diesel fuel oil-fired emergency engines.

To demonstrate compliance with the GHG BACT determination, ODEC will maintain the emergency generator and fire water pump engine in accordance with manufacturer's specifications. GHG emissions on a CO_{2e} basis from the emergency engines will be calculated based on the methodology included in 40 CFR 98, Subpart C and included in the 12-month rolling CO_{2e} limit for the Project.

Fugitive Components

Leaks of CH₄ and CO₂ from natural gas piping components (rotary shaft seals, connection interfaces, valve stems, and similar points) are potential sources of GHG emissions, and as sources of GHGs, these emission sources are subject to BACT. ODEC proposed the implementation of an Audio, Visual, Olfactory (AVO) program to detect the presence of fugitive leaks and mitigate emissions from fugitive components by repairing leaks on a timely basis.

Currently, there are two levels of leak monitoring programs available to mitigate GHG emissions from fugitive components: AVO monitoring or Leak Detection and Repair (LDAR). LDAR programs, utilizing handheld

analyzers or alternative remote sensing technology to identify leaks, are more rigorous than AVO programs; however, the small amount of fugitive GHG emissions projected from the proposed Wildcat Point Project natural gas pipeline (0.004% of the total facility-wide potential GHG emissions on a CO₂e basis) does not warrant the additional expense of a full LDAR program.

Due to the presence of mercaptans in the natural gas, an AVO program, while less effective than instrument LDAR, will be a sufficiently effective method of detecting, identifying and correcting leaks in the natural gas pipeline system. A comprehensive LDAR program using EPA test methods is not deemed cost effective.

PPRP and MDE-ARMA recommend a condition that requires the AVO program to be conducted and documented on a weekly basis. Leaks identified from the AVO inspections will be repaired within five days of discovery, and the repairs documented and records maintained.

Fugitive emissions from the natural gas pipeline will be calculated utilizing the methodology and emission factors of 40 CFR 98, Subpart W, *Petroleum and Natural Gas Systems, Table 2-4 of EPA's Protocol for Equipment Leak Emission Estimates*, or other methods approved by MDE-ARMA. Monthly emissions from fugitive components will be added to the facility wide total to determine compliance with the Project-wide 12-month rolling period emissions cap.

Circuit Breakers

ODEC proposes the use of state-of-the-art circuit breakers equipped with leak detection as BACT for GHG emissions (SF₆) from circuit breakers. These circuit breakers will be designed to meet American National Standards Institute (ANSI) C37.013 standards for high voltage circuit breakers. PPRP and MDE-ARMA agree that circuit breakers designed to meet ANSI C37.013 or equivalent to detect and minimize SF₆ leaks and repair of any identified leaks within five days of discovery, represents BACT.

Fugitive emissions from the circuit breakers will be calculated utilizing the methodology of 40 CFR Part 98 Subpart DD, *Electrical Transmission and Distribution Equipment Use*, and based on a consecutive rolling 12-month average CO₂e emissions to be included in the Project-wide total.

Project-Wide CO₂e Limit

A project-wide GHG emissions limit is part of GHG BACT for the ODEC Wildcat Point Project. GHG emissions from the CTs/HRSGs, auxiliary boiler, dew point heater, emergency generator, fire water pump engine, circuit breakers, and fugitive emissions from the natural gas pipeline may not exceed 3,498,026 tons CO₂e in any consecutive rolling 12-month period.

CO₂ emissions from the CTs/HRSGs will be based on a site-specific emission rate developed using Test Method 3A and heat input during performance testing. The CO₂ emission rate will be used, along with fuel consumption for each CT, to calculate CO₂e emissions. CH₄ and N₂O emissions from the CTs will be calculated in accordance with the methodology and emission factors noted in 40 CFR 98, Subpart D.

CO₂, CH₄, and N₂O emissions from the remaining combustion sources will be calculated in accordance with the methodologies and emission factors in 40 CFR 98, Subparts C, D, W, and DD. On a monthly basis, fuel consumption, coupled with the emission factors and global warming potentials, will be used to calculate GHGs emissions on a CO₂e basis.

ODEC will be required to track fuel usage in all the combustion sources, and calculate consecutive rolling 12-month CO₂e emissions to be included in quarterly reports submitted to MDE-ARMA.

A summary of proposed GHG BACT limitations for all sources is presented in Table 4-23.

Table 4-23 Proposed GHG BACT Determinations

Emission Source	Proposed BACT limit	Proposed Controls
CTs/HRSGs	946 lb/MW-hr (gross) with and without duct firing (rolling 12-month period) Heat rate: 7,500 Btu/Kwh (net), at all times including duct firing, non-duct firing, excluding periods of startup and shutdown Project-wide emissions limit of 3,498,026 tons (12-month rolling total)	Exclusive use of pipeline-quality natural gas, which is a lower carbon containing fuel and installation of high-efficiency CT model (Mitsubishi "G" Model)
Auxiliary Boiler	CO ₂ e emissions to comply with Project-wide emissions cap of 3,498,026 tons (12-month rolling total)	Exclusive use of pipeline quality natural gas, efficient boiler design and good combustion practices
Dew Point Heater	CO ₂ e emissions to comply with Project-wide emissions cap of 3,498,026 tons (12-month rolling total)	Exclusive use of pipeline quality natural gas, efficient heater design and good combustion practices
Emergency Engines (Emergency Generator and Fire Water Pump)	CO ₂ e emissions to comply with Project-wide emissions cap of 3,498,026 tons (12-month rolling total)	Use of good combustion practices
Circuit Breakers	CO ₂ e emissions to comply with Project-wide emissions cap of 3,498,026 tons (12-month rolling total)	State-of-the-art circuit breakers with leak detection. Implement an AVO program
Equipment Leaks	CO ₂ e emissions to comply with Project-wide emissions cap of 3,498,026 tons (12-month rolling total)	Implement an AVO program

4.4.3 NAAQS and PSD Increment Compliance Demonstration

The proposed Project triggers PSD requirements for GHG (CO₂e), NO_x, PM, PM₁₀, PM_{2.5}, SO₂, SAM, and CO. As a part of the PSD permit application, ODEC is required to evaluate the impacts of the Project on air quality in the vicinity of the Project for all pollutants with applicable

ambient air quality standards. The pollutants SO₂, NO₂, CO, PM₁₀, and PM_{2.5} have applicable air quality standards; SAM, PM, and GHG do not. As a part of the CPCN application, ODEC conducted air quality modeling to demonstrate ambient impacts. PPRP and MDE-ARMA independently reviewed the air quality modeling analyses conducted by ODEC. Appendix D of this ERD contains a detailed discussion of the State's analyses. Brief summaries of PPRP and MDE-ARMA's conclusions are provided below.

Air Quality Modeling Analysis Conclusions

PPRP and MDE-ARMA agree that the air quality modeling analyses conducted by ODEC in support of the proposed Wildcat Point Project, supplemented by additional analyses conducted by PPRP and MDE-ARMA, are adequate to demonstrate compliance with applicable requirements regarding the PSD Significant Impact Levels (SILs) in Class I and Class II areas, PSD increments, and associated NAAQS. The following summarizes the review conducted by PPRP and MDE-ARMA and provides associated conclusions:

- ODEC utilized the most recent available versions of AERMOD and associated processors.
- PPRP and MDE-ARMA concur with the methodology and use of the Ozone Limiting Method to address conversion of NO to NO₂. Final approval from EPA Region III has not been received; however, based on recent approvals in other CPCN cases, PPRP and MDE-ARMA believe that this approval will be forthcoming.
- The critical NAAQS and PSD increment results have been verified, and the startup and shut down operations described in the CPCN application for the CTs/HRSGs are not predicted to cause or contribute to any exceedance of a NAAQS or PSD increment.
- Use of the PM_{2.5} SILs and existing ambient monitoring data is justified in order to address requirements stemming from a January 2013 court ruling. The air quality impact analyses at different generation loads, ambient temperatures, and with or without duct firing conducted by ODEC is appropriate, and the worst case operational conditions were used to assess compliance with the PSD increment and NAAQS.
- The analyses successfully demonstrate acceptable impacts with regard to Maryland's TAPs program.

- The qualitative analysis provided by ODEC for secondary PM2.5 formation and potential effects on the PM2.5 NAAQS is adequate and conforms to recent EPA guidance, and the formation of secondary PM2.5 due to Project related NO_x and SO₂ emissions is not expected to have a significant impact on ambient air quality.
- The Class I approach, supplemented by additional analyses conducted by PPRP and MDE-ARMA, is adequate to demonstrate that the proposed Project will not exceed the Class I SILs for NO₂, PM10, and PM2.5.
- ODEC performed analyses of the PM2.5 impacts of the Project on the nonattainment areas in Pennsylvania (York, Lancaster, and Chester counties). PPRP and MDE-ARMA have reviewed these analyses and have completed some supplemental analyses. Our conclusion is that this Project will not interfere with the attainment of the newly revised annual NAAQS in these counties.
- ODEC conducted an analysis of impacts of the Project on soil and vegetation to show that the Project will have an insignificant impact on the surrounding area. PPRP and MDE-ARMA concur with the analysis conducted by ODEC.

4.5

NONATTAINMENT NEW SOURCE REVIEW (NA-NSR)

The Wildcat Point Project is located in Cecil County, Maryland which is designated as a marginal nonattainment area for ozone. NO_x and VOCs are regulated by EPA and MDE-ARMA as ozone precursor pollutants. Potential NO_x and VOCs emissions from the Project are greater than 25 tpy; therefore, the Project triggers NA-NSR. Potential emissions from the Project are presented in Table 4-15.

As a part of compliance with the NA-NSR requirements for NO_x and VOC, ODEC is required to comply with the following applicable requirements:

- Implement LAER level of pollution control from all Project sources;
- Obtain emissions reductions (offsets) for projected potential emissions;
- Certify that all other sources in Maryland owned by ODEC comply with all applicable requirements of the Clean Air Act (CAA); and

- Demonstrate through an analysis of alternative sites, sizes, production processes, and environmental control techniques that benefits of the proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction, or modification.

The following sections review the Project in relation to these NA-NSR requirements.

4.5.1 *LAER Evaluation*

COMAR 26.11.17.01B.(15) defines LAER as:

- (a) ... for any emissions unit, the more stringent rate of emissions based on the following:
 - (i) The most stringent emissions limitation which is contained in the implementation plan of any state for the class or category of stationary source, unless the owner or operator of the proposed stationary source demonstrates that these limitations are not achievable; or
 - (ii) The most stringent emissions limitation which is achieved in practice by the class or category of stationary sources, with this limitation, when applied to a modification, meaning the lowest achievable emissions rate for the new or modified emissions units within the stationary source.
- (b) The application of this definition does not permit a proposed new or modified emissions unit to emit any pollutant in excess of the amount allowable under 40 CFR 60.

In general, the procedure used to identify and determine LAER requirements are similar to, but more stringent than, the procedure to determine BACT requirements (see Section 4.4). For example, in addition to reviewing available control technologies, all applicable emissions limits in effect in any State Implementation Plan (SIP) must also be considered as part of the procedure to determine LAER requirements.

PPRP and MDE-ARMA reviewed ODEC's LAER determination and have supplemented this analysis with additional information based on review of recently issued permits and LAER determinations. PPRP and MDE-ARMA's review here assesses ODEC's LAER determination and either agrees with the conclusions on LAER, supplements ODEC's conclusions, or indicates where we disagree with the conclusions and provides justification for an alternate LAER determination.

ODEC's NO_x and VOC LAER evaluations were conducted in accordance with EPA's guidance in the draft *New Source Review Workshop Manual* (USEPA 1990) and applicable federal and State regulations. The objective of the LAER analyses was to identify applicable federal and state air regulations and "achieved in practice" limitations for each piece of new proposed equipment with the potential to emit NO_x or VOCs.

To identify applicable federal regulations and limitations, 40 CFR §60, and 40 CFR §63 were evaluated to determine whether any of the proposed emission sources would be subject to any NSPS (40 CFR §60) or NESHAP (40 CFR §63) standards. COMAR requirements were also reviewed to identify applicable state NO_x and VOC requirements.

To identify source-specific NO_x and VOC LAER emission limits applicable to the Project, a comprehensive review was conducted by PPRP and MDE-ARMA. This review included assessment of NO_x and VOC LAER emission limits that have been established for identical or similar equipment as documented in the RBLC. The review also included identifying and assessing other recently issued permits for the construction of new power generation facilities, which have not yet appeared in the RBLC. NO_x and VOC LAER background information is provided in Appendix C.

4.5.1.1 NO_x LAER

4.5.1.1.1 *Combustion Turbines*

In the CPCN application, ODEC proposes to install low NO_x combustors and SCR to reduce NO_x emissions from the CTs/HRSGs. Of the many combustion and post-combustion techniques available to reduce NO_x on combined cycle combustion turbines, use of SCR results in the greatest control efficiency for NO_x.

ODEC proposed a NO_x LAER emission rate for each of the CTs/HRSGs with and without duct firing of no greater than 2 ppmvd at 15% O₂, on a 24-hour average basis, except during periods of startup and shutdown. Based on a review of RBLC database and other permits issued for combined cycle power generating CTs, the lowest permitted NO_x emission rate was 2 ppmvd at 15% O₂. Therefore, PPRP and MDE-ARMA concur with ODEC's determination that a NO_x emissions limit of 2 ppm at 15% O₂, excluding periods of startup and shutdown is considered LAER for NO_x. However, PPRP and MDE-ARMA determined that a 3-hour block average is the appropriate averaging period for demonstrating compliance, as opposed to the 24-hour average proposed by ODEC. Note that this LAER limit excludes emissions from the CTs/HRSGs during

periods of startup and shutdown. Post-combustion controls are not considered technically feasible during startup and shutdown; therefore, PPRP and MDE-ARMA are proposing that NO_x emissions during periods of startup and shutdown events not exceed the following:

- NO_x emissions during startup and shutdown events will be limited to: 870 lb/event (cold startup), 610 lb/event (warm startup), 340 lb/event (hot startup), and 100 lb/event (shutdown); and
- NO_x emissions from the Project, including during periods of startup and shutdown, will be limited to a Project-wide 233 tons per rolling 12-month total.

ODEC will be required to measure NO_x emissions from the CTs/HRSGs at all times when the CTs/HRSGs are operating, including periods of startup and shutdown, using a certified NO_x CEMS. Emissions from startup and shutdown events will be added to the emissions from normal operation to calculate monthly emissions, and for calculation of the Project-wide 12-month rolling total for comparison with the annual limit. These emissions will be reported to MDE-ARMA on a quarterly basis.

4.5.1.1.2 *Auxiliary Boiler*

ODEC proposes a NO_x LAER emission rate for the auxiliary boiler of 0.01 lb/MMBtu based on a 3-hour block average basis through use of good combustion practices and ultra-low NO_x burners.

PPRP and MDE-ARMA's evaluation of the proposed NO_x limit proposed by ODEC was based on comparison with similarly sized boilers (10-100 MMBtu/hr). For the purposes of this analysis, the NSPS Subpart Dc definition for the boiler sizes in the range of 10 MMBtu/hr to 100 MMBtu/hr was considered comparable to the auxiliary boiler proposed for the Project. As indicated in the RBLC and review of recently permitted boilers (Appendix C), small boilers burning exclusively pipeline quality natural gas with low NO_x burners are permitted to achieve a NO_x emission rate as low as 0.01 lb/MMBtu on a 3-hr block average basis. Therefore, PPRP and MDE-ARMA agree with the proposed NO_x emissions limit for the auxiliary boiler. Compliance with the LAER emissions limit is proposed to be demonstrated based on vendor provided performance guarantees and annual combustion analyses.

4.5.1.1.3 *Dew Point Heater*

ODEC proposes a NO_x limit of 0.049 lb/MMBtu as LAER, to be achieved through the use of good combustion practices and a low NO_x burner (LNB) for the dew point heater.

PPRP and MDE-ARMA's evaluation of the NO_x LAER and emission limit proposed by ODEC was based on comparison with similarly sized process heaters. For purposes of this analysis, process heaters less than 100 MMBtu/hr were considered comparable to the dew point heater for the proposed Wildcat Point Project. As indicated in the RBLC and recent permit review (Appendix C), dew point heaters burning exclusively pipeline quality natural gas and equipped with low NO_x burners are permitted with emission rates as low as 0.049 lb/MMBtu. Therefore, PPRP and MDE-ARMA agree with ODEC's proposed NO_x LAER to achieve emissions no greater than 0.049 lb/MMBtu on a 3-hr block average basis. Compliance with the LAER emissions limit will be demonstrated based on vendor performance guarantees and annual combustion analyses.

4.5.1.1.4 *Emergency Engines*

Operation of the emergency units will be limited to 100 hrs/yr each for maintenance and readiness testing. ODEC proposed NO_x emissions limits of 4.8 g/hp-hr for the emergency generator and 3.0 g/bhp-hr for the fire water pump, each consistent with applicable limits in NSPS Subpart IIII. Note that NSPS Subpart IIII includes combined NO_x plus non-methane hydrocarbons (NMHC) emissions limits. For the purposes of this Project, NMHC is assumed to be equivalent to VOC emissions. ODEC proposes LAER of limited operating hours, use of ultra- low sulfur fuel and good combustion practices to achieve these Subpart IIII emission limits.

PPRP and MDE-ARMA's review of the RBLC and other recent permits identified emergency generators with limits lower than the proposed NO_x emission rate for the Project, with the lowest being 0.21 g/hp-hr from the Avenal Energy Project. However, this unit has yet to be built so the emission limit has not yet been demonstrated in practice. The next lowest identified emission rate is 2.6 g/hp-hr for the Kalama Energy Center emergency generator achieved using good combustion practices. Based on the limited hours of operation of the ODEC emergency generator (100 hours/yr), if ODEC were required to comply with a limit of 2.6 g/hp-hr, the potential decrease in NO_x emissions would be 0.7 tpy for the 2,250 kW emergency generator.

Given the level of emissions associated with achieving lower NO_x limits and the limited operating hours, PPRP and MDE-ARMA believe that there is no environmental benefit in establishing emission limits for the emergency engines below those proposed by ODEC at the NSPS Subpart III levels.

The review of the RBLC and other recent permits, summarized in Appendix C, identified fire water pump engines with limits below the proposed NO_x emission rates proposed by ODEC, with the lowest being 2.1 g/hp-hr for the Victorville 2 Hybrid Power Project to be achieved through the use of good combustion practices. Based on the limited hours of operation of the fire water pump engine (100 hours/yr), the net potential decrease in NO_x emissions, should ODEC be required to comply with the lowest limit, is 0.04 tpy per engine.

Given this small emissions reduction, coupled with the limited operating hours for the fire water pump engine, PPRP and MDE-ARMA agree that an emission limit of 3.0 g/hp-hr constitutes LAER. This is based on a combination of NO_x and NMHC emissions to be achieved through the use of good combustion practices, limited hours of operation and use of ultra-low sulfur fuel for the 477-hp fire water pump engine.

The emergency engines will be designed to meet these emission limits, and ODEC will provide vendor performance specifications to MDE as a part of compliance with the LAER requirements. To monitor hours of operation, ODEC will install a non-resettable operating hour meter (or equivalent software) on each emergency engine. Compliance with the NO_x emissions limitations shall be demonstrated based on vendor provided performance specification sheets.

Table 4-24 provides a summary of the NO_x LAER determination for the Wildcat Point Project CTs/HRSGs, auxiliary boiler, emergency generator, and fire water pump engine.

Table 4-24 Proposed NO_x LAER Limitations

Emission Source	Proposed LAER for NO_x	Proposed Controls
CTs/HRSGs	2.0 ppmvd @15% O₂ on 3-hr block average basis, except startup and shutdown periods. Startup and shutdown emissions limited to: 870 lb/event (cold startup), 610 lb/event (warm startup), 340 lb/event (hot startup), and 100 lb/event (shutdown). Project-wide emissions of NO_x not to exceed 231.7 tpy for CTs/HRSGs on 12-month rolling total basis.	Use of dry low-NO _x combustor turbine design, use of pipeline quality natural gas during normal operation and SCR system
Auxiliary Boiler	0.01 lb/MMBtu, 3-hr block avg.	Exclusive use of pipeline quality natural gas and good combustion practices
Dew Point Heater	0.049 lb/MMBtu, 3-hr block avg.	Exclusive use of pipeline quality natural gas and good combustion practices
Emergency Generator	4.8 g/hp-hr (6.40 g/kW-hr) combined NO _x and NMHC	Limited operating hours, use of ultra- low sulfur fuel and good combustion practices
Fire Water Pump Engine	3.0 g/hp-hr (4.00 g/kW-hr) combined NO _x and NMHC	Limited operating hours, use of ultra- low sulfur fuel and good combustion practices

4.5.1.2 VOC LAER

4.5.1.2.1 Combustion Turbines

ODEC proposes the use of an oxidation catalyst to reduce VOC emissions from the CTs/HRSGs. The use of an oxidation catalyst is generally considered the most stringent emissions control for CO from CTs.

In the CPCN application, ODEC proposed the use of an oxidation catalyst and good combustion practice to achieve a VOC rate of 0.7 ppmvd at 15% O₂ without duct firing and 3.4 ppm at 15% O₂ with duct firing.

PPRP and MDE-ARMA reviewed recent permit determinations to identify the lowest VOC emission rate permitted for similarly sized CTs/HRSGs. Based on this review, PPRP and MDE-ARMA determined that the lowest

permitted VOC emission rate was 0.7 ppm at 15% O₂ without duct firing. Therefore, PPRP and MDE-ARMA agree that the ODEC proposed VOC emission limit without duct firing is LAER.

However, for similar types of CTs/HRSGs with duct firing, the lowest permitted VOC emission rate was 1.5 ppm at 15% O₂ at Moxie Energy LLC's Liberty and Freedom facilities in Pennsylvania. However, these facilities have not been constructed and/or operated. Subsequent to the permitting, the Moxie facilities selected Siemens turbines for installation at these facilities, which was one of the two types of turbines permitted.

In response to DNR Data Request No. 12-3, ODEC indicated that it obtained a lower emission guarantee from the CT vendor. Thus, ODEC proposed a VOC emission limit of 1.6 ppm at 15% O₂ with duct firing. The proposed VOC limit is consistent with other recent permits for similar types of CTs/HRSGs. These limits apply only during periods of normal operation.

To ensure continuous compliance with BACT limits, PPRP and MDE-ARMA propose emission limits during periods of startup and shutdown as noted below:

- VOC emissions will be limited to 6,720 lb/event (cold startup), 4,290 lb/event (warm startup), 566 lb/event (hot startup), and 606 lb/event (shutdown) for the entire Project; and
- VOC emissions from the Project will be included in the Project-wide limit of no more than 341 tons per 12-month rolling total.

In summary, PPRP and MDE-ARMA concur that VOC LAER for the CTs/HRSGs is an emissions limit of 0.7 ppmvd at 15% O₂ without duct firing and 1.6 ppm at 15% O₂ with duct firing, on a 3-hour block average basis except during startup and shutdown events. ODEC will achieve compliance with the LAER through the use of good combustion practice, the use of pipeline natural gas, and operation of an oxidation catalyst at all times when the CTs/HRSGs are operating. Compliance will be demonstrated based on three 1-hour stack tests (3-hour block average) through the use of Method 18, 25A, or other test method approved by MDE-ARMA. During startup and shutdown, ODEC must comply with the lb/event limits and calculation emissions utilizing the CEMS data. These emissions will be summed with emissions during non-startup and shutdown events to arrive at total VOC emissions for evaluation against the annual Project-wide VOC emissions limit.

To ensure continuous compliance with VOC LAER, ODEC will utilize CO CEMs data as a surrogate for VOC emissions. ODEC will develop a correlation between CO and VOC emissions during an initial stack test following EPA Reference Method 18, 25A or equivalent and with use of the CO CEMs, and will then operate the CO CEMs to demonstrate continuous compliance with the VOC limits. Stack testing of the CT/HRSG will also be conducted annually after the initial test to verify the CO and VOC emission correlation or to establish a new correlation in the event conditions have changed.

4.5.1.2.2 *Auxiliary Boiler*

ODEC proposes the exclusive use of pipeline quality natural gas and limited hours of operation to achieve the VOC emissions limit of 0.0033 lb/MMBtu.

PPRP and MDE-ARMA reviewed the RBLC database and other recent permits issued for small-sized natural gas-fired boilers (10-100 MMBtu/hr) to identify VOC emission limits permitted at other facilities. Based on this review, only one natural gas-fired boiler located at MGM Mirage in Nevada was permitted at a lower emission rate of 0.0024 lb/MMBtu. In response to DNR Data Request No. 9-6, ODEC indicated that the lowest emission rate, which auxiliary boiler vendors would guarantee without an increase in NO_x emission rate, was 0.0033 lb/MMBtu.

Based on a more detailed review of this permit and other information on the MGM Mirage project location, it was noted that the area in which the facility was located was designated nonattainment for CO at the time of these permits (November 2009). The area was subsequently designated as attainment for CO in September 2010. The emission limits in a nonattainment area are typically more stringent than that in an attainment area. The Casino source permitted in Nevada were intended to provide continuous steam and likely used for longer durations during a year than that proposed at ODEC. As a result, the Casino source was permitted with more stringent CO and VOC emission limits than similar sources permitted at other areas in the country.

For this Project, PPRP and MDE-ARMA calculated the benefit in terms of reduced emissions, which could be derived if more stringent emissions limits for the auxiliary boiler were established, as 0.04 tpy of VOC. Therefore, the proposed VOC LAER limit for the auxiliary boiler is considered acceptable. Compliance with VOC LAER limit will be demonstrated based on vendor provided performance guarantees.

4.5.1.2.3 *Dew Point Heater*

Similar to the CTs and auxiliary boiler, VOC emissions from the dew point heater is primarily the result of the incomplete combustion of fuel. ODEC proposes the use of good combustion practices and exclusive use of natural gas as fuel to result in a VOC LAER emission rate not to exceed 0.0054 lb/MMBtu. PPRP and MDE-ARMA independently reviewed the RBLC database and other permits issued for fuel heaters of similar size. Based on this review, the lowest permitted VOC emission rate from comparable sized process heaters was 0.005 lb/MMBtu, which was permitted for a 9.5 MMBtu/hr process heater at CPV St. Charles in Maryland. Therefore, the VOC LAER limit for the ODEC Project is proposed at an emission rate of 0.005 lb/MMBtu. ODEC shall be required to meet a VOC emission rate of 0.005 lb/MMBtu on a 3-hour block average basis. Compliance with VOC LAER limit will be demonstrated based on vendor performance specification.

4.5.1.2.4 *Emergency Generator*

ODEC proposes a VOC limit for the emergency generator of 0.29 g/hp-hr. A review of the RBLC and recent permits identified emergency engines with VOC limits below the emission limit proposed for the Project, with the lowest being 0.01 g/bhp-hr for the Moxie Liberty LLC and Moxie Energy LLC facilities. Based on a more detailed review of these permits, the combined NO_x and VOC limit was 4.94 g/bhp-hr as compared to 4.8 g/bhp-hr proposed for the Wildcat Point Project. If PPRP and MDE-ARMA were to require that the VOC emissions from the emergency generator to be limited to 0.01 g/bhp-hr, the net benefit in terms of reduced emissions would be 0.15 tpy, which is not deemed to be significant.

PPRP and MDE-ARMA note that the vendors of emergency use generators provide performance specifications to meet NSPS limits, which is specified as a combined VOC and NO_x emissions limit. All permits reviewed were targeted to meet these NSPS limits. Therefore, the proposed VOC limits for the emergency generator is considered LAER. Compliance with the LAER limits shall be demonstrated based on vendor provided emissions guarantees.

4.5.1.2.5 *Fire Water Pump Engine*

ODEC proposes a VOC limit for the fire water pump engine based on the emission rates specified in EPA's NSPS Subpart IIII regulation. The proposed VOC LAER limit for the firewater pump is 1.14 g/hp-hr. A review of the RBLC and recent permits identified emergency engines with

VOC limits below the NSPS-based NO_x and VOC emission limit proposed for the Project, with the lowest being 0.05 g/bhp-hr at the Crescent City facility in Louisiana. However, the Crescent City facility had a combined NO_x and VOC limit of 9.5 g/bhp-hr which is greater than that proposed for this Project. The Moxie Liberty and Freedom facilities in Pennsylvania have a lower VOC limit permitted for the fire water pumps as well, but the combined NO_x and VOC emissions are 3.6 g/bhp-hr, which is above that proposed by ODEC.

Given the use of the fire water pump for only emergency purposes, limiting its hours of operation to those events and 100 hours per year for maintenance and readiness testing, there would be no substantive environmental benefit associated with establishing NO_x plus VOC emission limits combined below the NSPS Subpart IIII limit of 3.0 g/hp-hr. If PPRP and MDE-ARMA were to require that the VOC emissions from the fire water pump engine be limited to 0.05 g/bhp-hr (comparable to Crescent City facility), the net benefit in terms of reduced emissions would be 0.06 tpy, which is not deemed to be significant.

PPRP and MDE-ARMA note that the vendors of emergency use engines provide performance specifications to meet NSPS limits, which is specified as a combined VOC and NO_x emissions limit. All permits reviewed were targeted to meet these NSPS limits. Therefore, PPRP and MDE-ARMA propose a NO_x+NMHC emissions limit of 3.0 gr/bhp-hr for the fire water pump as LAER. Compliance with the LAER limit shall be demonstrated based on vendor provided emissions guarantees.

4.5.1.2.6 Fuel Oil Storage Tanks

Based on a review of EPA's RBLC database, fuel oil storage tanks are not generally equipped with add-on controls. The proposed storage tanks are horizontal fixed roof tanks, which result in lower breathing and working losses compared to floating roof tanks. ODEC shall be required to perform periodic maintenance on the tanks to ensure that fugitive emissions are minimized. The VOC emissions from the storage tanks will be limited to 0.001 tons per rolling 12-month period, which is considered LAER for VOC. ODEC shall be required to monitor the throughput of fuel oil through the tanks and use EPA's TANKS program, or other MDE-approved method, to estimate VOC emissions from the tanks.

Table 4-25 provides a summary of the VOC LAER determinations for the CTs/HRSGs, auxiliary boiler, dew point heater, emergency generators, fire water pump engine, and fuel oil storage tanks for the Wildcat Point Project.

Table 4-25 Proposed VOC LAER Determinations

Emission Source	Proposed LAER for VOC	Proposed Controls
CTs/HRSGs	0.7 ppmvd at 15% O ₂ without duct firing on 3-hr block avg. basis	The use of pipeline natural gas, good combustion practices, and use of an oxidation catalyst
	1.6 ppmvd at 15% O ₂ with duct firing 3-hr block avg.	
	Startup and shutdown emissions limited to: 6,720 lb/event (cold startup), 4,290 lb/event (warm startup), 566 lb/event (hot startup), and 606 lb/event (shutdown). Project-wide VOC emissions shall not exceed 341 tons per 12-month rolling total	
Auxiliary Boilers	0.0033 lb/MMBtu, 3-hr block avg.	The exclusive use of pipeline quality natural gas, limited hours of operation, and good combustion practices
Dew Point Heater	0.005 lb/MMBtu, 3-hr block avg.	The exclusive use of pipeline quality natural gas and good combustion practices
Emergency Generator	4.8 g/hp-hr (6.40 g/kW-hr) combined NO _x and NMHC	Use only ULSD, good combustion practices, designed to achieve emission limit, and limited hours of operation
Fire Water Pump Engine	3.0 g/hp-hr (4.0 g/kW-hr) combined NO _x and NMHC	Use only ULSD, good combustion practices, designed to achieve emission limit, and limited hours of operation
Storage Tanks	0.001 tons per 12-month rolling period	Fixed roof and periodic maintenance program

4.5.2

Offsets

In addition to meeting NO_x and VOC LAER requirements, triggering NA-NSR requires ODEC to obtain NO_x and VOC emission offsets for the Wildcat Point Project. In accordance with COMAR 26.11.17, ODEC must meet the “reasonable further progress requirements” of the CAA by obtaining NO_x and VOC creditable emission offsets at a ratio of 1.3 to 1.0.

The NO_x and VOC offsets may be from sources located within the ozone nonattainment area in which the Project is located. Specifically, COMAR 26.11.17.04D specifies the following requirements:

(1) Generally, emissions reduction credits (ERCs) are acceptable if obtained from within the same area as the new or modified emissions unit. The [MDE-ARMA] may allow the owner or operator to obtain VOC or NO_x emission reductions from other areas if:

(a) The other area has an equal or higher nonattainment classification than the area in which the emissions unit is located; and

(b) Emissions of the particular pollutant from the other area have been demonstrated to contribute to a violation of the National Ambient Air Quality Standard in the area in which the new emissions unit is located.

(2) The [MDE-ARMA] shall give preference to ERCs from emissions units located as close to the proposed emissions unit site as possible.

Projected NO_x emissions from the Project are 233 tpy, which requires 301 tpy of NO_x offsets. VOC emissions will be 341 tpy, which requires 443 tpy of VOC offsets.

4.5.3 *Additional NA-NSR Requirements*

NA-NSR requires ODEC to certify that all existing sources owned or operated in the same state as the proposed source are in compliance with all emission limitations and standards under the Clean Air Act (CAA). ODEC provided certification in response to the initial application completeness determination performed by PPRP and MDE-ARMA, that all existing sources owned or operated in the State of Maryland are in compliance with all emission limitations and standards under the CAA.

NA-NSR also requires affected projects to evaluate alternatives to the proposed Project. ODEC conducted an alternative analysis in which they evaluated alternate sites and alternative technologies for the CTs/HRSGs to meet the purpose of the Project, through conservation of energy in other sources, and/or changing the location of the Project. PPRP and MDE-ARMA have reviewed this analysis and consider it to be adequate.

The applicant is also required to demonstrate that the benefits of the proposed source outweigh the environmental and social costs imposed by the construction of the source. Neither potential air emissions from the operation of the Project, nor from the temporary construction activities

that will take place during installation of the Project are expected to result in significant, adverse local or regional impacts to air quality, or to local vegetation (see Section 4.4.3 and Appendix D). The Project will be constructed at an existing power plant site and therefore the construction and operation of the Project will result in lower environmental impact than development of a greenfield facility. Additionally, minimal upgrades to existing infrastructure will be required as a part of this Project. Socioeconomic impacts associated with the Project are described in Section 5.3 of this ERD.

4.6 REGULATORY APPLICABILITY ANALYSIS

As a part of its review of the CPCN application, PPRP and MDE-ARMA determined the applicable air regulatory requirements for all air emission sources proposed to be installed as a part of this Project. The applicable regulatory requirements and the associated compliance demonstration approaches are discussed in this section of the document. PPRP and MDE-ARMA's recommended license conditions for the Project are included in Appendix A.

4.6.1 Federal Regulatory Requirements

4.6.1.1 New Source Performance Standards (NSPS)

4.6.1.1.1 Standards for Stationary Combustion Turbines (40 CFR Part 60 Subpart KKKK)

This NSPS applies to stationary gas turbines with a heat input at a peak load equal to or greater than 10.7 gigajoules per hour (10 MMBtu/hr), based on the higher heating value of the fuel, which commenced construction, modification, or reconstruction after 18 February 2005. The proposed CTs and duct burners at the facility meet the definition of the sources regulated by this NSPS. As the duct burners are regulated by Subpart KKKK, they are exempt from the requirements of NSPS Subpart Dc and the CTs are exempt from NSPS Subpart GG.

Applicable Requirements:

Under Subpart KKKK, the CTs are subject to a NO_x limit of 15 ppmvd at 15 percent O₂, or 0.43 lb/MWh gross energy output, and an SO₂ limit of 0.90 lb/MWh gross energy output, or 0.060 lb/MMBtu.

The NSPS also includes the following requirements: general compliance requirements (§60.4333), monitoring requirements (§60.4335-§60.4370),

reporting requirements (§60.4375-§60.4395), and performance testing (§60.4400-§60.4415). ODEC will also be subject to applicable notification, monitoring and reporting and related applicable provisions of 40 CFR §60.7 and §60.8.

Recommended Compliance Demonstration Approach:

ODEC shall be required to continuously monitor the NO_x emissions from the CTs/HRSGs. ODEC shall be required to perform an initial stack test and an annual stack test for NO_x. As an alternative to ongoing annual stack testing, ODEC can elect to monitor sulfur content in the fuel at a frequency specified in Section 2.3.1.4 or 2.3.2.4 of Appendix D to 40 CFR §75.

4.6.1.1.2 *NSPS for Small Industrial-Commercial-Institutional Steam Generating Units (40 CFR Part 60 Subpart Dc)*

NSPS Subpart Dc is applicable to all steam generating units greater than 10 MMBtu/hr and less than 100 MMBtu/hr. As mentioned earlier, the duct burners are exempt from the requirements of this NSPS as they are covered by NSPS Subpart KKKK; however, the auxiliary boiler will be subject to these requirements. The dew point heater is not considered a steam-generating unit and is rated at 5 MMBtu/hr (less than 10 MMBtu/hr) and is therefore exempt from this requirement. The NSPS does not have emissions standards, but does have applicable notification and recordkeeping requirements.

Applicable Requirements

ODEC is required to notify EPA and MDE-ARMA of the date of completion of construction and actual startup (§60.48c(a)).

Compliance Demonstration

1. **Recordkeeping:** ODEC is required to maintain records of natural gas fuel use (§60.48c(g)(1) – (3)).

Work Practice Standards: ODEC is required to maintain records of any maintenance performed on the boiler for two years from the date of the record (§60.48c(i)).

4.6.1.1.3 *NSPS for Stationary Compression Ignition Internal Combustion Engines (40 CFR Part 60, Subpart IIII)*

The emergency generator (2,250 kW) and the fire water pump engine (477 hp) are subject to the requirements of NSPS Subpart IIII for stationary IC engines. Applicable NSPS emission limits for these engines are noted in

Table 4-26. Note that the engines are not subject to the Tier 4 requirements under Subpart IIII because the engines have cylinder displacements less than 10 liters per cylinder.

In addition to the emissions limits, these emergency units are subject to applicable monitoring, compliance, testing, notification, reporting, and recordkeeping requirements (40 CFR §60.4200 *et seq.*) and related applicable provisions of 40 CFR §60.7 and §60.8.

Table 4-26 *Emission Standards for the Emergency Engines (g/hp-hr)*

Emergency Engine	Model Year	NMHC+NO _x	CO	PM
477-hp Fire Water Pump 225<kW<450 (300<hp<600)	2009+	3	2.6	0.15
2250-kW Emergency Generator Displacement <10 and <2,237kW (3,000hp)	2007+	4.8	2.6	0.15

4.6.1.1.4 *NSPS for Steam Generating Units for Greenhouse Gases (40 CFR Part 60 Subpart TTTT)*

On 13 April 2012, USEPA proposed NSPS for GHGs from fossil fuel-fired electrical utilities. The proposed rule limits GHG emissions from new electrical utility units to 1,000 lb/MWh. A revised version of the regulation was proposed on 20 September 2013.

At this time, there are no applicable requirements in effect associated with this regulation for the proposed sources of the Wildcat Point Project. However, upon promulgation, the proposed NSPS limit will become the “BACT floor” for GHG emissions; i.e., the GHG BACT limit will be required to be at least as stringent as the NSPS limits. Compliance with the NSPS limit shall be demonstrated using a certified continuous emissions monitoring system (CEMS). The proposed CT GHG BACT limit of 946 lb/MWh for this Project would comply with the NSPS emission limit, as defined in the proposed rule.

4.6.1.2 *National Emission Standards for Hazardous Air Pollutants (NESHAPs)*

As described previously, potential HAP emissions from the combined, co-located Wildcat Point and Rock Springs generating facilities will be less than 25 tpy; therefore, the facility is considered an area source of HAP

emissions. As an area source of HAPs, some emissions units for the proposed Project are subject to specific NESHAPs.

4.6.1.2.1 *NESHAP for Combustion Turbines (40 CFR Part 63 Subpart YYYY)*

NESHAP Subpart YYYY applies to stationary CTs located at a major source of HAP emissions. Being an area source of HAP, the requirements of this subpart does not apply to the Wildcat Point Project.

4.6.1.2.2 *NESHAP for RICE (40 CFR Part 63 Subpart ZZZZ)*

The emergency generator and fire water pump engine are subject to the requirements of NESHAP Subpart ZZZZ for reciprocating internal combustion engines (RICE).

Applicable Requirements

ODEC is required to use diesel fuel that meets the requirements in 40 CFR 80.510(b) for non-road diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to January 1, 2015, may be used until depleted (40 CFR §63.6604(b)). Under 40 CFR §80.510(b), the sulfur content of the diesel fuel is limited to 15 ppm.

The generator and fire water pump engine are required to be operated to minimize emissions at all times in a manner consistent with safety and good air pollution practices.

Notifications

No additional notification is required for emergency units.

4.6.1.2.3 *NESHAP for Industrial, Commercial, Institutional Boilers and Process Heaters (40 CFR Part 63 Subpart JJJJJJ)*

The rule applies to boilers and process heaters located at an area source of HAPs. However, gas-fired boilers and process heaters are exempt from the requirements of the rule. Therefore, the requirements of this subpart do not apply to the auxiliary boiler and process heater because they are exclusively fired with natural gas.

4.6.1.2.4 *NESHAP for Coal- and Oil-fired Electrical Utilities (40 CFR Part 63 Subpart UUUUU)*

The rule applies to coal-and oil-fired electrical utility boilers. Because the Wildcat Point Project CTs and duct burners will be fired exclusively on natural gas, they are exempt from this rule.

4.6.1.3 *Acid Rain Program (40 CFR Parts 72 through 76)*

The proposed CTs meet the definition of an “affected unit” as defined in 40 CFR §72.6, and are therefore subject to the requirements of the Acid Rain program, including emissions standards (40 CFR §72.9) and monitoring requirements (40 Part 75), among other provisions. In addition, ODEC is required to apply for and obtain an Acid Rain permit (under 40 CFR 72.30). The terms of the Acid Rain permit will be incorporated into the facility’s Title V operating permit by MDE-ARMA.

Compliance Demonstration

ODEC is required to submit a complete Acid Rain permit application at least 24 months prior to start of operation of the CTs/HSRGs.

ODEC is required to install CEMS for NO_x and SO₂ to meet the monitoring requirements of 40 Part 75. As a surrogate to installing SO₂ CEMS, ODEC may opt to monitor the sulfur content of the fuel. ODEC will be required to maintain documentation of the sulfur content through fuel receipt records.

4.6.1.4 *Clean Air Interstate Rule (CAIR)/Cross-State Air Pollution Rule (CSAPR)*

The Clean Air Interstate Rule (CAIR) was a federal rule promulgated in March 2005 that implements a cap and trade program on power plant NO_x and SO₂ emissions in the eastern half of the United States. This rule was promulgated for implementation under 40 CFR §97. Maryland has promulgated implementing regulations under COMAR 26.11.28. According to 40 CFR §97.4, CAIR applies to any emission unit that, at any time after 1 January 1995, has a nameplate generating capacity of greater than 25 MW and sells any amount of electricity or has a maximum design heat input of greater than 250 MMBtu/hr.

On 6 July 2011, the U.S. EPA finalized the Cross-State Air Pollution Rule (CSAPR), which replaces CAIR. The first phase of compliance was scheduled to begin 1 January 2012 for annual SO₂ and annual NO_x emissions and 1 May 2012 for ozone season NO_x emissions. In August

2012, CSAPR was vacated pending appeal. With CSAPR vacated, the CAIR remains in effect.

Compliance Demonstration

Under CAIR, ODEC is required to request allowances from the set aside pool by March 15 of the year following the year the unit begins commercial operation and by March 15 for each year thereafter until the control period for which the unit is first allocated allowances under 40 CFR §§96.142(b) and 96.342(b) is completed.

4.6.1.5 *Compliance Assurance Monitoring (CAM) Plan*

Compliance Assurance Monitoring (CAM) applies to emissions units at “major” sources that are required to obtain a Title V operating permit, and that meet all three of the following criteria (40 CFR §64.2a):

- (1) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or a surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;
- (2) The unit uses a control device to achieve compliance with any such emission limitation or standard; and
- (3) The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source.

The CTs/HRSGs are the only air emission sources at the proposed facility that meet all three criteria described above. Because the CTs/HRSGs are subject to NSPS and MACT standards, no additional CAM requirements are applicable to these units (§64.2(b)(1)(i)).

4.6.1.7 *Risk Management Planning*

This regulation covers the requirements for owners or operators of stationary sources concerning the prevention of accidental releases, and the State accidental release prevention programs approved under Section 112(r) of the Clean Air Act and codified as 40 CFR §68. This regulation applies to owners and operators of facilities that store regulated substances in a process greater than certain threshold quantities. Under Subpart G of the regulation, a facility is required to develop a Risk

Management Plan (RMP) if the quantity of regulated substances exceeds the threshold quantities. Ammonia is one of the regulated substances covered by the regulation. ODEC proposed using ammonia in the SCR system associated with the CTs at concentrations of less than 20%. Under 40 CFR §68.130, only ammonia stored in concentrations greater than 20% is covered by the regulation; thus the requirements of this regulation do not apply to the facility.

4.6.2 *State Regulatory Requirements*

In addition to the federal regulatory requirements, the proposed Project will be subject to several State of Maryland air regulations codified at COMAR 26.11. Appendix E summarizes the list of applicable COMAR requirements for the Project. Applicable requirements have been included in the proposed license conditions in Appendix A.

4.6.2.1 *Maryland Toxic Air Pollutants (TAPs) Analysis*

Certain sources emitting Toxic Air Pollutant (TAP) in Maryland are subject to TAP regulations under COMAR 26.11.15 and 16. The evaluation begins by classifying the pollutant as either a Class I or Class II TAP. Class I TAPs, which are known, probable or potential human carcinogens, are listed in COMAR 26.11.16.06.

A source is evaluated to determine if it can be classified as a small quantity emitter as listed COMAR 26.11.15.03B(3). For Class I TAPs, a source is considered a small quantity emitter if the TAP emission rates are less than or equal to 0.5 lb/hr and 350 lb/yr and the short term (1-hr and 8-hr) and long term screening levels are greater than 200 µg/m³ and 1 µg/m³, respectively. In addition for Class II TAPs, a source is considered a small quantity emitter if the emission rate is less than or equal to 0.5 lb/hr and the short-term screening level is greater than 200 µg/m³. Screening levels for Class I and II TAPs can be found on the MDE website at <http://www.mde.maryland.gov/programs/permits/airmanagementpermits/toxicairpollutantregulationdocuments/pages/index.aspx>.

If a source does not meet the definition of a small quantity emitter, the second step is to determine the allowable emission rate (AER) for the TAP. If the maximum premise-wide emission rate of a TAP is less than the calculated AER, then the TAP would be in compliance with the ambient impact requirement. For stack sources with no downwash, the annual (lb/yr) and hourly (lb/hr) AER are calculated by dividing the long term screening level (µg/m³) by 0.0006 and dividing the short-term screening level 62.5. For non-stack sources or sites where downwash can occur, the

annual (lb/yr) and hourly (lb/hr) AER are calculated by dividing the long term screening level ($\mu\text{g}/\text{m}^3$) by 0.00274 and dividing the short term screening level by 279. MDE provided a sample TAPs demonstration, including a small quantity generator and AER example, at <http://www.mde.state.md.us/programs/Permits/AirManagementPermits/ToxicAirPollutantRegulationDocuments/Documents/enforce.pdf>.

If a source's TAP emission rate is greater than the AER, modeling must be conducted. First, a simple model, such as the Environmental Protection Agency's (EPA) SCREEN3, can be used. If the pollutant concentrations calculated using SCREEN3 is less than the TAP screening level, the TAP is in compliance with COMAR 26.11.15 & 16. If the pollutant concentration are greater than the screening level, complex modeling must be conducted.

In the original CPCN application, ODEC indicated that the TAPs regulation in COMAR 26.11.15 did not apply to fuel burning equipment and therefore the facility is not required to evaluate the impacts of TAPs from the Project. PPRP and MDE-ARMA identified in Data Request No. 3-6 that TAP emissions would be emitted from the cooling tower, which is not defined as fuel burning equipment (fuel burning equipment is exempt from TAP regulations); and therefore an evaluation of TAPs from the cooling tower needed to be performed for the Project. In response to this data request, ODEC performed an evaluation of TAPs from the cooling tower; however, the TAPs were not identified correctly as Class I and Class II TAPs, and as such, the demonstration performed by ODEC was not complete. PPRP and MDE-ARMA independently conducted an evaluation of TAPs from the cooling tower, based on the information provided by ODEC in their application and data request response. Based on this analysis, it was determined that the emissions of all TAPs except two pollutants – arsenic and cadmium - were below the allowable screening levels in COMAR 26.11.16.02. A refined modeling analysis using AERMOD was performed for the two pollutants. Based on the refined modeling analysis, the impacts of TAP emissions from the cooling tower were predicted to be below MDE's TAP screening levels. The results of the refined TAPs analysis is summarized in Table 4-27, with details presented in Appendix D. Therefore, no additional analysis was required to be conducted to demonstrate compliance with Maryland's TAP regulations.

Table 4-27 Screening Analysis for TAPs Emissions from the Wildcat Point Project Cooling Tower

Constituent	Classification ⁽¹⁾	Emission Rate		Screening Levels (ug/m ³) ⁽²⁾			Smaller Emitter Exempt? ^(3,4)	26.11.16.02 Allowable Emiss			Below Allow. Emiss. Rate	Screening Emission Rate (g/s)
		lb/hr	lb/yr	1-hr	8-hr	Annual		1-hr (lb/hr)	8-hr (lb/hr)	Annual (lb/yr)		
Cadmium	Class I	0.00056	4.88		0.2	6.00E-04	No		0.0032	1.00	No	7.056E-05
Nickel	Class I	0.00056	4.88		1		No		0.0160		Yes	
Copper	Class II	0.00056	4.88		2		No		0.0320		Yes	
Zinc	Class II	0.00056	4.88	1000	500		Yes	16.0	8.0000			
Ammonia	Class II	0.002	17.55	243.78	174.13		No	3.9	2.7861		Yes	
Barium	Class II	0.00056	4.88		5		No		0.0800		Yes	
Cobalt	Class II	0.00056	4.88		0.2		No		0.0032		Yes	
Chromium ⁽⁵⁾	Class II	0.00056	4.88		5		No		0.0800		Yes	
Manganese	Class II	0.00056	4.88		2		No		0.0320		Yes	
Arsenic ⁽⁶⁾	Class I	0.00111	9.75		0.1	2.00E-04	No		0.0016	0.33	No	1.399E-04
Silver	Class II	0.00111	9.75		0.1		No		0.0016		Yes	
Phenols	Class II	0.00056	4.88		192.45		No		3.0792		Yes	

Notes:

(1) - Class I TAPs are listed in COMAR 26.11.16.06

(2) - Screening levels were taken from MDE's 2012 TAPs Screening Level spreadsheet

(3) - As per COMAR 26.11.15.03B.(3)(b), an installation is exempted from a TAPS Analysis if a Class I TAP emission rate is less than or equal to 0.5 lbs/hr and 350 lbs/yr and the short and long term screening levels are greater than 200 and 1 microgram/cubic meter, respectively.

(4) - As per COMAR 26.11.15.03B.(3)(a), an installation is exempted from a TAPS Analysis if a Class II TAP emission rate is less than or equal to 0.5 lbs/hr and the short term screen level is greater than 200 microgram/cubic meter.

(5) - Chromium is considered a Class I TAP if the compound has a VI oxidation state (hexavalent chromium).

(6) - Arsenic is a Class I TAP as listed in COMAR 26.11.16.06, but was listed as a Class II TAP in ODEC'S table.

(7) - Refined modeling analysis was completed using AERMOD for Cadmium and Arsenic; predicted impacts were below screening levels.

5.0 ANALYSIS OF OTHER ENVIRONMENTAL IMPACTS

5.1 IMPACTS TO WATER RESOURCES

5.1.1 Surface Water

No perennial streams occur on the overall Rock Springs site, or on the Wildcat Point site in particular. Therefore, the project would not cause any direct impacts to such streams. The only other surface water features on the Rock Springs site are several small seeps that are ground water-fed. Therefore, PPRP concludes that, with the use of soil erosion and sedimentation best management practices, construction and operation of the project would not likely result in any adverse impacts to on-site surface water resources.

The existing Rock Springs power plant currently holds a surface water appropriation permit (CE2000S009(05)). The permit has the following limits:

- Annual average: 30,000 gpd; and
- Maximum daily withdrawal: 1,800,000 gallons.

Surface water for the existing plant is used for cooling inlet water into the CTs, fire protection, plant washdown and other miscellaneous uses. This water is collected in a stormwater retention pond, treated, and pumped into an on-site storage tank for later use. Since the Rock Springs facility began operating in 2002, surface water withdrawal has ranged from 2,200 to 16,200 gpd, as an annual average, which is below half of the current appropriation. The existing facility consists of simple cycle CTs used to meet peak electricity demand, and has a capacity factor of less than 10 percent.

ODEC Wildcat Point has indicated that it intends to replace the existing process water supply for the Rock Springs facility with water from the Susquehanna River supply, which is the applicant's preferred surface water supply source for the project (ODEC 2013a). Therefore, the surface water appropriations for the existing Rock Springs facility can be eliminated.

Table 5-1 summarizes the water requirements for the proposed Wildcat Point facility, as well as the existing Rock Springs generating station.

Table 5-1 ODEC Wildcat Point Water Requirements

Water Use Category	Project		Rock Springs Plant		TOTAL	
	Average Daily Water Use (mgd)	Maximum Daily Water Use (mgd)	Average Daily Water Use (mgd)	Maximum Daily Water Use (mgd)	Average Daily Water Use (mgd)	Maximum Daily Water Use (mgd)
Potable	0.001	0.002	0.001	0.002	0.002	0.004
Non-Potable	4.1	8.7	0.003	0.24	4.1	8.7
Total Water Use	4.1	8.7	0.004	0.24	4.1	8.7
Wastewater Discharge	0.4	0.8	0.003	0.003	0.4	0.8
Consumptive Use (losses due to evaporation and drift)	3.7	7.9	0.00	0.18	3.7	7.9

Notes: Water balance discrepancies are due to rounding and variability of weather conditions.
mgd = million gallons per day

To obtain water from the Susquehanna, ODEC will need to obtain approvals from the following agencies:

- Susquehanna River Basin Commission (SRBC) must approve ODEC's request to withdraw a maximum of 8.7 mgd and consumptively use a maximum of 7.9 mgd. ODEC has requested to satisfy the consumptive use requirement through payment of a fee.
- The Federal Energy Regulatory Commission (FERC) must approve construction of the water intake on Conowingo Pond, because it would be installed on land owned by Exelon that is part of the FERC-regulated Conowingo Dam operations.
- ODEC needs several permits or approvals from Pennsylvania Department of Environmental Protection (PaDEP), including coverage under general permits for intake and outfall construction and for stream crossings, as well as joint state-federal wetlands permitting.

PPRP is recommending a license condition that would require ODEC to obtain SRBC approval prior to the start of construction to be consistent with Maryland law (see Environment Article §5-502 of the Annotated Code of Maryland). Approvals from FERC and PaDEP are expected to take longer to obtain; ODEC estimates that these approvals would be received in December 2014 (ODEC 2013b). The recommended license conditions would require ODEC to provide the PSC, PPRP and MDE with status updates every six months on progress toward obtaining all necessary approvals, to document that an approved source of supply is likely to be obtained prior to initiation of construction.

5.1.2 *Ground Water*

5.1.2.1 *Construction*

ODEC Wildcat Point intends to require its EPC contractor to supply any water needed for construction, such as water for control of fugitive emissions or water for concrete mixing or curing, from off site. Therefore, there are no impacts associated with water needed for construction.

ODEC Wildcat Point conducted a geotechnical investigation of the area proposed for construction of the power plant (Schnabel 2013). Schnabel drilled 10 test borings as part of the geotechnical investigation in the area proposed for construction of the Wildcat Point power plant, and identified in the borings the geologic materials in the subsurface and the depth of the water table. The water table was determined to be present in the new borings at depths ranging from 1 to 13 feet beneath the ground surface. Based on the elevation of the water table beneath selected structures of the proposed Wildcat Point power plant, ODEC Wildcat Point determined that the water table will be encountered during construction.

Dewatering of ground water during construction of footers, foundations and subgrade structures will require a ground water appropriation permit for dewatering that exceeds 30 days or an average of 10,000 gallons per day in accordance with COMAR 27.17.06.03. The withdrawal of ground water for dewatering requires a new appropriation issued by the Maryland PSC through this CPCN proceeding.

This section describes the estimated amount of ground water that will be withdrawn for dewatering, and evaluates the potential impacts to ground water and surface water from dewatering.

According to ODEC's response to PPRP Data Request No. 9-8, the current design requires dewatering to facilitate construction of the following subgrade structures:

- Circulating Water Pump Pit – the excavation for this structure will be located at the cooling tower basin and is projected to be 20 feet deep. The pit will require lowering the water table over 11 feet for 150 days to accommodate construction;
- Underground Circulating Water Pipe – the excavation for this structure will be located at the cooling tower basin and is projected to be 18 feet deep. The excavation will require lowering the water table over 9 feet for 120 days to accommodate construction;

- Gas Turbine Generator Building – the excavation to build this structure is projected to be 7 feet deep and will require lowering the water table over 7.5 feet for 150 days to accommodate construction; and
- Steam Turbine Generator Building – the excavation to build this structure is projected to be 7 feet deep and will require lowering the water table over 5.5 feet for 150 days to accommodate construction.

These four subgrade structures account for 97 percent of the construction dewatering that needs to occur for the Wildcat Point facility. ODEC identified eight additional structures in its response to PPRP Data Request No. 9-8 that will require minor amounts of dewatering.

ODEC Wildcat Point calculated the estimated amount of dewatering that will occur during construction in response to PPRP Data Request 9-8. Dewatering is based on the estimates of the excavation length, width, and depth, saturated thickness to be excavated, and hydraulic conductivity of the geologic materials within the dewatered zone, as well as the duration of the dewatering event. Table 5-2 below presents a summary of the dewatering amount determined by ODEC in their response to PPRP data request 9-8.

Table 5-2 Dewatering Calculation

	Foundation Width (x ₁)	Foundation Length (x ₂)	Foundation Depth	Depth to Water Table	Total Saturated Thickness (h _o)	Total Saturated Thickness (H)	Hydraulic Conductivity (K)	H ² -h _o ²	L ^b	Dewatering Rate - [Q = $\frac{Kx}{2L} \cdot (H^2 - h_o^2)$]	Duration	Total Volume
	Feet	Feet	Feet	Feet	Feet	Feet	Feet/Day	Feet	Feet	ft ³ /Day	Days	Gallons
GTG Building	200	160	7	2.5	7.5	9.2	0.46	27.8	500	9.6	150	10,781
STG Building	160	300	7	2.5	5.5	10.3	0.1	74.8	500	7.1	150	7,991
Circulating Water Pump Pit	40	50	20	2	11	14.0	4.5	75.0	500	71.8	150	80,603
Underground Circ Water Pipe	11	1200	18	2	9	10.0	5.9	19.0	500	274.6	120	246,483
											Total	345,859
										Other Minor Sources Combined		9,259
										Revised Totals		355,118
							Gals/Day (assuming 12 mo. construction schedule)					973

MDE WMA recommends the following appropriation amounts for construction dewatering:

- Average Daily Use. The annual average water requirement is 1,100 gpd; and
- Month of Maximum Use. During the month of maximum use, the allocated quantity is an average of 6,700 gpd.

The average daily use amount is slightly more than the dewatering amount calculated by ODEC Wildcat Point, and reflects the application of a 10 percent contingency value to the ODEC Wildcat Point estimate to account for uncertainties associated with the estimates at this stage of the construction process. The month of maximum use value is based on the

conservative assumption that half of the dewatering will occur within 30 days because multiple excavations need to be dewatered simultaneously (i.e., 1,100 gpd x 365 days = 402,000 gallons x 0.5/30 days). The proposed amount is more than double the amount requested by ODEC Wildcat Point.

ODEC Wildcat Point can file for an exemption from the need to obtain a Maryland appropriations permit under Environment Article §5-502(b) of the Annotated Code of Maryland because the total ground water withdrawal amount for dewatering is less than 5,000 gpd. If no appropriations permit is necessary in accordance with Maryland law, then a new ground water appropriations issued as part of the CPCN process will not be necessary, and therefore no conditions related to the appropriation of ground water would be necessary. ODEC Wildcat Point can file for an exemption after the detailed design work is completed to verify that the dewatering total would be less than 5,000 gpd, but no later than 30 days before dewatering will begin.

The total estimated annual withdrawal associated with the dewatering appropriation is 402,000 gallons if dewatering occurs at a rate of 1,100 gpd for a full year. Table 5-2 indicates that this dewatering scenario is conservative given that the total amount of dewatering estimated by ODEC Wildcat Point is 355,000 gallons. Dewatering the water table by 402,000 gallons per year (gpy) could lead to two potential albeit temporary impacts to ground and surface water quantity:

- Impacts to the aquifer and other ground water users; and
- A reduction in the amount of ground water that discharges to streams (unnamed tributary to Conowingo Creek).

The potential for the ground water withdrawal to exceed recharge rates, and thus permanently lower the water table, was evaluated using a water budget analysis for the site. The water budget assumes that water into a basin equals water out of the basin plus any change in storage (i.e., ground water withdrawal). The principal components of the water budget are recharge (i.e., infiltration to the aquifer), evapotranspiration, and runoff.

The total average rainfall for the site area is approximately 43 inches per year. Otton *et al.* (1988) evaluated potential evapotranspiration (PET) in the Piedmont of Cecil County, Maryland from 1961 through 1980. They found that PET remained about the same, 22 in/yr., during both wet and dry seasons. In addition, estimates of storm runoff for the 20-year period averaged 10 in/yr. The remaining 11 inches of precipitation recharge ground water. They also determined that a value of 6 in/yr. recharge

reasonably approximates drought conditions based on yearly water budgets during dry periods ranging from 1961 to 1980.

The recharge rate information presented above can be used to evaluate a site's water balance.

- Using an annual average rainfall recharge rate of 11 in/yr., the dewatering of about 402,000 gpy will require an average surface area of about 56,628 square feet, or about 1.3 acres.
- Under drought conditions, a recharge of approximately 6 in/yr. of equivalent rainfall is expected, thus the area required to provide the recharge to the aquifer is about 109,000 square feet, or about 2.5 acres.

The entire site, including the Rock Springs portion, has a total of about 96 acres. Of this amount, 53 acres are estimated to be available for infiltration after removal of the 26 acres of developed land for the Rock Springs power plant and 17 acres of developed land for the Wildcat Point power plant. Therefore, more than sufficient surface area is available on the property to provide recharge to the aquifer. No long-term impacts to the aquifer associated with the maximum expected annual withdrawal of 402,000 gallons are expected.

Dewatering will extract water from the watershed that contains the unnamed tributary to Conowingo Creek. The headwaters for the unnamed tributary occur on the site, and the stream flows northwest into Pennsylvania toward Conowingo Creek. Based on the USGS topographic map titled *Conowingo Dam*, the stream is intermittent (i.e., flows seasonally) from its generation on the site to a point 2,000 feet from the site's western border. From that point, the stream is perennial, and flows 4,000 feet into Conowingo Creek. The total watershed for the intermittent stream is estimated to be 225 acres, with 54 acres located within the site boundary and 171 acres located northwest of the site.

Impacts to surface water and aquatic biota in surface water can be assessed by comparing the amount of water removed from baseflow during dewatering to the amount of water in Conowingo Creek and in the intermittent stream. The impact of the dewatering withdrawal on the intermittent stream can also be assessed by comparing the amount of water extracted for dewatering (402,000 gpy) to the total amount of base flow contributed to the intermittent stream. The total amount of base flow contributed by the watershed is conservatively estimated to be 66 million gallons per year, based on the 11 inches of infiltration of the 43 inches of annual rainfall. The dewatering will be about 0.6 percent of the total estimated annual baseflow into the intermittent stream, which will not adversely affect the intermittent stream. Consequently, impacts to the

quality of water and any aquatic biota in the intermittent stream are expected to be minimal. The reduction of baseflow is further mitigated if the ground water extracted during dewatering is discharged into the stormwater pond to infiltrate or drain into the intermittent stream.

5.1.2.2

Operation

ODEC Wildcat Point has indicated that ground water is needed to meet potable water demand for the new facility, and is therefore proposing to install one bedrock production well. ODEC estimates that the demand for potable water at the Wildcat Point facility will average 2,500 gpd. This estimate is based on an assumed supply of 75 gpd for drinking and sanitary uses for 30 employees, and includes a small contingency (ODEC Responses to PPRP Data Request 4-1). ODEC Wildcat Point further stated in the response to DNR data Request 4-1 that the ground water use will remain constant throughout the year, thus having no month where there is an expected maximum use.

The existing Rock Springs power plant currently holds a ground water appropriations permit (CE2000G008(05)) with the following limits:

- Annual average: 5,500 gpd; and
- Month of maximum use: 63,000 gpd.

This ground water is used for potable supply and also to supplement the surface water supply, as needed. Ground water at the Rock Springs power plant is withdrawn from one well in the Baltimore Gabbro complex.

PPRP previously evaluated the potential ground water impacts associated with the Rock Springs power plant's annual average withdrawal of 5,500 gpd during the Rock Springs CPCN proceeding. This evaluation considered the potential impacts to the aquifer and other users from the withdrawal of 5,500 gpd on an annual average, or a total withdrawal of 2,000,000 gallons per year (2 mgy). As a result, PPRP determined that potential impacts to the aquifer and other users were acceptable (PPRP 2000). The full results of the previous evaluation are summarized in Section 6.4 of the Rock Springs Environmental Review Report (PPRP 2001); a summary of PPRP's previous impact evaluation is provided below.

- Impacts to Water Resources. A water budget analysis indicated that sufficient surface area is available on the site to provide the needed recharge to the aquifer, even under drought conditions. Therefore, no long-term impacts to the aquifer or recharge to the

unnamed tributary to Conowingo Creek were expected as a result of the maximum allowable withdrawal of 2 mgd.

- Impacts to Users. The analysis of the pumping test data presented by ODEC in the Rock Springs Environmental Review Report (ODEC 2000), coupled with the understanding of the potential effect of the fracture on water levels in wells that intercept the fracture, indicated that water levels in several wells north of the site could be affected during pumping. However, these wells should be deep enough to not be affected adversely by the drawdown from the ODEC Rock Springs power plant.

The ODEC Rock Springs power plant began withdrawing ground water in 2002. Since regular operation began, average ground water withdrawal has ranged from 75 to 119 gpd. The low amount of ground water withdrawal indicates that the original estimates were highly conservative and the anticipated need to supplement the surface water supply did not come to fruition. The Rock Springs facility has a capacity factor of less than 10 percent. Since the proposed Wildcat Point Generation Facility would provide the surface water necessary for the Rock Springs power plant, the extra ground water appropriation for the Rock Springs power plant would no longer be needed and the appropriation could be lowered to reflect the amount of water needed for potable supply only.

The potable water needs for both the Wildcat Point and Rock Springs facilities can be met with less than 2,500 gpd, given an estimated 30 employees working among both power plants and using an estimated 75 gpd. An analysis of impacts to the aquifer and other users associated with the combined Wildcat Point and Rock Springs potable water demand is not necessary because the 2001 impact evaluation conducted by PPRP was based on a demand of 5,500 gpd.

Because the total ground water withdrawal amount (including both the Wildcat Point and Rock Springs power plant ground water withdrawals) is less than 5,000 gpd, ODEC can apply for an exemption from the need to obtain a Maryland appropriations permit under Environment Article §5-502(b) of the Annotated Code of Maryland. If no appropriations permit is necessary in accordance with Maryland law, then a new ground water appropriations issued as part of the CPCN process will not be necessary, and therefore no conditions related to the appropriation of ground water are proffered as part of PSC Case No. 9327 for Wildcat Point.

Before the new facility begins operation, ODEC Wildcat Point in concert with ODEC Rock Springs will need to: (a) request deactivation of RSGF's existing surface water permit (CE2000S009(05)), and (b) file for a notice of

exemption with MDE WMA for existing ground water permit (CE2000G008(05)). The notice of exemption must include the second supply well and list the uses as potable and sanitary only. If the request for an exemption is approved, ground water appropriation permit CE2000G008(05) will be inactivated.

The potable supply at the site, serving both power plants, will serve more than 30 employees. Therefore, the proposed ground water withdrawal will be classified as a non-transient non-community water system as defined in COMAR 26.04.01.01, and will be subject to the following requirements:

- MDE's Water Supply Program will need to approve the siting of the proposed new well, and Cecil County will need to approve the well drilling;
- ODEC shall perform ground water quality sampling results to ensure that water quality meets drinking water quality standards before the new well can be put into service; and
- MDE's Water Supply Program will issue a Certificate of Potability when the new water supply system is approved for use. ODEC will be required to obtain this certificate prior to operation of the Wildcat Point facility.

PPRP recommends that the CPCN conditions require ODEC Wildcat Point to meet these COMAR requirements prior to using the potable supply well.

5.2 BIOLOGICAL IMPACTS

5.2.1 Terrestrial Resources

5.2.1.1 Vegetation and Land Cover

The project construction's principal impact on Maryland's natural resources relates to the permanent loss of approximately 2 acres of on-site forest edge, and the habitat it creates, in the northwestern part of the Rock Springs site. The forest currently includes a few areas with oak trees that have average dbh measurements of 15 to 18 inches; most of the trees, however, are smaller in size.

The remaining forest would be more exposed to invasive and exotic vegetation (e.g., Japanese honeysuckle, Asiatic bittersweet, tree of heaven, etc.), which would lower diversity, decrease food resources for wildlife, and increase the potential for damage to individual trees in inclement

weather. Wildlife that use the forest would also be affected. Given diminished on-site opportunities, resident individuals may move off site to utilize other resources (refer to Section 5.1.1.3, Wildlife, below).

5.2.1.2 *Wetlands*

According to ODEC's proposed project layouts, there would be no direct impact to the small, existing on-site wetland or any other wetlands. PPRP concurs with this finding. The on-site wetland appears to be almost exclusively fed from ground water springs and not surface water flow. Such wetlands typically possess a very stable hydrology. Therefore, PPRP concludes that neither the construction nor operation of the proposed project would likely have an adverse effect on the on-site wetland.

5.2.1.3 *Wildlife*

The principal effects to wildlife from the construction and operation of the project relate to the permanent loss of 2 acres of existing forest resources. This forest edge currently provides some food, shelter, and other habitat requisites for wildlife such as grey squirrel, white-tailed deer, and forest interior-dwelling birds, such as the hairy and red-bellied woodpeckers. However, populations of some of these species are undoubtedly numerous in the area of the proposed project, and the small loss of edge forest would not likely have significant implications for local wildlife.

5.2.1.4 *Threatened and Endangered Species*

There are no known RTE species or their habitats at the overall Rock Springs site. PPRP concludes, therefore, that neither construction nor operation of the project would adversely affect RTE species at the Wildcat Point site.

5.2.2 *Aquatic Resources*

The only natural aquatic ecological resources currently present at the Rock Springs site are within the small existing wetland and several seeps (impacts to wetlands resources are described in Section 5.1.1.2 above). However, both of these features are fed by ground water. Further, there are no mapped perennial streams draining the site that would be disproportionately affected by stormwater runoff. For these reasons, PPRP concludes that it is unlikely that aquatic biological resources would be adversely affected by the project.

5.3 SOCIOECONOMIC AND CULTURAL IMPACTS

5.3.1 *Employment and Income*

Employment and income impacts from construction of the project would be sizable. In total, construction requirements amount to more than 1,600 person-years of employment over the approximately two and a half year construction period, with 600 jobs on site in the peak construction year (2015). Considering indirect and induced (multiplier) effects, the project would create more than 2,700 person-years of employment in Maryland. ODEC estimates that more than 1,200 direct and 1,600 total person-years of employment would benefit Cecil County residents.

The project represents a capital investment of \$675 million. Since many components are highly specialized and manufactured out-of-state, Maryland would capture only some of the benefits. However, ODEC estimates that nearly one-third of capital expenditures would go to Maryland businesses, adding \$349.1 million to Maryland's economy over the construction period.

The project's construction labor demand is significant in the context of the Cecil County economy. To the extent that Cecil County's construction labor force has the skills to construct a natural gas generation facility, construction labor would be locally sourced. However, given Cecil County's geographic proximity to Pennsylvania, Delaware and New Jersey, and to the Baltimore metropolitan area, labor income could be more widely distributed than ODEC projections.

In 2008, there were 7,650 persons in construction and extraction occupations in the Susquehanna workforce investment area, including Cecil and Harford counties (DLLR 2013b). However, only 1,076 of these workers were on payrolls in Cecil County (on average) in 2012. Additionally, there were 10,800 persons in construction and extraction occupations in the Wilmington, DE-MD-NJ metropolitan area (covering Cecil County; New Castle County, DE; and Salem County, NJ) in 2012 (BLS 2013a). In the same period, more than 52,000 persons were in construction and extraction occupations in Lancaster County, Pennsylvania (BLS 2013b). A significant construction labor force also resides in the Baltimore metropolitan area. Based on the large labor force residing in other nearby counties, it is likely that a significant number of construction personnel would come from outside Cecil County.

Once the facility is operational, employment requirements for the project would be 30 full-time equivalent jobs. As a result, operations and maintenance (O&M) employment and earnings would have a smaller,

though positive effect upon the regional economy. Economic multipliers suggest that employment at the WPGF would add 78 indirect and induced jobs to the state's economy, including nearly 60 to Cecil County's economy. Additionally, jobs generated both directly and indirectly by the project's operational phase would be permanent over the facility's operational life.

5.3.2 *Population and Housing*

Construction of the project would affect population and housing if substantial numbers of workers migrate with their families into the region. However, as a substantial pool of construction labor resides within commuting distance of Cecil County, little migration into the region is expected. Additionally, construction workers recruited from outside the area would likely reside in transient accommodation.

Operation of the project is expected to increase direct employment by 30 jobs on average, and create indirect and induced jobs in Cecil County and the surrounding areas. Whether these jobs are filled by local residents is unknown, but even if most are filled by migrants, the effect on population and housing would be insignificant.

5.3.3 *Transportation*

During construction, Cecil County would see an increase in traffic on roads leading to the construction site, particularly during the peak construction period when approximately 600 construction workers are on-site. Access to the construction site would be via a temporary entrance off Old Mill Road near its intersection with US 222. Old Mill Road is a local road under the jurisdiction of Cecil County. Construction of a driveway from a county ROW requires a permit from the Director of the Department of Public Works.

During construction worker shift changes, local traffic congestion is expected at intersections near the project site, and traffic volumes could cause periodic delays until distance from the project site distributes traffic throughout the surrounding highway network. Since the projected operational workforce is much smaller, post-construction traffic impacts would be insignificant.

To quantify traffic impacts, ODEC commissioned a traffic impact study (TIS) (Burns & McDonnell 2013). Analysis of six area intersections, including a proposed temporary construction entrance from Old Mill Road approximately 500 feet northwest of its intersection with US 222, revealed that all intersections would operate at acceptable levels of service

(LOS) after the facility is operational. However, the TIS also revealed that the LOS at the intersections for Old Mill Road/US 222 (during both the morning and evening) and Connelly Road/US 1 (during the evening) would be adversely affected during peak commuting hours during the construction period. To address traffic congestion during construction, ODEC proposed four mitigation measures, including a congestion management plan, staggered start times, roadway improvements and a secondary construction site entrance. Together, these measures were projected to achieve acceptable LOS at the affected intersections.

After reviewing the TIS, the Maryland SHA offered a number of comments and concluded that the proposed mitigation measures would not reduce construction traffic congestion at affected intersections to acceptable levels of service. In a subsequent revision to the TIS, ODEC modified certain input parameters to its model for forecasting future operating conditions of the existing roadway network during the peak construction period, specifically peak hour factors (PHFs). Although the LOS at affected intersections was still unacceptable (LOS "F") after increasing the PHFs for critical turning movements, delays to queuing traffic were shorter, which suggested to ODEC that remaining congestion at the Old Mill Road/US 222 and Connelly Road/US 1 intersections could be mitigated without roadway improvements or a secondary site entrance. In other words, ODEC concluded that Mitigation Measure 1 – Awareness and Coordination, and Mitigation Measure 2 – Staggered Start Times for construction workers would result in an acceptable LOS at affected intersections during peak periods.

The SHA reviewed the revised TIS and remains concerned that the information provided is insufficiently detailed to assess the likely effectiveness of the recommended mitigation measures, nor is a process in place to address any deficiencies or mitigate traffic impacts if unacceptable traffic operations are realized during construction. Without a construction plan that details shift scheduling, congestion management strategies and their funding, offsite carpool/ride share locations and potential impacts from their use, specific benchmarks for assessing the effectiveness of these measures and fallback mitigation strategies should the recommended mitigation prove ineffective, the SHA cannot concur with the findings of the revised TIS. Therefore, PPRP has recommended a license condition requiring ODEC or its general contractor, prior to construction, to submit a detailed construction plan for the project to the SHA for review for which the SHA reserves the right to require temporary improvements at any of the intersections within the study area in order to reduce impacts to traffic operations and maintain safety. The construction plan must be approved by the SHA and any roadway improvements necessary to mitigate construction traffic impacts must be completed prior

to the site generating substantial traffic demand. An access permit will be required for all work within the SHA ROW.

Transport of oversized and/or overweight equipment to the project site could also affect traffic during construction. ODEC did not identify designated truck routes, but trucks would presumably use State highways for regional access and Old Mill Road to deliver manufactured components to the site. There are no structures on the State of Maryland Highway System in Cecil County that cannot carry legal weight vehicles. However, bridges on three Maryland highways in the county have vertical clearances of less than 14.5 feet. Furthermore, there are route restrictions for oversize or overweight loads on three highways including US 1 over the Conowingo Dam.

To the extent that any loads of materials or equipment are oversized or overweight, the SHA requires hauling permits when moving oversize/overweight loads on Maryland highways (SHA 2008). An oversize load is one whose width exceeds 8 feet 9 inches, height exceeds 13 feet six inches or length exceeds 55 feet. An overweight load is one that exceeds 45 tons. PPRP has recommended a license condition requiring ODEC, prior to dispatching oversize/overweight vehicles to staging or construction sites for the project, to comply with all weight and size restrictions on all State highways and obtain appropriate oversize/overweight permits as necessary. Additionally, PPRP is recommending a license condition requiring ODEC, prior to dispatching oversize/overweight vehicles to staging or construction sites, to obtain SHA approval of a mobile Maintenance of Traffic (MOT) plan that addresses utility adjustments, utility line clearances, bridging over culverts, loads on bridges, adjustment to traffic signals, road closures and emergency vehicle access.

State hauling permits pertain to State maintained roads and bridges only. While transport of oversize/overweight loads is expected to be mainly over State roads, the construction site would be accessed from Old Mill Road, a route maintained by the Cecil County Department of Public Works (DPW)/Roads Division. In addition, Connelly Road/New Bridge Road connects traffic from eastern locations to Rock Springs via US 301. Cecil County does not issue permits for oversize/overweight vehicles nor are there specific bonding requirements for haulers. No county roads are designated truck routes. Incorporated towns within Cecil County are responsible for the maintenance of local roads within municipal boundaries. Although there are no designated truck routes, several bridges in the county are weight restricted (Webber 2013). As a result, should any oversize/overweight loads be transported on local roads, PPRP recommends a license condition requiring ODEC to submit a travel

routing and maintenance of traffic plan to the Cecil County DPW/Roads Division and affected incorporated municipalities, as appropriate, at least five days prior to dispatching oversize/overweight vehicles over local roads to the construction site.

Connelly Road and New Bridge Road are classified as collectors by the Cecil County DPW. The route from US 1 to Rock Springs is paved, with nominal 12 foot lanes and no shoulders and is largely within a rural residential setting. As such, the route is less suitable for carrying construction truck traffic than US 222 which intersects US 1 at Kilby Corner in Conowingo, less than two miles further west. PPRP has therefore recommended a license condition requiring ODEC to instruct its contractors to route all truck traffic to the Rock Springs site via US 222 (Rock Springs Road).

5.3.4

Land Use

Permanent land use impacts associated with construction and operation of the project are expected to be confined mainly to previously disturbed areas adjacent to the Rock Springs generating units. Additional clearing and grading would be required for support facilities, including the cooling tower, and two acres of trees would be cleared to accommodate the generating units. ODEC has stated that the power block would permanently occupy seven acres, and approximately 50 acres within the Rock Springs site would be disturbed during construction for access, laydown, staging and parking. However, ODEC has also indicated that land temporarily utilized during construction would be restored to its original state. PPRP has recommended a license condition requiring ODEC to design the facility in substantial conformity with the Site Plan drawings reviewed by the Cecil County Office of Planning and Zoning.

The existing Rock Springs facility is not extensively buffered from traffic on US 222 or from the first quarter-mile of Old Mill Road, even with an earthen berm and tree plantings around the southern perimeter of the property. Exposure from homes on Old Mill Road, west of the site's transmission line interconnection, and from most areas to the north is shielded by trees. Overall, land use in the vicinity of the project site appears to have been minimally influenced by the existing Rock Springs facility that has coexisted with the community for about a decade. Furthermore, views of the proposed Wildcat Point generating units would be mostly blocked by the existing facility structures. These observations suggest that few indirect impacts on land use are expected from the project.

Most of the undeveloped part of the project site is forested or cultivated for forage crops. The relatively small size of the project site and minimal topographical relief tend to expose existing generation and ancillary facilities where tree cover is absent. As a result, views of the existing Rock Springs units and switchyard are only minimally encumbered from US 222 between Old Mill Road and the Pennsylvania line, and from Old Mill Road between US 222 and the Rock Springs transmission line interconnection. Visual impacts are partially addressed by tree plantings around the perimeter of the Rock Springs site and an earthen berm, products of a visual impact mitigation plan upon which the construction and operation of the existing Rock Springs power plant was conditioned. However, the landscape is unmistakably industrial near the crossroads of US 222 and Old Mill Road.

This does not necessarily imply that the surrounding landscape is overwhelmingly natural. While much of the land is used for agriculture, residences on large lots are strung along many of Cecil County's main and side roads, particularly in the directions of Conowingo and Rising Sun. Two high-voltage transmission lines enter northwest Cecil County from Pennsylvania and two communications towers ranging in height from 182 to 209 feet are within three-quarters of a mile of the centroid of the project site. Just north of the Pennsylvania border is a major sand and gravel operation, and the Rock Springs site is next to a mineral extraction overlay zone, where mineral extraction may occur by special exception (BCC 2011).

In general, components associated with the proposed Wildcat Point facility would be taller than the existing Rock Springs structures. HRSG stacks would be 160 feet tall compared to Rock Springs' 75-foot stacks. The power generation building for Wildcat Point, at 95 feet, would be 35 feet taller than the existing combustion turbine unit buildings, and the new steam turbine building and auxiliary boiler stack would be 115 feet tall. Other prominent structures would be transmission line structures in the switchyard, at 144 feet, and the mechanical draft cooling towers, at 56 feet. In addition to structures, vapor plumes from the cooling towers would be periodically visible, primarily over the Rock Springs generating station, with occasional drifting to the east.

From most public perspectives, only the upper extents of new structures would be visible, the lower parts being obscured by the Rock Springs facility or the switchyard. This, in itself, is a mitigating factor, but the project would nevertheless further industrialize the landscape, albeit within a relatively narrow geographic scope. While the project would be

located in an area of Cecil County that, while nominally rural, is not noted for its scenic resources and bears evidence of continuing residential development outside of designated growth areas, ODEC should include landscaping details that mitigate views to the extent practicable in its Site Plan submission to the county.

Additional outdoor lighting for the Wildcat Point facility would add to the visual setting of the Rock Springs site. Outdoor lighting is required on all new and modified project components to satisfy operational, Occupational Safety and Health Administration (OSHA) and, potentially, Homeland Security requirements. PPRP recommends a license condition requiring ODEC to develop a lighting distribution plan to mitigate intrusive night lighting and avoid undue glare onto adjoining properties.

5.3.7 *Government Finances*

During construction, revenues from taxes on construction worker wages, income taxes on indirect and induced employment incomes, and sales taxes on consumption expenditures would accrue to Maryland and local governments. Depending on where construction labor resides and where materials and supplies are procured, nearby states would reap fiscal benefits as well. As most of the construction labor force is expected to be drawn from workers living in Cecil and Harford counties, the Baltimore and Wilmington DE-MD-NJ metropolitan areas, and Lancaster County, Pennsylvania, the project would generate most income tax revenues in these jurisdictions.

Once operational, the most significant revenue impact to Cecil County would be from property taxes. In May 2013, Cecil County negotiated an amendment to an earlier “payment in lieu of (real and personal) taxes” (PILOT) agreement with ODEC and Essential Power Rock Springs, LLC, adding \$40.7 million in payments to \$54.2 million negotiated in 2002, and extending the agreement to fiscal year (FY) 2035. The annual PILOT amount, currently \$2.5 million for the tax year 7/1/2013 to 6/30/2014, would increase to \$3.635 million in FY 2016 until the end of the agreement. The annual payment represents about 3.5 percent of property taxes collected by Cecil County in 2012.

Construction could marginally affect public services in Cecil and nearby counties. Impacts, to the extent they occur, would be most pronounced in Cecil County. The project could increase demands upon State and county emergency services, including fire, rescue and police services, particularly when construction traffic is added to other commuting traffic. Injuries from accidents at the construction site could place additional demands on rescue and medical services. These impacts can be mitigated by good

construction management and safety awareness practices and by scheduling shift changes to reduce construction traffic congestion.

While ODEC would provide some degree of occupational health on-site, Cecil County's fire, rescue and EMS service would be available through the 911 dispatch center to provide additional resources as necessary. Emergency services in response to off-site incidents would be dispatched through 911, as well. The Rock Springs site is within the first response area of the Water Witch Fire Company (Station 73).

Cecil County DES provides 24/7 EMS responses at an Advanced Life Support (ALS) level. According to DES, resource levels are adequate for responding to additional incident response activity during construction and operation of the Wildcat Point facility. Cecil County fire, rescue and EMS personnel periodically meet with operators of the existing Rock Springs facility and would continue to do so after Wildcat Point is operational. Cecil County's first responders attend specialized fire suppression training courses for industrial facilities such as the Rock Springs and proposed Wildcat Point facilities. As such, DES believes that the county's fire, rescue and EMS personnel have the expertise to address emergency situations at the Rock Springs site (Brooks 2013).

Still, Cecil's fire and rescue is a volunteer system, and an accident at the Wildcat Point facility during construction could temporarily strain local resources. As a result, PPRP has recommended a license condition requiring ODEC, prior to construction, to contact the Cecil County DES to address site safety and EMS coverage, establish timely response options and facilitate emergency vehicle access throughout the site in case of an accident or injury. Where existing emergency response capabilities are determined to be inadequate, ODEC should assist these organizations through contributions, training and/or general support.

5.3.8 *Cultural Impacts*

Construction of the project would include clearing and grading, installation of pilings and underground utilities, foundation construction, and erection of equipment and buildings. Most potential effects on cultural resources would be within the Rock Springs site, although some visual and noise impacts could extend beyond the project boundaries to nearby cultural resources. Post-construction impacts on cultural resources would be confined to the Rock Springs site.

While there are numerous cultural resources located throughout Cecil County, few are in close proximity to the Rock Springs site. A Phase I archeological survey conducted in 1999 for the development of the Rock

Springs generating station discovered three archeological sites and confirmed a previously recorded one. The three newly located properties contained low densities of prehistoric lithic artifacts and are representative of short term camps. Due to their low research potential, these sites were determined by the Maryland Historical Trust (MHT) to be ineligible for the National Register of Historic Places and warranted no further study.

A previously recorded site (18CE153) contained a broad and dense scatter of prehistoric and historic artifacts, with a higher density of prehistoric artifacts on the southwestern portion of the site and a higher density of historic artifacts on the north-central portion. On the basis of the Phase I survey, the MHT determined that additional evaluation of the site would be warranted to assess its National Register eligibility for its archeological significance. However, since construction of the Rock Springs facility was not expected to disturb site 18CE153, PPRP conditioned the licensing of that facility on the establishment of an archeological protection zone for site. For Wildcat Point, PPRP recommends a similar license condition requiring ODEC to establish an archeological protection zone for site 18CE153 by erecting temporary protective fencing around this site during construction, and avoiding any ground disturbance below one foot within the perimeter of this area, except with written approval from the MHT. In its application, ODEC has committed to protecting site 18CE153 using PPRP's recommended protocol.

Outside the Rock Springs site property line, four historical resources lie within one mile of the project. Two are mile markers associated with the Mason-Dixon Line. Neither of these would be adversely affected by construction or operation of the project. The other two resources are occupied dwellings of historic interest, located to the southeast of the proposed project. Rock Springs Hotel (CE-867) is a nineteenth-century dwelling located on US 222, near its intersection with Old Mill Road. The dwelling is situated on an adjacent land parcel. In the nineteenth century, it was used as a hotel. The Joshua Lowe House (CE-868) is a private dwelling located to the east of US 222 on New Bridge Road, approximately 0.25 miles from the project site. It is a two-story, three-bay brick structure with a center hall, built before 1865. The Joshua Lowe House was listed on the National Register of Historic Places in 2001. It is significant in its local context as one of the earlier and most substantial buildings in Rock Springs.

Although no ground disturbing activities would affect these properties, they could be affected by nuisance impacts associated with traffic and construction activities during project construction. However, these impacts would be intermittent and temporary, and are largely unavoidable. Post-construction, additional facility structures such as the

upper parts of stacks and buildings would be visible from some parts of the properties. However, existing views contain elements that detract from their setting. The MHT has determined that the project would have no significant adverse effect on historic properties.

In the event that relics of unforeseen archeological sites are revealed and identified during construction, PPRP has recommended a condition requiring ODEC, in consultation with and as approved by the MHT, to develop and implement a plan for avoidance and protection, data recovery, or destruction without recovery of such relics or sites.

The project is not within the boundaries of any of Maryland's Certified Heritage Areas nor is it near federal, State or local programs that emphasize cultural resources.

5.4 NOISE IMPACTS

PPRP has utilized information provided by the applicant to conduct a preliminary evaluation of noise levels that could result from operation of the proposed project. The objective of PPRP's analysis was to verify the projected noise levels that ODEC presented in its CPCN application. This information is then used to develop license conditions to ensure that the project operates in compliance with applicable State regulations.

5.4.1 Summary of Regulatory Requirements

The Noise Control Act of 1972 (U.S.C. 4901) establishes a national policy "to promote an environment for all Americans free from noise that jeopardizes their health or welfare, to establish a means for effective coordination of Federal research activities in noise control, to authorize the establishment of Federal noise emission standards for products distributed in commerce, and to provide information to the public respecting the noise emission and noise reduction characteristics of such products." This mandate encourages states to adopt ordinances that protect the public's health and welfare from being damaged by excessive noise emissions.

Maryland noise regulations, detailed in COMAR 26.02.03, specify the maximum noise levels that a facility can cause at a receiving property. The maximum allowable noise levels vary with time of day and with zoning designation of the receiving property. Table 5-3 shows the regulated maximum noise levels for the different zoning designations. Maximum allowable noise levels for residential areas are 55 dBA for nighttime hours and 65 dBA for daytime hours.

Table 5-3 *Maximum Allowable Noise Levels (dBA) for Receiving Land Use Categories*

	Zoning Designation		
	Industrial	Commercial	Residential
Day	75	67	65
Night	75	62	55

Source: COMAR 26.02.03

Note: Day refers to the hours between 7 AM and 10 PM; night refers to the hours between 10 PM and 7 AM.

The regulations provide certain exemptions for specified noise sources and noise generating activities. For example, motor vehicles on public roads are exempt from Maryland noise regulations; however, while on an industrial property, trucks are considered part of the industrial source and are thus subject to regulation during this time. Maryland's regulations also allow for construction activity to generate noise levels up to 90 dBA during daytime hours, however, there is no construction exemption for the nighttime standard.

Since the proposed facility would operate 24 hours per day when needed, it must meet the nighttime limit of 55 dBA at the property boundaries where it abuts residential land.

5.4.2 *Estimates of Noise Emissions from the Generating Equipment*

5.4.2.1 *Construction*

During construction, noise impacts will be caused primarily by large-scale earthwork activities, which are scheduled to last less than a year.

Throughout the 28-month construction period, noise emission impacts will be minimized by scheduling heavy construction activities during the daytime and quiet activities during nighttime. ODEC states that all construction-related noise will adhere to Maryland noise regulations.

5.4.2.2 *Operation*

In the CPCN application, ODEC provided a list of all the significant noise generating equipment and the associated sound power levels for each octave band. The primary sound sources for the project are the cooling towers and the HRSG units. PPRP used the sources listed in Table 5-4 to estimate the projected sound pressure levels at multiple receptor locations (receptor locations correspond to the monitoring point locations shown on

Figure 3-7). PPRP used the measured distance from the center of the project's location to each receptor location to estimate sound levels.

Table 5-4 *Equipment Sound Power Levels*

Equipment	Octave band Frequencies, (Hz)								(dB)
	63	125	250	500	1000	2000	4000	8000	
HRSG Inlet Duct	125	118	106	97	92	97	96	100	126.9
HRSG Modules 1-3	132	125	113	104	92	97	92	86	133.8
HRSG Modules 4-7	131	125	111	99	84	83	71	63	134.5
Cooling Tower Outlet	114	112	109	104	106	107	108	107	118.6
Blowdown Tank Vents	112	120	124	121	118	114	110	94	128.0
Gas Turbines	114	110	107	105	102	105	101	96	117.9
Boiler Feed Pumps	109	107	105	105	104	103	102	98	114.3

Source: Table 5-1, Sound Assessment Study for the Wildcat Point Generation Facility, Cecil County, MD, Burns & McDonnell Engineering Company Inc., May 2013.

PPRP estimated the projected sound pressure level (L_p) for each receptor location using the following formula (Kurze and Beranek 1980):

$$L_p = L_w + DI - 20 \log(r) - A_e - 11$$

where:

L_w is the octave band source sound power level in dB;

DI is a source directivity factor (we assumed hemispherical spreading, $DI = 3$);

r is the distance from the source to the receptor location in meters; and

A_e is the excess attenuation due to absorption in air, conservatively assumed to be zero.

For this simplified analysis, PPRP treated all sources as point sources of sound. In addition, PPRP made two significant assumptions. First, PPRP did not account for any form of natural sound. This includes attenuation

from natural barriers, such as vegetation and overlying geography, and attenuation from atmospheric and seasonal changes. Second, PPRP did not account for any form of engineered sound attenuation, such as silencers, low-sound fans, enclosures, or barriers.

Table 5-5 *Estimated Sound Pressure Levels at Monitoring Point Locations without Noise Abatement (dBA)*

	MP1	MP2	MP3	MP4	MP5
Existing L₉₀	53.0	46.0	45.0	47.0	48.0
Wildcat Point contribution	63.6	65.0	66.0	63.1	63.8
Combined L₉₀	64.0	65.1	66.1	63.2	63.9

Note: MP1 through MP5 represent monitoring points along the site boundary; locations are shown on Figure 3-7.

In the CPCN application, ODEC acknowledges that its initial sound modeling yielded results in excess of applicable State limits. ODEC plans to incorporate noise abatement strategies such as silencers, low-sound fans, barriers, shrouding, and other various pieces of noise-reducing equipment throughout the facility.

Taking into account these abatement strategies, the post-abatement pressure levels presented in the CPCN application indicate that all levels are in compliance with Maryland's 55-dBA limit. Figure 5-1 shows the sound contour map that ODEC presented in the CPCN application. ODEC plans to finalize the abatement measures during the detailed design.

Figure 5-1 *Modeled Sound Pressure Level Contours*



Source: 2013 Burns & McDonnell Engineering Co., Inc., Revision: May 13, 2013.

PPRP recommends that ODEC be required to conduct an updated noise analysis when the design is near completion, reflecting the noise characteristics of the actual equipment to be installed at the site and the specific abatement measures to be applied. ODEC should also measure sound pressure levels at the site boundaries after the facility begins operating, to demonstrate compliance with the State noise limits.

PPRP has conducted a thorough review of the potential environmental and socioeconomic effects from the proposed ODEC Wildcat Point project. In consultation with other State agencies, we have developed recommendations to the PSC for licensing conditions that should be imposed upon the facility to minimize the potential for any adverse impacts. This section summarizes the key elements of PPRP's analyses, describes our findings, and highlights the State's licensing recommendations.

AIR IMPACTS

The proposed ODEC Wildcat Point project will have the potential to emit several types of air pollutants. The emissions sources evaluated as part of the State's environmental review included the following:

- a) The main power generating equipment arranged in a combined cycle configuration (two-on-one power block), including:
 - i. Two Mitsubishi M501GAC gas-fired combustion turbine generators (CTGs) equipped with low-NO_x combustors, a selective catalytic reduction (SCR) system, and an oxidation catalyst;
 - ii. Two heat recovery steam generators (HRSG) equipped with duct firing capabilities (duct burners will employ low-NO_x burners); and
 - iii. One steam turbine.
- b) One 45 MM British Thermal Unit (Btu) per hour auxiliary boiler with ultra-low NO_x burners (ULNB);
- c) One 5 MMBtu per hour natural gas-fired dew point heater to heat the natural gas prior to combustion in the combustion turbines;
- d) One 1,500-kilowatt (kW) diesel-fired emergency generator to be used in the event of failure of the electric water pump (located in Pennsylvania at the proposed Susquehanna River intake);
- e) One 2,250 kW diesel-fired emergency generator to provide back-up power to support the combustion turbines;

- f) One 477 kW fire water pump engine to be used to provide emergency water in the event of a fire;
- g) Three 525 kilovolt (kV) and two 19 kV circuit breakers;
- h) A 16-cell wet cooling tower with drift eliminators to remove the heat from the water associated with the steam turbine;
- i) Three fuel oil storage tanks, one 600-gallon, one 3,400-gallon, and one 1,200-gallon (located in Pennsylvania), to support the firewater pump engine and the emergency generators; and
- j) Various equipment components used to transport pipeline quality natural gas within the facility boundary.

Based on the information provided in the CPCN application (May 2013), supplemented with additional information filed by ODEC and independent analyses conducted by the State, PPRP and MDE-ARMA conclude that emissions from the proposed project trigger major Prevention of Significant Deterioration (PSD) requirements for nitrogen oxides (NO_x), carbon monoxide (CO), particulate matter (PM), particulate matter less than 10 microns (PM₁₀), sulfur dioxide (SO₂), sulfuric acid mist (SAM), and greenhouse gases (GHG). Because emissions of these pollutants will be significant, ODEC is required to apply the Best Available Control Technology (BACT) for all sources and conduct impact assessments to ensure that emissions will not adversely affect ambient air quality.

Based on the information provided in the CPCN application (May 2013), supplemented with additional information filed by ODEC and independent analyses conducted by the State, PPRP and MDE-ARMA conclude that emissions from the proposed project trigger Nonattainment New Source Review (NA-NSR) requirements for NO_x and volatile organic compounds (VOCs). Because emissions of these pollutants will be significant, ODEC is required to achieve the Lowest Achievable Emission Rates (LAER) for all sources and conduct impact assessments to ensure that emissions will not adversely affect ambient air quality.

Impact assessment modeling evaluations demonstrate that while operating within the restrictions included in the State's recommended license conditions (Appendix A), emissions from the proposed project are not predicted to cause any significant adverse impacts to air quality. Specifically, air emissions from the proposed ODEC Wildcat Point project will not adversely affect ambient air quality or PSD increments; the

project's impacts on visibility in the surrounding Class I areas are likely to be minimal; and there are no projected unacceptable impacts from fogging or icing.

In conclusion, evaluation of the project and its potential emissions indicate that, if designed and operated in accordance with the recommended licensing conditions, ODEC will meet all applicable State and federal air quality requirements.

6.2 BIOLOGICAL IMPACTS

The project construction's principal impact on Maryland's natural resources relates to the permanent loss of approximately 2 acres of on-site forest edge, and the habitat it creates, in the northwestern part of the Rock Springs site. This edge forest currently provides some food, shelter, and other habitat requisites for wildlife such as grey squirrel, white-tailed deer, and forest interior-dwelling birds such as the hairy and red-bellied woodpeckers. However, populations of some of these species are undoubtedly numerous in the vicinity of the project site, and the small loss of edge forest would not likely have significant impacts on local wildlife.

Neither construction nor operation of the proposed Wildcat Point facility would adversely affect rare, threatened, or endangered species, as there are no known listed flora or fauna on the site. Additionally, based on ODEC's proposed project layouts, PPRP concurs that there would be no direct impact to the small, existing on-site wetland or any other wetlands. PPRP concludes that neither the construction nor operation of the proposed project would likely have an adverse impact on wetlands.

6.3 WATER IMPACTS

The only surface water features on the Rock Springs site are several small seeps that are ground water-fed. Therefore, PPRP concludes that, with the use of soil erosion and sedimentation best management practices, construction and operation of the project would not likely result in any adverse impacts to on-site surface water resources.

ODEC Wildcat Point has indicated that it intends to replace the existing process water supply for the Rock Springs facility with water from the Susquehanna River supply, which is the applicant's preferred surface water supply source for the project. Therefore, the surface water appropriations for the existing Rock Springs facility, which has ranged

from 2,200 to 16,200 gpd, can be eliminated. Thus impacts to the unnamed tributary to Conowingo Creek associated with the surface water withdrawal, albeit very small, will be eliminated. ODEC needs to obtain approval from the SRBC to withdraw a maximum of 8.7 mgd and consumptively use a maximum of 7.9 mgd from the Susquehanna River, and obtain additional approvals from FERC and PaDEP to construct the conveyance pipeline and the intake on Conowingo Pond.

ODEC Wildcat Point intends to require its EPC contractor to supply any water needed for construction, such as water for control of fugitive emissions or water for concrete mixing or curing, from off site. Therefore, there are no impacts associated with water needed for construction.

Based on the elevation of the water table beneath selected structures of the proposed Wildcat Point power plant, ODEC determined that the water table will be encountered during construction. Dewatering will be required during construction to the following subgrade structures:

- a) Circulating Water Pump Pit
- b) Underground Circulating Water Pipe
- c) Gas Turbine Generator Building
- d) Steam Turbine Generator Building

The average daily use amount recommended by MDE WMA is slightly more than the dewatering amount calculated by ODEC Wildcat Point, and reflects the application of a 10 percent contingency value to ODEC's estimate. This accounts for uncertainties associated with the estimates at this stage of the construction process. The total estimated annual withdrawal associated with the dewatering appropriation is 402,000 gallons if dewatering occurs at a rate of 1,100 gpd for a full year. No near-term or long-term impacts to the aquifer associated with the maximum expected annual withdrawal of 402,000 gallons are expected.

ODEC Wildcat Point has indicated that ground water is needed to meet potable water demand for the new facility, and is therefore proposing to install one bedrock production well. ODEC estimates that the demand for potable water at the Wildcat Point facility will average 2,500 gallons per day (gpd). This estimate is based on an assumed supply of 75 gpd for drinking and sanitary uses for 30 employees. The potable water needs for both the Wildcat Point and Rock Springs facilities can be met with less than 2,500 gpd, given an estimated 30 employees working among both power plants. An analysis of impacts to the aquifer and other users

associated with the combined Wildcat Point and Rock Springs potable water demand is not necessary because the 2001 impact evaluation conducted by PPRP was based on a demand of 5,500 gpd, and indicated the impacts were acceptable based on the amount of recharge to the property.

ODEC can apply for an exemption under Maryland law from the need to obtain a Maryland appropriations because the total ground water withdrawal amount is less than 5,000 gpd. The potable supply at the site, serving both power plants, will serve more than 25 employees. Therefore, the proposed ground water withdrawal will be classified as a non-transient non-community water system under Maryland regulations, and will be subject to the specific requirements and approvals.

6.4 ***SOCIOECONOMIC IMPACTS***

Employment and income impacts from construction of the proposed facility will benefit the Cecil County economy. ODEC estimates that the average annual construction labor force will be 600 full-time equivalent employees. Once the facility is operational, employment requirements of the facility will be smaller – 30 employees –but these will be permanent positions. The proposed project is not expected to perceptibly affect population or the demand for housing in Charles County.

ODEC estimates that 600 construction workers will be employed on-site during peak construction periods. In general, construction traffic is not likely to congest traffic other than at the intersections of Old Mill Road/US 222 and Connelly Road/US 1. These traffic congestion issues may be mitigated using a congestion management plan and staggered start times, but further negotiations with the Maryland SHA are needed to ensure that adequate mitigation measures are in place before the construction site generates substantial traffic demand. Traffic volumes associated with facility operation are expected to be light.

The power block would permanently occupy seven acres, and approximately 50 acres within the Rock Springs site would be disturbed during construction for access, laydown, staging and parking. However, ODEC has also indicated that land temporarily utilized during construction would be restored to its original state. Additionally, land use in the vicinity of the project site appears to have been minimally influenced by the existing Rock Springs generating station that has coexisted with the community for about a decade.

The facility will be visible from US 222 between Old Mill Road and the Pennsylvania line, and from Old Mill Road between US 222 and the Rock Springs transmission line interconnection. Prominent structures associated with the facility include the HRSG stacks which would be 160 feet tall, the power generation building for the Wildcat Point facility, at 95 feet, and the new steam turbine building and auxiliary boiler stack, at 115 feet tall. Other prominent structures would be transmission line structures in the switchyard, at 144 feet, and the mechanical draft cooling towers, at 56 feet. In addition to structures, vapor plumes from the cooling towers would be periodically visible, primarily over the Rock Springs facility structures, with occasional drifting to the east. The facility will be largely unseen from nearby residential and recreational areas.

During construction, revenues from taxes on construction worker wages, income taxes on indirect and induced employment incomes, and sales taxes on consumption expenditures would accrue to Maryland and local governments. Once operational, the most significant revenue impact to Cecil County would be from property taxes. In May 2013, Cecil County negotiated an amendment to an earlier “payment in lieu of (real and personal) taxes” (PILOT) agreement with ODEC and Essential Power Rock Springs, LLC. The annual payment represents about 3.5% of property taxes collected by Cecil County in 2012.

The proposed facility will not have significant impacts on historic properties in the area. Regarding archeological resources, MHT has determined that further evaluation is warranted for one archeological site on the property to determine its eligibility for the National Register of Historic Places (this site was identified in 1999 during development of the Rock Springs power plant). No ground disturbance is expected in the vicinity of the archeological site, and ODEC will maintain a protection zone around the site during Wildcat Point construction.

6.5 NOISE IMPACTS

During construction, noise impacts will be caused primarily by large-scale earthwork activities, which are scheduled to last less than a year. Noise emission impacts will be minimized by scheduling heavy construction activities during the daytime and quiet activities during nighttime. ODEC states that all construction-related noise will adhere to Maryland noise regulations.

In the CPCN application, ODEC acknowledges that its initial sound modeling yielded results in excess of applicable State limits. ODEC plans to incorporate noise abatement strategies such as silencers, low-sound

fans, barriers, shrouding, and other various pieces of noise-reducing equipment throughout the facility. Taking into account these abatement strategies, the post-abatement pressure levels presented in the CPCN application indicate that all levels are in compliance with Maryland's nighttime noise limit of 55 dBA at adjacent residential properties. ODEC plans to finalize the abatement measures during the detailed design.

PPRP recommends that ODEC be required to conduct an updated noise analysis when the design is near completion, reflecting the noise characteristics of the actual equipment to be installed at the site and the specific abatement measures to be applied. ODEC should also measure sound pressure levels at the site boundaries after the facility begins operating, to demonstrate compliance with the State noise limits.

- Arcadis 2012. Evacuation Time Estimates for the Peach Bottom Station Plume Exposure Pathway Emergency Planning Zone. Prepared for Exelon Generation by Arcadis U.S., Inc. December, 2012.
- BCC 2005. Cecil County 2005 Land Preservation, Parks and Recreation Plan. Board of County Commissioners. Adopted May 2005.
- BCC 2010. Cecil County Comprehensive Plan. Adopted by the Board of County Commissioners. April 13, 2010.
- BCC 2011. Cecil County Zoning Ordinance. Adopted April 19, 2011, Effective May 1, 2011. Board of County Commissioners of Cecil County.
- BLS 2013a. Occupational Employment Statistics. May 2012 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates, Wilmington, DE-MD-NJ Metropolitan Division. Bureau of Labor Statistics.
http://www.bls.gov/oes/current/oes_48864.htm#47-0000. Accessed October 7, 2013.
- BLS 2013b. Occupational Employment Statistics. May 2012 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates, Lancaster PA. Bureau of Labor Statistics.
http://www.bls.gov/oes/current/oes_29540.htm#47-0000. Accessed October 7, 2013.
- Burns & McDonnell 2013. Old Dominion Electric Cooperative Wildcat Point Generation Facility Traffic Impact Study. Prepared by Burns & McDonnell Engineering Company, Inc. April, 2013.
- CCG 2013. http://www.ccgov.org/dept_planning/historic.cfm. Accessed October 3, 2013.
- DPW 2007. Cecil County Roadway Improvement Strategic Plan. Prepared for Cecil County Department of Public Works by Johnson, Mirmiran & Thompson. April, 2007.
- DLLR 2013a. Civilian Labor Force, Employment & Unemployment by Place of Residence (LAUS). Department of Labor, Licensing and Regulation. <http://www.dllr.state.md.us/lmi/laus/>. Accessed September, 2013.

- DLLR 2013b. Construction and Extraction Occupations – Susquehanna WIA Occupational Projections – 2008-2018. Maryland Department of Labor, Licensing and Regulation.
<http://www.dllr.state.md.us/lmi/iandoproj/southern/>. Accessed October 7, 2013.
- Golder Associates 2009. Cecil County Solid Waste Management Plan 2008-2017. Prepared for Cecil County Department of Public Works by Golder Associates Inc. Adopted January 6, 2009.
- MDP 2009. Acres of Land in Farms for Maryland and its Jurisdictions. Prepared by the Maryland Department of Planning from the 1997, 2002 and 2007 Census of Agriculture. March, 2009.
- MDP 2011. MD PropertyView. Cecil County, 2011. Maryland Department of Planning.
- MDP 2012a. Historical and Projected Population for Maryland’s Jurisdictions. Prepared by the Maryland Department of Planning. March, 2012.
- MDP 2012b. Historical and Projected Households for Maryland’s Jurisdictions. Prepared by the Maryland Department of Planning. March, 2012.
- MDP 2013a. Total Resident Population for Maryland’s Jurisdictions. Prepared by the Maryland Department of Planning. March, 2013.
- MDP 2013b. 2006-2010 American Community Survey: Journey-to-Work Commutation. Prepared by the Maryland Department of Planning from 2006 to 2010 American Community Survey (ACS), March 2013.
- MDP 2013c. Full and Part-Time Jobs by Place of Work. Prepared by the Maryland Department of Planning from U.S. BEA Table CA25N, May 2013.
- MDP 2013d. Per Capital Personal Income (Current Dollars). U.S. BEA (Table CA 1-3). Prepared by the Maryland Department of Planning. May 2013.
- MDP 2013e. Total Full and Part-Time Jobs (by place of work) by Type and Industry, 2001 – 2011. Prepared by the Maryland Department of Planning, from U.S. BEA Table CA-25N, May 2013.

MDP 2013f. Personal Income by Major Source & Earnings by Industry.
Prepared by the Maryland Department of Planning from U.S. BEA
Table CA05N, May 2013.

MWHC 2003. Maryland Women's Heritage Trail Resource Kit. Maryland
Women's Heritage Center. 2003.

NPS 2004. Star-Spangled Banner National Historic Trail Feasibility Study
and Environmental Impact Statement. National Park Service, U.S.
Department of the Interior. March 2004.

NPS 2010. Captain John Smith Chesapeake National Historic Trail. Draft
Comprehensive Management Plan and Environmental Assessment.
National Park Service, U.S. Department of the Interior. September
2010.

ODEC 2013a. Supplement to the Application of the Certificate of Public
Convenience and Necessity Wildcat Point Generation Facility.
Prepared by Burns and McDonnell Engineering Company, Inc.
May 2013.

ODEC 2013b. Letter from ODEC to Craig Smith, Susquehanna River Basin
Commission, dated October 9, 2013.

OED 2012. Untitled. Office of Economic Development, Cecil County.
January, 2012.
[http://www.ccgov.org/uploads/EconomicDevelopment/2012.Eco
nomic.Development.Rating.Agency.Review.pdf](http://www.ccgov.org/uploads/EconomicDevelopment/2012.EconomicDevelopment.Rating.Agency.Review.pdf)

Redman/Johnston Associates 2000. Lower Susquehanna Heritage
Greenway Management Plan. Prepared by Redman/Johnston
Associates, Ltd. May 2000.

Reisman, J. and Frisbie, G., 2004. "Calculating Realistic PM10 Emissions
From Cooling Towers." Environmental Progress. Volume 21. Issue
2. Pages 127-130. 20 April 2004.

SHA 2008. Maryland Oversize/Overweight Hauling Permit Manual.
Maryland State Highway Administration, Office of Traffic & Safety,
Motor Carrier Division. Permit Manual as of April 10, 2008.

SHA undated. Maryland Scenic Byways. Maryland Office of Tourism.
Baltimore, Maryland.

- USDA 2013. 2012 Quick Stats. Calvert County, Maryland. U.S. Dept. of Agriculture, National Agricultural Statistics Service.
<http://quickstats.nass.usda.gov>. Accessed September, 2013.
- USEPA 1990. U.S. Environmental Protection Agency (USEPA). DRAFT New Source Review Workshop Manual.
- USEPA 1998a. SLAMS/NAMS/PAMS Network Review Guidance. USEPA, Office of Air Quality Planning and Standards, Research Triangle Park, EPA-454/R-98-003, March 1998.
- USEPA 1998b. Emission Factors for Natural Gas Combustion. July 1998.
- USEPA 2000. Emission Factors for Stationary Gas Turbines. April 2000.
- USEPA 2002. OAQPS Control Cost Manual. Sixth Edition. EPA/452/B-02-001. January 2002.
- USEPA 2012. Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units. FR 22392.
- URS 2004. Cecil County Master Water & Sewer Plan. Prepared by URS Corporation for Cecil County. March, 2004.
- URS 2013. Cecil County Master Water & Sewer Plan. Prepared for Cecil County by URS Corporation, Wilmington, Delaware. March 2004. Updated February 21, 2013.
- Williams 2013. Request for FERC Pre-filing Review, Docket No. PF-14, 16 October 2013 and telephone conversation with ODEC on December 10, 2013.
- WILMAPCO 2012. Cecil County, Maryland Bicycle Master Plan. Prepared by Wilmington Area Planning Council. November 2012.

Appendix A
Final Recommended License
Conditions

CPCN GENERAL REQUIREMENTS

- A-1. Except as otherwise provided for in the following provisions, the application for the Certificate of Public Convenience and Necessity (CPCN) is considered to be part of this CPCN for the Old Dominion Electric Cooperative (ODEC) Wildcat Point Generation Facility (Wildcat Point Project). In the application, estimates of dimensions, volumes, emission rates, operating rates, feed rates and hours of operation are not deemed to constitute enforceable numeric limits except to the extent that they are necessary to make a determination of applicable regulations. Construction of the Wildcat Point Project shall be undertaken in accordance with the CPCN application of May 20, 2013, supplemental application filed on August 1, 2013 with the Maryland Public Service Commission (PSC) and Response to Data Requests received on June 27, July 24, August 9, August 15, September 20, October 16, November 8, and December 6. If there are any inconsistencies between the conditions specified below and the application, the conditions in this CPCN shall take precedence. If CPCN conditions incorporate federal or state laws through paraphrased language, where there is any inconsistency between the paraphrased language and the actual state or federal laws being paraphrased, the applicable federal or state laws shall take precedence.
- A-2. All provisions of this CPCN that apply to ODEC shall apply to all subsequent owners and/or operators of the facility. In the event of any change in control or ownership, ODEC shall notify the succeeding owner/operator of the existence of the requirements of this CPCN by letter and shall send a copy of that letter to the PSC and the Maryland Department of the Environment (MDE).
- A-3. If any provision of this CPCN shall be held invalid for any reason, the remaining provisions shall remain in full force and effect and such invalid provision shall be considered severed and deleted from this CPCN.
- A-4. Representatives of the Maryland PSC shall be afforded access to the Wildcat Point Generating Station at any reasonable time to conduct inspections and evaluations necessary to assure compliance with the CPCN. ODEC shall provide such assistance as may be necessary to conduct such inspections and evaluations by representatives of the PSC effectively and safely.
- A-5. Representatives of MDE and the Cecil County Health Department shall be afforded access to the Wildcat Point Generation Facility at any reasonable time to conduct inspections and evaluations necessary to assure compliance with the CPCN requirements. ODEC shall provide such assistance as reasonably may be necessary to conduct such inspections and evaluations effectively and safely, which may include but need not be limited to the following:

- a) Inspecting construction authorized under this CPCN;
- b) Sampling any materials stored or processed on site, or any waste or discharge into the environment;
- c) Inspecting any monitoring or recording equipment required by this CPCN or applicable regulations;
- d) Having access to or copying any records required to be kept by ODEC pursuant to this CPCN or applicable regulations;
- e) Obtaining any photographic documentation and evidence; and
- f) Determining compliance with the conditions and regulations specified in the CPCN.

AIR QUALITY REQUIREMENTS

I. GENERAL

- B-I-1 The Maryland Department of the Environment – Air and Radiation Management Administration (MDE-ARMA) shall have concurrent jurisdiction with the PSC to enforce the air quality conditions of the CPCN.
- B-I-2 The CPCN serves as the Prevention of Significant Deterioration (PSD) approval, Nonattainment New Source Review (NA-NSR) approval, and air quality construction permit for the Wildcat Point Project and does not constitute the permit to construct or approvals until such time as ODEC has provided documentation demonstrating that nitrogen oxides (NO_x) emission offsets totaling at least 301 tons and volatile organic compound (VOC) emission offsets totaling at least 443 tons have been obtained and approved by MDE-ARMA and are federally enforceable.
- B-I-2a As part of its means for supplying water to the Wildcat Point facility, ODEC plans to construct and operate an emergency diesel generator located in Lancaster County, Pennsylvania, a non-attainment area for PM_{2.5}. To address emissions from this unit, ODEC shall provide documentation to MDE-ARMA that it has obtained 0.03 tons of PM_{2.5} offsets.
- B-I-3 For air permitting purposes, the Wildcat Point Project shall be defined as the following equipment:
 - a) Two Mitsubishi G Series (M501GAC) combustion turbines (CTs) each with a nominal generating capacity of 270 megawatts (MW), fueled exclusively on pipeline quality natural gas, equipped with low-NO_x combustors;
 - b) Two heat recovery steam generators (HRSGs) each rated at 892.3 million British Thermal Units per hour (MMBtu/hr), fueled exclusively on pipeline quality

natural gas, equipped with duct firing capabilities (duct burners will employ low-NO_x burners) and including a selective catalytic reduction system (SCR) and an oxidation catalyst;

- c) One auxiliary boiler, rated at 45 MMBtu/hr equipped with dry ultra-low NO_x burners (ULNB) (AUXB1);
- d) One 2,250-kilowatt (kW) ultra-low sulfur diesel-fired emergency generator (EG1);
- e) One 1,500-kilowatt (kW) ultra-low sulfur diesel-fired emergency generator (EG2) physically located in Pennsylvania so not subject to the requirements of this CPCN;
- f) One 477-horsepower (hp) ultra- low sulfur diesel-fired emergency fire water pump engine (FP1);
- g) One 5 MMBtu/hr natural gas fired dew point heater (DP1);
- h) One 16-cell wet mechanical draft cooling tower (CTW1);
- i) Circuit breakers that contain sulfur hexafluoride (SF₆) (CB1);
- j) One 3,400-gallon fuel oil storage tank (T1), one 1,200-gallon fuel oil storage tank (used to fuel EG2 and physically located in Pennsylvania so not subject to the requirements of this CPCN), and one 600-gallon fuel oil storage tank (T2); and
- k) Natural gas pipeline components, including valves, connectors, flanges, pump seals, and pressure relief valves within the facility boundary (FUG1).

B-I-4 In accordance with COMAR 26.11.02.04B, the air quality provisions expire if, as determined by MDE-ARMA:

- a) Substantial construction or modification is not commenced within 18 months after the date of issuance of the CPCN final order;
- b) Construction or modification is substantially discontinued for a period of 18 months after the construction or modification has commenced; or
- c) Construction is not completed within a reasonable period after the date of issuance of the CPCN final order.

B-I-5 **Permits, Approvals and Registrations** - At least 60 days prior to the anticipated date of start-up of the Wildcat Point Project, ODEC shall submit to MDE-ARMA an application for a State permit to operate [COMAR 26.11.02.13].

- B-I-6 **Permits, Approvals and Registrations** - ODEC shall submit a complete Part 70 (Title V Operating Permit) application to MDE-ARMA no later than 12 months after the date the Wildcat Point Project commences operations [COMAR 26 11.03.02B(4)].
- B-I-7 All records and logs required by this CPCN shall be maintained at the facility for at least five years (unless otherwise noted) after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of MDE-ARMA.
- B-I-8 **Maryland CO₂ Budget Trading Program** – ODEC shall comply with all applicable requirements of the Maryland CO₂ Budget Trading Program. [COMAR 26.09]

II. DEFINITIONS

- B-II-1 “Commence” as applied to the construction of the Project means that the owner or operator either has:
- a) Begun, or caused to begin, a continuous program of actual on-site construction of the source, to be completed within a reasonable time; or
 - b) Entered into binding agreements or contractual obligations, which cannot be canceled or modified without substantial loss to the owner or operator, to undertake a program of actual on-site construction of the source to be completed within a reasonable time.
- B-II-2 “Excess emissions” means an emission rate which exceeds any applicable emission standard unless the emission rate is in compliance with an approved plan for compliance, departmental order, consent order, or condition of a permit.
- B-II-3 “Malfunction” is defined as any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process that operates in an abnormal or unusual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.
- B-II-4 “Startup” as it relates to the CTs is defined as the period of time from initiation of combustion firing until the unit reaches at least 50% load.
- B-II-5 “Cold Startup” is defined as a startup event prior to which the CT has not been operating for at least 72 hours. A cold startup could take up to 4.5 hours to bring the CT up to 50% load.
- B-II-6 “Warm Startup” is defined as a startup event prior to which the CT has not been operating for at least 8 hours but no more than 72 hours. A warm startup could take up to 2.9 hours to bring the CT up to 50% load.

- B-II-7 “Hot Startup” is defined as a startup event prior to which the CT has been operating within the last 8 hours. A hot startup could take up to 1.6 hours to bring the CT up to 50% load.
- B-II-8 “Shutdown” as it relates to CT is defined as the period of time from which the turbine output is lowered with the intent to shut down, beginning at the point at which the load drops below 50%.

III. PROJECT-WIDE CONDITIONS

B-III-1 The proposed Wildcat Point Project is subject to all applicable federally enforceable State air quality requirements including, but not limited to, the following regulations:

- a) **Testing and Monitoring** - Requires ODEC to follow test methods described in 26.11.01.04C to determine compliance. MDE-ARMA may require ODEC to install, use, and maintain monitoring equipment or employ other methods as specified by MDE-ARMA to determine the quantity or quality, or both, of emissions discharged into the atmosphere and to maintain records and make reports on these emissions to MDE-ARMA in a manner and on a schedule approved by MDE-ARMA or the control officer. [COMAR 26.11.01.04]
- b) **Emission Statements** - Requires ODEC to submit a certified, facility-wide emission statement to MDE-ARMA by April 1 of each year for the previous calendar year [COMAR 26.11.01.05-1]
- c) **Malfunctions and Other Temporary Increases of Emissions** - Requires ODEC to report the onset and the termination of the occurrence of excess emissions, expected to last or actually lasting for one hour or more to MDE-ARMA by telephone. Telephone reports shall include all information required by COMAR 26.11.01.07C(2). [COMAR 26.11.01.07]
- d) **Particulate Matter From Confined Sources** - Prohibits ODEC from causing or permitting particulate matter to be discharged from any installation constructed on or after January 17, 1972 in excess of 0.05 gr/SCFD (115 mg/dscm). [COMAR 26.11.06.03B(1)(a)]
- e) **Particulate Matter From Unconfined Sources** - Prohibits ODEC from causing or permitting emissions from an unconfined source without taking reasonable precautions to prevent particulate matter from becoming airborne. These reasonable precautions shall include, when appropriate as determined by MDE-ARMA, the installation and use of hoods, fans, and dust collectors to enclose, capture, and vent emissions. In making this determination, MDE-ARMA shall consider technological feasibility, practicality, economic impact, and the environmental consequences of the decision. [COMAR 26.11.06.03C]
- f) **Particulate Matter from Materials Handling and Construction** - Prohibits ODEC from causing or permitting any material to be handled, transported, or

stored, or a building, its appurtenances, or a road to be used, constructed, altered, repaired, or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne. [COMAR 26.11.06.03D]

- g) **Control of NSPS Sources** - Prohibits ODEC from constructing, modifying, or operating, or causing to be constructed, modified, or operated, a New Source Performance Standard (NSPS) source as defined in COMAR 26.11.01.01B(23), which results or will result in violation of the provisions of 40 CFR §60, as amended. [COMAR 26.11.06.12]
- h) **Control of PSD Sources** - Prohibits ODEC from constructing, modifying, or operating, or causing to be constructed, modified, or operated, a Prevention of Significant Deterioration (PSD) source as defined in COMAR 26.11.01.01B(37), which results or will result in violation of the provisions of 40 CFR §52.21, as amended, except that the reviewing authority is MDE-ARMA instead of the U.S. Environmental Protection Agency (EPA) Administrator unless otherwise specified in 40 CFR §52.116, and the applicable procedures are those set forth in COMAR 26.11.02. [COMAR 26.11.06.14]
- i) **Nonattainment Provisions for Major New Sources and Major Modifications - General Conditions** - Prohibits ODEC from commencing construction or modification of any proposed emissions unit without first obtaining all permits and approvals required. Requires ODEC to certify that all existing major stationary sources owned or operated by ODEC, or any entity controlling, controlled by, or under common control with ODEC, in the State are in compliance with all applicable emission limitations or are in compliance with an approved federally enforceable plan for compliance. Requires ODEC to obtain more than emission offsets from existing sources in the area impacted by the proposed new major stationary source or major modification. The offset ratio for VOC and NO_x shall equal or exceed 1.3 to 1 for sources of VOC or NO_x in Cecil County. Requires ODEC to comply with all other applicable requirements of COMAR 26.11.17.03A and COMAR 26.11.17.03B(1-7). [COMAR 26.11.17.03]
- j) **Clean Air Interstate Rule (CAIR)** - ODEC shall comply with all applicable requirements of the Clean Air Interstate Rule (CAIR). [COMAR 26.11.28]

B-III-2 The Wildcat Point Project is subject to all applicable State-Only air quality requirements including, but not limited to, the following regulations:

- a) **Fee Schedule** - Requires ODEC to pay annual Title V operating permit fees. [COMAR 26.11.02.19A]
- b) **Nuisance** - Prohibits ODEC from operating or maintaining the facility in such a manner that a nuisance or air pollution is created. [COMAR 26.11.06.08]

- c) **Odors** – Prohibits ODEC from causing or permitting the discharge into the atmosphere of gases, vapors, or odors beyond the property line in such a manner that a nuisance or air pollution is created. [COMAR 26.11.06.09]
- d) **Emission Certification** – Requires ODEC to certify the actual emissions of regulated air pollutants from all installations at the plant or facility. Certification shall be on a form obtained from MDE-ARMA and shall be submitted to MDE-ARMA not later than April 1 of the year following the year for which certification is required. An emission certification submitted pursuant to this section and which contains all information required by COMAR 26.11.01.05-1 for NO_x and VOC, satisfies the requirements of COMAR 26.11.01.05-1. [COMAR 26.11.02.19D]
- e) **Toxic Air Pollutants - General Requirements for Compliance Demonstrations**
 - 1) ODEC shall implement “Best Available Control Technology for Toxics” (T – BACT) to control emissions of toxic air pollutants [COMAR 26.11.15.05].
 - 2) ODEC is prohibited from discharging toxic air pollutants to the extent that such emissions will unreasonably endanger human health [COMAR 26.11.15.06].

B-III-3 Emissions for all sources identified as part of the Wildcat Point Project, including emissions during periods of startup and shutdown, shall be limited to the following, in tons per year, in any consecutive 12-month rolling period:

Pollutant	Project-Wide Emission Limit (tons per year)
Particulate Matter (PM) – Filterable	177
Particulate Matter less than 10 microns (PM10) – Filterable and Condensable	278
Particulate Matter less than 2.5 microns (PM2.5) – Filterable and Condensable	272
Sulfur Dioxide (SO ₂)	63
Nitrogen Oxides (NO _x)	232
Carbon Monoxide (CO)	511
Volatile Organic Compounds (VOCs)	340
Sulfuric Acid Mist (SAM)	96
Greenhouse Gas (GHG) as Carbon Dioxide Equivalent (CO ₂ e)	3,498,026

Compliance Demonstration

Testing and Monitoring Requirements

B-III-4 Compliance with the Project-wide GHG limit is based on the current accepted global warming potentials (GWPs) from 40 CFR §98 Subpart A of 1 for CO₂, 25 for methane (CH₄), and 298 for nitrous oxide (N₂O).

Recordkeeping and Reporting Requirements

- B-III-5 ODEC shall submit a quarterly report to MDE-ARMA to be postmarked by the 30th day of the month following the end of each calendar quarter that includes the following information:
- a) Lists instances of deviations from permit requirements.
 - b) Summarizes separately the date, time, and duration of each startup, shutdown, or malfunction that occurred for each combustion turbine during the prior quarterly period. The report shall include total monthly and consecutive rolling 12-month hours of startup, shutdown, and malfunction for each source.
 - c) Summarizes the monthly and consecutive rolling 12-month fuel usage and operating hours for each CT and duct burner; auxiliary boiler, dew point heater, emergency generators, and fire water pump engine.
 - d) Summarizes the monthly and consecutive rolling 12-month total emissions (in tons per month and tons per year) of PM, PM10, PM2.5, SO2, SAM, NO_x, CO, VOCs, ammonia slip, and GHGs (as CO₂e) separately for each emission unit and total emissions of those pollutants for all Wildcat Point Project sources.
- B-III-6 ODEC shall furnish written notification to MDE-ARMA and EPA for sources subject to an NSPS of the following events: [40 CFR §60.7(a)]
- a) The date construction commenced within 30 days after such date;
 - b) The actual startup date within 15 days after such date; and
 - c) The anticipated date of compliance stack testing at least 30 days prior to such date.
- B-III-7 ODEC shall furnish written notification to MDE-ARMA and EPA, where required, of the actual startup date of a source within 15 days after such date, for sources subject to a National Emission Standards for Hazardous Air Pollutants (NESHAP) [40 CFR §63.9(b)(4) and (b(5))].
- B-III-8 ODEC shall provide MDE-ARMA with the manufacturer, make, and model, vendor specifications, or other details requested by MDE-ARMA upon selection of auxiliary sources (auxiliary boiler, dew point heater, emergency generator, and fire water pump engine).

IV. COMBUSTION TURBINES AND HEAT RECOVERY STEAM GENERATORS (HRSGs)

Emission Units:

Two Mitsubishi G Series combustion turbines (CTs) and heat recovery steam generators (HRSGs) with duct burners, fueled exclusively on pipeline quality natural gas, equipped with dry low-NO_x (DLN1) combustors, SCRs, and oxidation catalysts.

Applicable Requirements

B-IV-1 Only pipeline quality natural gas shall be used as fuel in the combustion turbines and duct burners.

B-IV-2 The CTs/HRSGs are subject to all applicable federally enforceable State air quality requirements including, but not limited to, the following regulations:

- a) **Continuous Emission Monitoring Requirements** - Requires ODEC to operate all continuous emission monitoring systems (CEMS) under the requirements of COMAR 26.11.01.11. This requirement is applicable to the NO_x, CO₂, and CO CEMS that are to be installed at the combustion turbines. [COMAR 26.11.01.11]
- b) **Visible Emissions** - Except as provided in COMAR 26.11.09.05A(3), prohibits ODEC from causing or permitting the discharge of emissions from any fuel burning equipment, other than water in an uncombined form, which is greater than 20 percent opacity. This regulation does not apply to emissions during load changing, soot blowing, startup, or adjustments or occasional cleaning of control equipment, if:
 1. The visible emissions are not greater than 40 percent opacity; and
 2. The visible emissions do not occur for more than 6 consecutive minutes in any sixty-minute period.[COMAR 26.11.09.05A(1) and COMAR 26.11.09.05A(3)]
- c) **Control of NO_x Emissions for Major Stationary Sources** - Requires ODEC to meet an hourly average NO_x emission rate of not more than 42 parts per million (ppm) (dry volume at 15 percent oxygen) for the combustion turbine with a capacity factor of greater than 15%, when burning gas or meet applicable Prevention of Significant Deterioration limits, whichever is more restrictive. [COMAR 26.11.09.08G(2)]
- d) **Control of NO_x Emissions for Major Stationary Sources, Reporting Requirements** - Requires ODEC when using a CEMS to demonstrate compliance with the NO_x emission standards in COMAR 26.11.09.08 to submit quarterly emission reports to MDE-ARMA on or before the 30th day of the month following the end of each calendar quarter. [COMAR 26.11.09.08K]

- B-IV-3 The CTs/HRSGs are subject to 40 CFR §60 Subpart KKKK - Standards of Performance for Stationary Combustion Turbines; 40 CFR §60.4300, et seq., which contain various requirements for emission limitations, monitoring, testing, recordkeeping, and reporting for NO_x and SO₂, specified in Table B-1 and the following additional requirements:
- a) **Monitoring of Operations** – ODEC shall install, calibrate, maintain, and operate a continuous NO_x emissions monitoring system as described in 40 CFR §60, Appendix B and the Quality Assurance Procedures under 40 CFR §60, Appendix F, 40 CFR §60.4335(b) and §60.4345. [40 CFR §60.4340(a)-(b)]
 - b) **Excess Emissions** – ODEC shall follow the calculation procedures set forth in 40 CFR §60.4350 for purposes of identifying excess emissions. [40 CFR §60.4350]
- B-IV-4 The CTs/HRSGs are subject to all applicable permitting provisions of the Acid Rain Program under 40 CFR §72, including, but not limited to:
- a) Subpart A §72.30(b)(2)(i) requires ODEC to submit an application for an Acid Rain Permit for the CT/HRSG units;
 - b) Subpart A §72.9(b)(1) requires ODEC, to the extent applicable, to comply with monitoring requirements in 40 CFR §75;
 - c) Subpart A §72.9(c) requires ODEC to hold allowances in the source's compliance account not less than the total annual emissions of SO₂ for the previous year and comply with applicable Acid Rain limits for SO₂;
 - d) Subpart A §72.9(e) requires ODEC to submit a proposed offset plan if emission limitations are exceeded; and
 - e) Subpart A §72.9(f) requires ODEC, unless otherwise provided, to retain required documents for a period of 5 years from the date that the document was created. Documents may include, but are not limited to, certificates of representation, emissions monitoring information, copies of reports, compliance certifications, and other documentation pertaining to the Acid Rain program.

Operational and Emission Limits

- B-IV-5 **Best Available Control Technology (BACT)** – Emissions of NO_x, CO, PM, PM₁₀, PM_{2.5}, sulfuric acid mist (SAM), and sulfur dioxide (SO₂) from the CTs and duct burners shall meet the BACT limits in Table B-1 through the use of efficient design of the CTs with dry low NO_x combustors, heat recovery stream generators (HRSGs) and duct burners designed to operate based on manufacturer's specifications, use of pipeline quality natural gas fuel only, operation of an oxidation catalyst, operation of an selective catalytic reduction (SCR) system, and application of good combustion practices.

- B-IV-6 **Lowest Achievable Emission Rate (LAER)** - Emissions of NO_x and VOC from the CTs and duct burners shall meet the LAER limits in Table B-1, through the use of efficient design of the CTs with dry low NO_x combustors, heat recovery stream generators (HRSGs) and duct burners designed to operate based on manufacturer's specifications, use of pipeline quality natural gas fuel only, operation of an oxidation catalyst, operation of an selective catalytic reduction (SCR) system, and application of good combustion practices.
- B-IV-7 ODEC shall comply with emission limitations during facility startup and shutdown events specified in Table B-1. These emissions shall be included in demonstrating compliance with the Project-wide emissions (Condition B-III-3) limits, on a consecutive 12-month rolling basis.
- B-IV-8 ODEC shall limit emissions of ammonia resulting from un-reacted ammonia (ammonia slip) from each of the SCRs to be installed on the CTs/HRSGs as specified in Table B-1.

Compliance Demonstration

Testing and Monitoring Requirements

- B-IV-9 Initial compliance stack testing of each CT/HRSG shall be conducted within 180 days after initial startup to quantify pollutant emissions and demonstrate compliance with the emission limits specified in the CPCN for the following pollutants: VOC, PM, PM₁₀, PM_{2.5}, SO₂, SAM, and ammonia slip. Testing shall be conducted while the CTs are operating at 90% or higher capacity. Subsequent stack tests shall be conducted annually for PM, PM₁₀, PM_{2.5}, SO₂ (unless fuel sulfur content is determined through fuel sampling in lieu of stack testing in accordance with 40 CFR 60.4415 as noted in Table B-1), and at least once every five years for SAM and ammonia. Initial and continuous compliance with the emission limits specified in the CPCN for NO_x, CO, and CO₂ shall be demonstrated by installing and operating a certified CEMS. The CEMS shall comply with applicable performance specifications in 40 CFR Part 60 Appendix B, Quality Assurance Procedures in 40 CFR Part 60 Appendix F, and applicable requirements in 40 CFR Part 75.
- B-IV-10 Unless otherwise approved by MDE-ARMA, ODEC shall install on each CT/HRSG a CO₂ CEMS or calibrated in-line fuel flow-meters as specified under 40 CFR §75.10(3) to measure CO₂ emissions associated with the production of electricity. Emissions of CO₂ from the CTs and duct burners are to be monitored with a CEMS and recorded hourly utilizing a data acquisition and handling system (DAHS) installed, calibrated, and maintained in accordance with 40 CFR §75. [40 CFR 75.10(3)]
- B-IV-11 ODEC shall install a fuel flow meter and continuously monitor the fuel flow for each CT and duct burner. The fuel usage shall be recorded at least on a monthly basis.
- B-IV-12 Methane (CH₄) and nitrous oxides (N₂O) emissions from the CTs/HRSGs shall be calculated in accordance with the methodology and emission factors noted in 40 CFR

98, Subpart D. On a monthly basis, fuel consumption, coupled with the appropriate emission factors and global warming potentials (25 for CH₄ and 298 for N₂O), shall be used to calculate the CH₄ and N₂O emissions on a CO₂e basis. These emission rates, summed with the monthly CO₂ emissions based on stack testing shall be used to establish GHG emissions from the CTs on a CO₂e basis.

B-IV-13 The combustion turbines and associated duct burners and heat recovery steam generators are subject to all applicable monitoring provisions of the Acid Rain Program under 40 CFR §75, including, but not limited to:

- a) Subpart A §75.4(b) which generally requires ODEC, in accordance with 40 CFR §75.20, to ensure that all applicable monitoring systems for SO₂, NO_x, carbon dioxide (CO₂), and volumetric flow required under 40 CFR §75 to be installed and all certification tests completed no later than the earlier of 90 unit operating days or 180 calendar days after the date the unit commences commercial operations;
- b) Subpart B §75.10 which generally requires ODEC to measure, as applicable, opacity, SO₂, NO_x, and CO₂ emissions; to ensure that continuous emission monitoring systems required by 40 CFR §75 meet the equipment, installation, and performance specifications in 40 CFR §75; and to maintain the continuous emission monitoring systems in accordance with the quality assurance and quality control procedures in this part;
- c) Subpart F §75.53(a) which generally requires ODEC to prepare a monitoring plan with sufficient information on applicable continuous opacity or emissions monitoring systems to demonstrate that all SO₂, NO_x, CO₂ emissions and opacity, as required, are monitored and reported;
- d) Subpart F §75.57(a) which requires ODEC to keep a file for each affected unit of all measurements, data, reports, and other information required by 40 CFR §75 in a form suitable for inspection for at least 3 years from the date of each record;
- e) Subpart F §75.57(b)-(f) which require ODEC to record various operations, emissions, and other information, as specified; and
- f) Subpart G §75.60(a) and (b) which generally require ODEC to comply with all reporting requirements, with all signatory requirements of 40 CFR §72.21 of this chapter for all submissions, and with all required certifications and reports.

Recordkeeping and Reporting Requirements

B-IV-14 Final results of each compliance stack test shall be submitted to MDE-ARMA within 60 days after completion of the test. [COMAR 26.11.01.05B(2) and C]

B-IV-15 Unless otherwise approved by MDE-ARMA, ODEC shall submit electronic quarterly reports from the DAHS to the EPA Clean Air Markets Division System as specified in 40 CFR §75.64. [40 CFR §75.64]

- B-IV-16 ODEC shall submit the following reports to MDE-ARMA for all CEMS required to be operated with the CTs:
- a) CEMS System Downtime Reports as required by COMAR 26.11.01.11E(1).
 - b) Quarterly CEMS Summary Reports as required by COMAR 26.11.01.11E(2)(c). [COMAR 26.11.01.11E]
- B-IV-17 ODEC shall submit reports of excess emissions and monitoring system downtime associated with the CTs/HRSGs, in accordance with 40 CFR §60.7(c). Excess emissions as defined in 40 CFR §60.4380 (NO_x) and 40 CFR §60.4385 (SO₂) must be reported for all periods of unit operation, including startup, shutdown, and malfunction. [40 CFR §60.4375]
- B-IV-18 ODEC shall maintain annual fuel use records for the CTs/HRSGs on site for not less than three years, and make these records available to MDE-ARMA upon request. [COMAR 26.11.09.08K]
- B-IV-19 ODEC shall submit a quarterly report to MDE-ARMA to be postmarked by the 30th day of the month following the end of each calendar quarter that includes the following information:
- a) All instances of deviations from permit requirements for the CTs.
 - b) Summarizes separately the date, time, type, and duration of each startup, shutdown, or malfunction that occurred for each CT/HRSG during the prior period. The report shall include total monthly and consecutive rolling 12-month hours of startup, shutdown, or malfunction for each source. The report shall also include the total NO_x, CO, VOC, SO₂, SAM, PM, PM₁₀, PM_{2.5}, and CO_{2e} emissions emitted by both CTs/HRSGs for each startup and shutdown event.
 - c) Summarizes the monthly and consecutive rolling 12-month total fuel use and hours of operation for each CT and duct burner;
 - d) Summarizes the monthly and consecutive rolling 12-month total emissions of PM, PM₁₀, PM_{2.5}, NO_x, CO, VOCs, SAM, ammonia slip, SO₂, and CO_{2e} separately for each emission unit and for total emissions of those pollutants project-wide.
 - e) If ODEC elects to demonstrate compliance with the SO₂ emissions limit in 40 CFR §60.4330 using methods described in §60.4415(a) as described in Table B-1, submit periodic representative fuel sampling records.

V. AUXILIARY BOILER

Emission Unit Number(s): AUXB1

One auxiliary boiler with Ultra Low NO_x Burner (ULNB)

Applicable Requirements

- B-V-1 The auxiliary boiler is subject to all applicable federally enforceable State air quality requirements including, but not limited to, the following regulations:

- a) **Fuel Burning Equipment with a Rated Heat Input of Less than 100 MMBTU/hr** – ODEC is subject to the following requirements:
 - (i) Requires ODEC to perform combustion analysis at least once every year and optimize combustion based on this analysis. [COMAR 26.11.09.08(E)(2)]
 - (ii) Requires ODEC to train auxiliary boiler operators at least once every three years on combustion analysis. [COMAR 26.11.09.08(E)(4)]
- b) **Control of NO_x Emissions for Major Stationary Sources** - Requires ODEC to comply with all applicable provisions of COMAR 26.11.09.08. ODEC shall demonstrate compliance with the emission limits of COMAR 26.11.09.08 by complying with the applicable BACT and LAER emission limits.
- c) **Visible Emissions** – Prohibits ODEC from discharging emissions, other than water in an uncombined form, greater than 20 percent opacity from fuel burning equipment COMAR 26.11.09.05A(1).

B-V-2 The auxiliary boiler is subject to the applicable requirements under NSPS 40 CFR §60 Subpart Dc - Standards of Performance for Industrial-Commercial-Institutional Generating Units, which contain various requirements for recordkeeping and reporting.

Operational and Emission Limits

B-V-3 The auxiliary boiler shall be fueled exclusively on pipeline quality natural gas at all times when operating.

B-V-4 The heat input to the auxiliary boiler shall not exceed 90,000 MMBtu in 12-month rolling period.

B-V-5 **Best Available Control Technology (BACT)** - Emissions from the auxiliary boiler shall meet the following BACT limits, through the use of efficient boiler design, exclusive use of pipeline quality natural gas, the use of ultra-low NO_x burners, and application of good combustion practices:

- a) Emissions of NO_x shall not exceed 0.01 lb/MMBTU on a 3-hour block average basis;
- b) Emissions of CO shall not exceed 0.036 lb/MMBTU on a 3-hour block average basis;
- c) Emissions of PM, PM10, and PM2.5 shall each not exceed 0.0075 lb/MMBTU on a 3-hour block average basis;
- d) Emissions of SO₂ shall not exceed 0.0006 lb/MMBTU on a 3-hour block average basis;
- e) Emissions of SAM shall not exceed 0.004 lb/hr on a 3-hour block average basis as determined by the SO₂ emission rate and SO₂ mass balance conversion methodology of 10% SO₂ to SO₃ and 100% SO₃ to SAM; and
- f) Project-wide GHG emissions shall not exceed 3,498,026 tons per rolling 12-month period.

B-V-6 Lowest Achievable Emission Rate (LAER) – Emissions from the auxiliary boiler shall meet the following LAER limits, through the use of efficient boiler design, exclusive use of pipeline quality natural gas, the use of ultra-low NO_x burners, use of pipeline quality natural gas, and good combustion practices:

- a) Emissions of NO_x shall not exceed 0.01 lb/MMBTU on a 3-hour block average basis; and
- b) Emissions of VOC shall not exceed 0.0033 lb/MMBTU on a 3-hour block average basis.

Compliance Demonstration

Testing and Monitoring Requirements

B-V-7 Compliance with the BACT and LAER emission limitations shall be demonstrated as follows:

- a) ODEC shall obtain vendor guarantees to demonstrate compliance with the BACT and LAER emission limits.
- b) Emissions of NO_x, VOC, CO, SAM, SO₂, PM, PM₁₀, and PM_{2.5} shall be calculated using fuel measurements and vendor guaranteed emission rates.
- c) ODEC shall conduct an annual combustion analysis on the auxiliary boiler. The results of the combustion analysis shall be provided to MDE-ARMA within 45 days of its completion.
- d) CH₄ and N₂O emissions from the auxiliary boiler shall be calculated in accordance with the methodology and emission factors noted in 40 CFR 98, Subpart C. On a monthly basis, fuel consumption, coupled with the appropriate emission factors and global warming potentials (25 for CH₄ and 298 for N₂O), shall be used to calculate the CH₄ and N₂O emissions on a CO₂e basis. These emission rates, summed with the monthly CO₂ emissions based on 40 CFR 98, Subpart C or other methods approved by MDE-ARMA shall be used to calculate GHG emissions from the auxiliary boiler on a CO₂e basis.

B-V-8 Initial compliance with the visible emission limitation shall be demonstrated using EPA Method 9 within 180 days of startup of the boiler [COMAR 26.11.09.05A(1 and 5)]. Visible observation in accordance with EPA Reference Method 22 shall be performed at least once each calendar quarter to verify that there are no visible emissions during operation. If the auxiliary boiler is not operated in a quarter, ODEC shall document this and no visible emission observation is required. If visible emissions are observed, ODEC shall inspect the combustion control system, perform necessary adjustments and/or repairs within 48 hours, and document in writing the results of inspection, adjustments and/or repairs. After 48 hours, if the required adjustments and/or repairs have not eliminated the visible emissions, ODEC shall perform EPA Reference Method 9 observations once daily for at least one hour until corrective actions have reduced the visible emissions to less than 20 percent opacity. [COMAR 26.11.02.02(H)].

- B-V-9 ODEC shall install a fuel flow meter on the auxiliary boiler to continuously monitor the fuel flow. The fuel usage shall be recorded at least on a monthly basis.
- B-V-10 All monitoring devices required to demonstrate continuous compliance shall be installed, calibrated, and maintained according to manufacturer's specifications.

Notification Requirements

- B-V-11 ODEC shall furnish written notification to MDE-ARMA and EPA of the date of commencement of construction within 30 days after such date [40 CFR §60.7(a)]

Recordkeeping and Reporting Requirements

- B-V-12 ODEC shall maintain records of natural gas fuel usage at the auxiliary boiler on a monthly basis. (§60.48c(g)(1)–(3)).
- B-V-13 The results of the combustion tune-up required to satisfy the GHG BACT compliance demonstration requirement for the auxiliary boiler shall be provided to MDE-ARMA with 45 days of its completion.
- B-V-14 ODEC shall comply with the following applicable requirements for the auxiliary boiler [COMAR 26.11.09.08(E)]:
- a) Submit to MDE-ARMA an identification of each affected installation, the rated heat input capacity of the auxiliary boiler, and the type of fuel burned in these sources.
 - b) Maintain the results of the combustion analysis at the site for at least two years and make this data available to MDE-ARMA and EPA upon request.
 - c) Prepare and maintain a record of training program attendance for each operator at the site, and make these records available to MDE-ARMA upon request.
- B-V-15 ODEC shall maintain annual fuel use records on site for not less than three years, and make these records available to MDE-ARMA upon request. [COMAR 26.11.09.08K]
- B-V-16 ODEC shall maintain records of any maintenance performed on the auxiliary boiler for two years from the date of the record (§60.48c(i)).

VI. DEW POINT HEATER

Emission Unit Number(s): DP1

One dew point heater

Applicable Requirements

- B-VI-1 The dew point heater shall be fueled exclusively on pipeline quality natural gas at all times when operating.

B-VI-2 The dew point heater is subject to all applicable federally enforceable State air quality requirements including, but not limited to, the following regulations:

- a) **Fuel Burning Equipment with a Rated Heat Input of Less than 100 MMBTU/hr** – ODEC is subject to the following requirements:
 - (i) ODEC shall perform combustion analysis at least once every year and optimize combustion based on this analysis. [COMAR 26.11.09.08(E)(2)]
 - (ii) ODEC shall train dew point heater operators at least once every three years on combustion analysis. [COMAR 26.11.09.08(E)(4)]
- b) **Control of NO_x Emissions for Major Stationary Sources** - Requires ODEC to comply with all applicable provisions of COMAR 26.11.09.08. ODEC shall demonstrate compliance with the NO_x emission limits of COMAR 26.11.09.08 by complying with the emission limits specified below.
- c) **Visible Emissions** – Prohibits ODEC from discharging emissions, other than water in an uncombined form, greater than 20 percent opacity from fuel burning equipment COMAR 26.11.09.05A(1).

Operational and Emission Limits

B-VI-3 **Best Available Control Technology (BACT)** – Emissions from the dew point heater shall meet the following BACT limits, through the use of efficient design of the heater, exclusive use of pipeline quality natural gas only, and application of good combustion practices:

- a) Emissions of NO_x shall not exceed 0.049 lb/MMBTU on a 3-hour block average basis;
- b) Emissions of CO shall not exceed 0.083 lb/MMBTU on a 3-hour block average basis;
- c) Emissions of PM, PM10, and PM2.5 shall each not exceed 0.0075 lb/MMBTU on a 3-hour average basis;
- d) Emissions of SO₂ shall not exceed 0.0006 lb/MMBtu on a 3-hour block average basis;
- e) Emissions of SAM shall not exceed 0.0005 lb/hr on a 3-hour block average basis as determined by the SO₂ emission rate and SO₂ mass balance conversion methodology of 10% SO₂ to SO₃ and 100% SO₃ to SAM; and
- f) Project-wide GHG emissions shall not exceed 3,498,026 tons per rolling 12-month period.

B-VI-4 **Lowest Achievable Emission Rate (LAER)** – Emissions from the dew point heater shall meet the following LAER limits, through the use of pipeline quality natural gas and good combustion practices:

- a) Emissions of NO_x shall not exceed 0.049 lb/MMBTU on a 3-hour block average basis; and
- b) Emissions of VOC shall not exceed 0.005 lb/MMBTU on a 3-hour block average basis.

Compliance Demonstration

Testing and Monitoring Requirements

- B-VI-5 Compliance with the BACT and LAER emission limitations shall be demonstrated as follows:
- ODEC shall obtain vendor guarantees to demonstrate compliance with the BACT and LAER emission limits.
 - Emissions of NO_x, VOC, CO, SAM, PM, PM₁₀, and PM_{2.5} shall be calculated using fuel measurements and vendor guaranteed emission rates. Monthly emissions shall be used to calculate 12-month rolling period emissions.
 - ODEC shall conduct an annual combustion analysis on the dew point heater. The results of the combustion analysis shall be provided to MDE-ARMA within 45 days of its completion.
 - CH₄ and N₂O emissions from the dew point heater shall be calculated in accordance with the methodology and emission factors noted in 40 CFR 98, Subpart C. On a monthly basis, fuel consumption, coupled with the appropriate emission factors and global warming potentials (25 for CH₄ and 298 for N₂O), shall be used to calculate the CH₄ and N₂O emissions on a CO₂e basis. These emission rates, summed with the monthly CO₂ emissions based on 40 CFR 98, Subpart C or other methods approved by MDE-ARMA shall be used to establish GHG emissions from the dew point heater on a CO₂e basis.
- B-VI-6 Initial compliance with the visible emission limitation shall be demonstrated using EPA Method 9 within 180 days of startup of the dew point heater [COMAR 26.11.09.05A(1 and 5)]. Visible observation in accordance with EPA Reference Method 22 shall be performed at least once each calendar quarter to verify that there are no visible emissions during operation. If the dew point heater is not operated in a quarter, ODEC shall document this and no visible emission observation is required. If visible emissions are observed, ODEC shall inspect the combustion control system, perform necessary adjustments and/or repairs within 48 hours, and document in writing the results of inspection, adjustments and/or repairs. After 48 hours, if the required adjustments and/or repairs have not eliminated the visible emissions, ODEC shall perform EPA Reference Method 9 observations once daily for at least one hour until corrective actions have reduced the visible emissions to less than 20 percent opacity. [COMAR 26.11.02.02(H)].
- B-VI-7 ODEC shall install a fuel flow meter on the dew point heater to continuously monitor the fuel flow. The fuel usage shall be recorded at least on a monthly basis.
- B-VI-8 All monitoring devices required to demonstrate continuous compliance shall be installed, calibrated, and maintained according to manufacturer's specifications.

Recordkeeping and Reporting Requirements

- B-VI-9 The results of the combustion tune-up required to satisfy the GHG BACT compliance demonstration requirement for the dew point heater shall be provided to MDE-ARMA with 45 days of its completion.
- B-VI-10 ODEC shall maintain the following records for the dew point heater [COMAR 26.11.09.08(E)]:
- a) Identification of each affected installation, the rated heat input capacity of the dew point heater, and the type of fuel burned in these sources.
 - b) Results of the combustion analysis at the site for at least two years.
 - c) Records of training program attendance for each operator at the site, and make these records available to MDE-ARMA upon request.
- B-VI-11 ODEC shall maintain annual fuel use records on site for not less than three years, and make these records available to MDE-ARMA upon request. [COMAR 26.11.09.08K]

VII. DIESEL-FIRED EMERGENCY ENGINES

Emission Unit Number(s):

EG1	2,250-kW emergency generator
FP1	477-hp fire water pump engine

Applicable Requirements

- B-VII-1 The emergency generator and fire water pump engine are each subject to all applicable federally enforceable State air quality requirements including, but not limited to, the following regulations:
- a) **Visible Emissions During Idle Mode** – Prohibits ODEC from causing or permitting the discharge of emissions from any internal combustion engine, operating at idle, greater than 10 percent opacity. [COMAR 26.11.09.05E(2)]
 - b) **Visible Emissions During Operating Mode** - Prohibits ODEC from causing or permitting the discharge of emissions from any internal combustion engine, operating at other than idle conditions, greater than 40 percent opacity. [COMAR 26.11.09.05E(3)]
 - c) **Exceptions to Visible Emissions Standards for Internal Combustion Engines:**
 - 1. COMAR 26.11.09.05E(2) does not apply for a period of two consecutive minutes after a period of idling of 15 consecutive minutes for the purpose of clearing the exhaust system.
 - 2. COMAR 26.11.09.05E(3) does not apply to emissions resulting directly from cold engine start-up and warm-up for the following maximum periods:

- (i) Engines that are idled continuously when not in service: 30 minutes
- (ii) All other engines: 15 minutes.

3. COMAR 26.11.09.05E(2) and (3) do not apply while maintenance, repair, or testing is being performed by qualified mechanics.

- d) **Control of Sulfur Oxides From Fuel Burning Equipment** – Prohibits ODEC from burning, selling, or making available for sale distillate fuel oils with a sulfur content of greater than 0.3 percent. [COMAR 26.11.09.07A(1)(c)]
- e) **Control of NO_x Emissions for Major Stationary Sources – Fuel Burning Equipment with a Rated Heat Input of Less than 100 MMBtu/hr** - Requires ODEC to comply with the requirements of COMAR 26.11.09.08E, including conducting a combustion analysis for each installation and attending operator training programs sponsored by MDE-ARMA, EPA, or equipment vendors every three years. [COMAR 26.11.09.08E]
- f) **Control of NO_x Emissions for Major Stationary Sources** - Requires ODEC, for all fuel burning equipment with a capacity factor (as defined in 40 CFR §72.2) of 15 percent or less, to comply with the following requirements.
 - (i) Provide certification of the capacity factor of the equipment to the MDE in writing; and
 - (ii) Require each operator of an installation to attend operator training programs at least once every three years, on combustion optimization that are sponsored by MDE, EPA, or equipment vendors.

B-VII-2 The emergency generator is subject to all applicable State-Only air quality requirements including, but not limited to, the following regulations:

- a) **Distributed Generation - Emergency Generators and Load Shaving Units NO_x Requirements** – Prohibits ODEC from the operation of the emergency generator, except for emergencies, testing, and maintenance purposes. [COMAR 26.11.36.03A(1)]
- b) **Distributed Generation - Emergency Generators and Load Shaving Units NO_x Requirements** – Prohibits ODEC from the operation of the emergency generator for testing or maintenance purposes between 12:01 a.m. and 2:00 p.m. on any day on which the MDE-ARMA forecasts that the air quality will be code orange, code red, or code purple unless the engine fails a test and engine maintenance and a re-test are necessary. [COMAR 26.11.36.03A(5)]

Operational and Emission Limits

B-VII-3 The emergency generator and the fire water pump engine are subject to NSPS 40 CFR §60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. ODEC shall meet the monitoring, compliance, testing, notification, reporting, and recordkeeping requirements of 40 CFR §60.4200 to 40 CFR

§60.4219 and related applicable provisions of 40 CFR §60.7 and 40 CFR §60.8. The diesel fuel combusted in the emergency generator and the fire water pump engine shall meet the requirements of 40 CFR §60.4207. ODEC shall meet the following emission limits for the emergency generator and the fire water pump engine:

- a) Under 40 CFR §60.4202 and 40 CFR §89.112, Table 1, emissions from the 2,250-kW emergency generator shall not exceed 6.4 g/kW-hour (4.8 g/hp-hr) combined non-methane hydrocarbons (NMHC) and NO_x, 3.5 g/kW-hour (2.6 g/hp-hr) CO, and 0.20 g/kW-hour (0.15 g/hp-hr) PM filterable.
- b) Under 40 CFR §60 Subpart IIII, Table 4, emissions from the 477-hp fire pump engine shall not exceed 4.0 g/kW-hr (3.0 g/hp-hour) combined NMHC and NO_x, 3.5 g/kW-hour (2.6 g/hp-hr) CO, and 0.20 g/kW-hr (0.15 g/hp-hour) PM filterable.

B-VII-4 The emergency generator and the fire water pump engine are subject to 40 CFR §63 Subpart ZZZZ - National Emission Standards of Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. The emergency generator and the fire water pump engine shall comply with all the applicable requirements of NSPS Subparts IIII under 40 CFR §63.6590(c)(1).

B-VII-5 The emergency generator and fire water pump engine shall be fueled with ultra-low sulfur diesel fuel only with a sulfur content not to exceed 15 parts per million by weight (ppmw).

B-VII-6 **Best Available Control Technology (BACT)**

- a) The 2,250-kW diesel emergency generator shall be designed to meet the following BACT emission limits below through the exclusive use of ultra-low sulfur diesel (ULSD) fuel and good combustion practices:
 - 1. NO_x+NMHC, CO, and PM emissions shall not exceed the applicable NSPS Subpart IIII emission limitations;
 - 2. SO₂ emissions shall not exceed 0.006 g/bhp-hr on a 3-hour block average basis;
 - 3. SAM emissions shall not exceed 0.006 g/bhp-hr on a 3-hour block average basis;
 - 4. Project-wide GHG emissions shall not exceed 3,498,026 tons per rolling 12-month period.
- b) The 477-hp fire water pump engine shall be designed to meet the following BACT limits below through the exclusive use of ULSD fuel and good combustion practices:
 - 1. NO_x+NMHC, CO, and PM emissions shall not exceed the applicable NSPS Subpart IIII emission limitations;
 - 2. SO₂ emissions shall not exceed 0.0049 g/bhp-hr on a 3-hour block average basis;
 - 3. SAM emissions shall not exceed 0.0049 g/bhp-hr on a 3-hour block average basis;
 - 4. Project-wide GHG emissions shall not exceed 3,498,026 tons per rolling 12-month period.

B-VII-7 Lowest Achievable Emission Rate (LAER)

The emergency generator and fire water pump engine shall be designed to not exceed the applicable emission limits in NSPS Subpart IIII for NO_x+NMHC through the use of ULSD fuel and good combustion practices at all times.

B-VII-8 The emergency generator and fire water pump engine are subject to the following requirements of 40 CFR Part 60 Subpart IIII:

- (a) ODEC shall purchase an engine certified to the emission standards in §60.4204(b), or §60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's emission-related specifications. [40 CFR 60.4211(c)]
- (b) ODEC shall operate and maintain the stationary CI ICE according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer, over the entire life of the engine. [40 CFR 60.4206]
- (c) The emergency generator may be operated for the purpose of maintenance checks and readiness testing limited to 100 hours per year, provided that those tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. [40 CFR 60.4211(e)].
- (d) ODEC may operate the fire water pump engine for non-emergency activities provided the engine is limited to 100 hours of non-emergency operation annually.
- (e) ODEC shall install a non-resettable hour meter prior to startup of the engine. [40 CFR 60.4209(a)].

Compliance Determination

Testing and Monitoring Requirements

B-VII-9 Compliance with the BACT and LAER emission limitations shall be demonstrated as follows:

1. Emissions of NO_x+NMHC, CO, PM, PM₁₀, and PM_{2.5} shall be calculated using vendor guaranteed emission rates and used to calculate 12-month rolling emissions.
2. Emissions of SO₂ and SAM shall be calculated using AP-42 emission factors or other emission factors approved by MDE and used to calculate 12-month rolling emissions.
3. CH₄ and N₂O emissions from the emergency generator and fire water pump engine shall be calculated in accordance with the methodology and emission factors noted in 40 CFR 98, Subpart C. On a monthly basis, fuel consumption, coupled with the appropriate emission factors and global warming potentials (25 for CH₄ and 298 for N₂O), shall be used to calculate the CH₄ and N₂O emissions on a CO₂e basis. These emission rates, summed with the monthly CO₂ emissions based on 40 CFR 98, Subpart C or other methods approved by MDE-ARMA shall

be used to establish GHG emissions from the emergency generator and fire water pump engine on a CO₂e basis.

B-VII-10 ODEC shall install and maintain a non-resettable operating hour meter or the equivalent on the emergency generator and fire water pump engine to indicate the elapsed operating time.

Notification Requirements

B-VII-11 ODEC shall furnish written notification to MDE-ARMA and EPA of the following events: [40 CFR §60.7(a)]

- a) The date construction commenced within 30 days after such date; and
- b) The actual startup date within 15 days after such date.

Recordkeeping and Reporting Requirements

B-VII-12 ODEC shall comply will all applicable reporting and recordkeeping requirements for the emergency generator and the fire water pump engine specified in 40 CFR §60.4214.

B-VII-13 ODEC shall maintain fuel supplier certifications for each fuel delivery that documents the sulfur content of the ultra-low sulfur diesel (ULSD) is 15 ppm sulfur by weight or less. Fuel supplier certification shall include the following information:

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

B-VII-14 ODEC shall maintain the following records for the emergency generator and fire water pump engine [COMAR 26.11.09.08(E)]

- a) Identification of each affected installation, the rated heat input capacity of the emergency generator and fire water pump engine, and the type of fuel burned in these sources.
- b) Results of the combustion analysis at the site for at least 2 years and make this data available to MDE-ARMA and EPA upon request.
- c) Records of training program attendance for each operator at the site, and make these records available to MDE-ARMA upon request.

VIII. COOLING TOWER

Emission Unit Number(s):

CTW1

Wet Mechanical Draft Cooling Tower

Applicable Requirements

B-VIII-1 **Best Available Control Technology** - The cooling tower shall be designed with high efficiency drift eliminators to achieve a drift loss not to exceed 0.0005% of recirculating water flow. A written maintenance procedure shall be established that states how often and what procedures will be used to ensure the integrity of the drift eliminators. The maintenance procedure shall be maintained on-site and a copy provided to MDE-ARMA upon request.

IX. EQUIPMENT LEAKS

Emission Unit Number(s): FUG1

Natural gas pipeline components, including valves, connectors, flanges, pump seals and pressure relief valves within the facility boundary

Applicable Requirements

B-IX-1 **Best Available Control Technology** - GHG BACT for the natural gas pipeline components under ODEC's control shall be the implementation of an audio, visual, and olfactory (AVO) program. The AVO inspections shall be documented. Leaks identified from the AVO assessment shall be repaired within five days of discovery, repairs documented, and associated repair records maintained.

B-IX-2 The GHG emissions from the natural gas pipeline components shall be limited to meet the facility-wide GHG emissions limit listed in Condition B-III-3. Emissions from the natural gas pipeline components shall be calculated as follows:

- a) The GHG emissions from the natural gas pipeline components shall be based on EPA AP-42 emission factors, the methodology described in 40 CFR Part 98 Subpart W, or other MDE-approved emission factors.
- b) The total GHG emissions from the natural gas pipeline components shall be presented on a CO₂e basis.

Compliance Determination

Recordkeeping and Reporting Requirements

B-IX-3 ODEC shall maintain all records of monitoring and repair associated with the natural gas pipeline components at the Wildcat Point Project for at least five years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of MDE-ARMA.

X. CIRCUIT BREAKERS

Emission Unit Number(s): CB1

Circuit Breakers Containing SF₆

Applicable Requirements

- B-X-1 **Best Available Control Technology** - GHG BACT for the circuit breakers shall be installation of state-of-the-art circuit breakers that are designed to meet ANSI C37.013 or equivalent to detect and minimize SF₆ leaks. Leaks detected shall be repaired within five days of discovery; repairs documented, and associated repair records maintained.
- B-X-2 The GHG emissions from the circuit breakers shall be limited to meet the facility-wide GHG emissions limit listed in Condition B-III-3. The emissions from the circuit breakers shall be calculated as follows:
- a) SF₆ emissions from the circuit breakers shall be calculated using a manufacturer provided leak rate, the methodology in 40 CFR 98, Subpart DD and assuming 8,760 hours per year of operation.
 - b) The total GHG emissions from the circuit breakers shall be presented on a CO₂e basis.

Compliance Determination

Recordkeeping and Reporting Requirements

- B-X-3 ODEC shall maintain all records of monitoring and repair associated with the circuit breakers at the Wildcat Point Project for at least five years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of MDE-ARMA.

XI. FUEL OIL STORAGE TANKS

Emission Unit Number(s):

T-1	3,400-gallon fuel oil storage tank
T-2	600-gallon fuel oil storage tank

Applicable Requirements

- B-XI-1 The storage tanks shall be horizontal, fixed roof tanks.
- B-XI-2 **Lowest Achievable Emission Rate** – The VOC emissions from the storage tanks (combined) shall not exceed 0.001 ton per 12-month rolling period, through periodic maintenance on the tanks to minimize fugitive emissions.

Compliance Determination

Recordkeeping and Reporting Requirements

B-XI-3 ODEC shall maintain the following records at the Wildcat Point Project for at least five years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of MDE-ARMA:

- (a) Records of periodic maintenance performed on the tanks to minimize fugitive emissions.
- (b) Monthly VOC emissions calculations to show compliance with the 12-month rolling period limit.

XII. ON-SITE PAVED AND UNPAVED ROADS

Emission Unit Number(s):

R-1 Wildcat Point Paved and Unpaved Roads

Applicable Requirements

B-XII-1 Best Available Control Technology

ODEC shall minimize PM, PM10, and PM2.5 emissions from onsite roadways by taking reasonable precautions to prevent particulate matter from becoming airborne. [COMAR 26.11.06.03D]

XIII. NOTIFICATION REQUIREMENTS

B-XIII-1 All air quality notifications and reports required by this CPCN shall be submitted to:

Administrator, Compliance Program
Air and Radiation Management Administration
1800 Washington Boulevard
Baltimore, Maryland 21230

B-XIII-2 All notifications and reports required by 40 CFR §60 Subpart KKKK, Subpart IIII, Subpart Dc, and 40 CFR §63 Subpart ZZZZ shall be submitted to:

Director, Air Protection Division
U.S. EPA – Region 3
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

B-XIII-3 Information copies of the reports regarding air quality requirements as described in the conditions of Case 9327 (B-I-2, B-III-1b, B-III-7, B-III-8, B-IV-9, B-VII-11) shall be submitted to the Power Plant Research Program at:

Director
Power Plant Assessment Division
Department of Natural Resources
Tawes State Office Building, Bldg., B-3
580 Taylor Avenue
Annapolis, Maryland 21401

Table B-1 Emissions Standards for CTs/HRSGs

Pollutant/ Operation	Emission Limit (not to exceed)	Underlying Requirement	Averaging Period	Performance Test	Continuous Compliance Demonstration Method
Ammonia	5 ppmvd at 15% O ₂	26.11.02.02H	24-hour block average	Initial stack test using EPA Method CTM-027 or equivalent method approved by MDE-ARMA	Performance stack tests at least once every five years using EPA Method CTM-027 or equivalent method approved by MDE-ARMA
CO	1.5 ppmvd at 15% O ₂ without duct firing and 2.0 ppmvd at 15% O ₂ with duct firing, except during periods of startup and shutdown	BACT	3-hour block average	Initial compliance shall be demonstrated by installing a certified CO CEMS in accordance with the performance specifications of 40 CFR 60, Appendix B. The CEMS shall meet the quality assurance requirements of 40 CFR 60, Appendix F.	Emissions shall be continuously monitored via CO CEMS. [COMAR 26.11.01.11]. ODEC shall calculate monthly emissions from the CTs/HRSGs, based on emissions measured using the CEMS to demonstrate compliance with the project-wide emissions limit in Condition B-III-3.
CO During Startup/ Shutdown	13,767 lb/event (for all startups) and 818 lb/event (shutdowns) Limits are total for both CTs combined	BACT	N/A	None required	Emissions shall be continuously monitored via CO CEMS. [COMAR 26.11.01.11] ODEC shall calculate monthly emissions from the CTs/HRSGs, based on emissions measured using the CEMS to demonstrate compliance with the project-wide emissions limit in Condition B-III-3.

Table B-1 Emissions Standards for CTs/HRSGs

Pollutant/ Operation	Emission Limit (not to exceed)	Underlying Requirement	Averaging Period	Performance Test	Continuous Compliance Demonstration Method
GHG (as CO ₂)	946 lb CO ₂ /MW-hr with and without duct firing (gross), at all times	BACT	12-month rolling average	Initial compliance shall be demonstrated by installing a certified CO ₂ CEMS in accordance with the performance specifications of 40 CFR 60, Appendix B. The CEMS shall meet the quality assurance requirements of 40 CFR 60, Appendix F.	Emissions shall be continuously monitored via CO ₂ CEMS. [COMAR 26.11.01.11] Rolling average emissions shall be calculated based on CO ₂ CEMS data. The total generation (MW) shall be monitored to calculate the emission rate of CO ₂ (lb/MW-hr), determined each month by summing the CO ₂ emissions for all hours in which power is being generated to the grid during the previous 12 months and dividing that value by the sum of the electrical energy output over that same period.

Table B-1 Emissions Standards for CTs/HRSGs

Pollutant/ Operation	Emission Limit (not to exceed)	Underlying Requirement	Averaging Period	Performance Test	Continuous Compliance Demonstration Method
GHG (Heat Rate)	7,500 Btu/kWh (net) at all times when the CTs/HRSGs are operating, excluding startup and shutdown	BACT	N/A	Initial compliance with the heat rate limitation shall be demonstrated using ASME PTC-46 test method.	Annual thermal efficiency test conducted according to ASME PTC-46, or another methodology approved by MDE-ARMA, and compare results to design thermal efficiency value. An exceedance of the heat rate limit is not considered a violation of this permit, but triggers a requirement for ODEC to submit a maintenance plan to MDE-ARMA which specifies the actions ODEC plans to take in order to achieve the heat rate limit. The plan shall include a timeframe that the heat rate limit will be met not to exceed 60 days unless agreed to by MDE-ARMA.

Table B-1 Emissions Standards for CTs/HRSGs

Pollutant/ Operation	Emission Limit (not to exceed)	Underlying Requirement	Averaging Period	Performance Test	Continuous Compliance Demonstration Method
NO _x	15 ppmvd at 15% O ₂ or 54 ng/J (0.43 lb/MWh) of useful output at all times	NSPS Subpart KKKK [40 CFR §60.4320]	30-day rolling average	Initial compliance shall be demonstrated by installing a certified NO _x CEMS in accordance with the performance specifications of 40 CFR 60, Appendix B. The CEMS shall meet the quality assurance requirements of 40 CFR 60, Appendix F, and applicable requirements of 40 CFR 75.	Emissions shall be continuously monitored via NO _x CEMS. [40 CFR §60.4340(b)]
NO _x	42 ppm dry volume at 15% O ₂	COMAR 26.11.09.08G(2)	1-hour block average	Initial compliance shall be demonstrated by installing a certified NO _x CEMS in accordance with the performance specifications of 40 CFR 60, Appendix B. The CEMS shall meet the quality assurance requirements of 40 CFR 60, Appendix F, and applicable requirements of 40 CFR 75. [COMAR 26.11.01.11]	Emissions shall be continuously monitored via NO _x CEMS. [COMAR 26.11.01.11]

Table B-1 Emissions Standards for CTs/HRSGs

Pollutant/ Operation	Emission Limit (not to exceed)	Underlying Requirement	Averaging Period	Performance Test	Continuous Compliance Demonstration Method
NO _x	2.0 ppmvd at 15% O ₂ with and without duct firing, except during periods of startup and shutdown	BACT and LAER <i>Note: BACT and LAER limit is more stringent than NSPS and COMAR limits</i>	3-hour block average	Initial compliance shall be demonstrated by installing a certified NO _x CEMS in accordance with the performance specifications of 40 CFR 60, Appendix B. The CEMS shall meet the quality assurance requirements of 40 CFR 60, Appendix F, and applicable requirements of 40 CFR 75. [COMAR 26.11.01.11]	Emissions shall be continuously monitored via NO _x CEMS. [COMAR 26.11.01.11] ODEC shall calculate monthly emissions from the CTs/HRSGs, based on emissions measured using the CEMS to demonstrate compliance with the project-wide emissions limit in Condition B-III-3.
NO _x During Startup/ Shutdown	870 lb/event (for all startups) and 100 lb/event (shutdowns) Limits are for both CTs combined	BACT and LAER	N/A	None required	Emissions shall be continuously monitored via NO _x CEMS. ODEC shall calculate monthly emissions from the CTs/HRSGs, based on emissions measured using the CEMS to demonstrate compliance with the project-wide emissions limit in Condition B-III-3.

Table B-1 Emissions Standards for CTs/HRSGs

Pollutant/ Operation	Emission Limit (not to exceed)	Underlying Requirement	Averaging Period	Performance Test	Continuous Compliance Demonstration Method
PM	15.0 lb/hr without duct firing and 22.8 lb/hr with duct firing at all times	BACT	3-hour block average	Initial and annual performance test using EPA Method 5 or equivalent method approved by MDE-ARMA	ODEC shall calculate monthly emissions from the CTs/HRSGs, based on fuel throughput rate to the CTs/HRSGs and emission factors developed during annual stack tests to demonstrate compliance with the project-wide emissions limit in Condition B-III-3.
PM10	25.1 lb/hr without duct firing and 38 lb/hr with duct firing, at all times	BACT	Average of three stack test runs	Initial and annual performance test using EPA Methods 201A/202 or equivalent method approved by MDE-ARMA	ODEC shall calculate monthly emissions from the CTs/HRSGs, based on fuel throughput rate to the CTs/HRSGs and emission factors developed during annual stack tests to demonstrate compliance with the project-wide emissions limit in Condition B-III-3.

Table B-1 Emissions Standards for CTs/HRSGs

Pollutant/ Operation	Emission Limit (not to exceed)	Underlying Requirement	Averaging Period	Performance Test	Continuous Compliance Demonstration Method
PM2.5	25.1 lb/hr without duct firing and 38 lb/hr with duct firing, at all times	BACT	Average of three stack test runs	Initial and annual performance test using EPA Methods 201A/202 or equivalent method approved by MDE-ARMA	ODEC shall calculate monthly emissions from the CTs/HRSGs, based on fuel throughput rate to the CTs/HRSGs and emission factors developed during annual stack tests to demonstrate compliance with the project-wide emissions limit in Condition B-III-3.
SAM	9.7 lb/hr without duct firing and 12.5 lb/hr with duct firing, at all times	BACT	3-hour block average	Initial and at least once every five years conduct a performance test using EPA Method 8 or equivalent method approved by MDE-ARMA	ODEC shall calculate monthly emissions from the CTs/HRSGs, based on fuel throughput rate to the CTs/HRSGs and emission factors developed during annual stack tests to demonstrate compliance with the project-wide emissions limit in Condition B-III-3.

Table B-1 Emissions Standards for CTs/HRSGs

Pollutant/ Operation	Emission Limit (not to exceed)	Underlying Requirement	Averaging Period	Performance Test	Continuous Compliance Demonstration Method
SO ₂	6.3 lb/hr without duct firing and 8.2 lb/hr with duct firing, at all times	BACT	3-hour block average	ODEC shall conduct an initial and annual performance test using EPA Method 6C or equivalent method approved by MDE-ARMA. In lieu of stack testing, ODEC may elect to obtain fuel sulfur content analysis using methodology outlined in 40 CFR 60.4415.	ODEC shall calculate monthly emissions from the CTs/HRSGs, based on fuel throughput rate to the CTs/HRSGs and emission factors developed from annual stack tests OR calculated from fuel analysis to demonstrate compliance with the project-wide emissions limit in Condition B-III-3.

Table B-1 Emissions Standards for CTs/HRSGs

Pollutant/ Operation	Emission Limit (not to exceed)	Underlying Requirement	Averaging Period	Performance Test	Continuous Compliance Demonstration Method
SO ₂	ODEC shall not burn any fuel with total potential sulfur emissions in excess of 26 ng/J (0.060 lb/MMBtu) heat input	NSPS [40 CFR §60.4330]	At all times	Initial and annual performance tests per 40 CFR §60.4415	N/ A (if ODEC elects to demonstrate compliance with the emission limits by performing stack tests) OR If ODEC elects to comply with the minimum fuel sulfur content limit under 40 CFR§60.4330, ODEC must monitor the total sulfur content of the fuel using the methods described in 40 CFR §60.4415 at a frequency described in 40 CFR §60.4370. [40 CFR §60.4360]

Table B-1 Emissions Standards for CTs/HRSGs

Pollutant/ Operation	Emission Limit (not to exceed)	Underlying Requirement	Averaging Period	Performance Test	Continuous Compliance Demonstration Method
Visible Emissions	20% Opacity	COMAR 26.11.09.05A(1)	At all times, except as provided in COMAR 26.11.09.05A(3)	Initial Method 9 for 1 hour within 180 days of initial startup [COMAR 26.11.09.05A(1) and (5)]	Visible observation in accordance with EPA Reference Method 22 at least once each calendar quarter to verify that there are no visible emissions during operation. If visible emissions are observed ODEC shall inspect combustion control system, perform necessary adjustments and/or repairs within 48 hours, and document in writing the results of inspection, adjustments and or repairs. After 48 hours, if the required adjustments and/or repairs have not eliminated the visible emissions, ODEC shall perform Method 9 observations once daily for at least one hour until corrective actions have reduced the visible emissions to less than 20 percent opacity. [COMAR 26.11.02.02(H)]

Table B-1 Emissions Standards for CTs/HRSGs

Pollutant/ Operation	Emission Limit (not to exceed)	Underlying Requirement	Averaging Period	Performance Test	Continuous Compliance Demonstration Method
VOC	0.7 ppmvd at 15% O ₂ , without duct firing and 1.6 ppmvd at 15% O ₂ with duct firing, except during periods of startup and shutdown	LAER	3-hour block average	Initial and annual performance test using EPA Method 18/25A or equivalent method approved by MDE-ARMA	CO CEMS data shall be used as a surrogate for VOC emissions. A correlation shall be developed between CO and VOC emissions based on an initial stack test. The emission correlation shall be verified annually by stack test or a new correlation established. Monthly emissions during normal operation shall be calculated using the VOC emission rates and monthly fuel throughput rates to the CTs/HRSGs.

Table B-1 Emissions Standards for CTs/HRSGs

Pollutant/ Operation	Emission Limit (not to exceed)	Underlying Requirement	Averaging Period	Performance Test	Continuous Compliance Demonstration Method
VOC	6,720 lb/ event (cold startup); 4,290 lb/ event (warm startup) ; 566 lb/ event (hot startup); 606 lb/ event (shutdown) Limits are for both CTs combined	LAER	N/ A	N/ A	The VOC emissions factors during startup and shutdown provided by the vendor and number and type of startup and shutdown events shall be used to calculate the monthly VOC emissions during startup and shutdown events. The monthly emissions shall be used to demonstrate compliance with the project-wide VOC emissions limit in Condition B-III-3.

WATER SUPPLY

I. Construction Dewatering

- C-1. ODEC Wildcat Point is entitled to file for an exemption to these construction dewatering conditions in accordance with Maryland Environment Article §5-502 if the use of groundwater does not exceed an average of 5,000 gallons of water per day. If ODEC Wildcat Point does not request an exemption at least 30 days before the use is proposed to begin, then the conditions listed below shall apply.
- C-2. This CPCN authorizes ODEC Wildcat Point to appropriate and use groundwaters of the State from the Baltimore Gabbro Complex. The appropriation will be tracked under MDE Water Management Administration (WMA) permit number XXXXX. The groundwater appropriation will be subject to the following conditions:
- a. Allocation – The groundwater withdrawal granted by this appropriation is limited to a daily average of 1,100 gallons on a yearly basis and a daily average of 6,700 gallons for the month of maximum use.
 - b. Use – The water is to be used for lowering the water table to facilitate construction of the 1,000 MW Wildcat Point Project.
 - c. Source – The water shall be withdrawn from excavations completed in the overburden and in the rocks of the Baltimore Gabbro Complex.
 - d. Location – The point of withdrawal shall be located at the site of the ODEC Wildcat Point facility, adjacent to 1423 Rock Springs Road, Rising Sun, Cecil County, Maryland.
- C-3. Change of Operations – ODEC Wildcat Point shall report any anticipated change in appropriation, which may result in a new or different use, quantity, source, or place of use of water, to MDE WMA by submission of a new application.
- C-4. Permit Review – ODEC Wildcat Point may be queried every three years (triennial review) regarding water withdrawal under the terms and conditions of this appropriation. Failure to return the triennial review query will result in suspension or revocation of this appropriation.
- C-5. Appropriation Duration and Renewal – The appropriation will expire in three (3) years from the effective date of the issuance of the CPCN. In order to renew the appropriation, ODEC Wildcat Point shall file a renewal application with MDE WMA no later than 45 days prior to expiration. In the event that the construction schedule is extended, and groundwater dewatering will continue to be needed to support construction, a one-year renewal of the appropriation shall be granted only if ODEC Wildcat Point provides written documentation to MDE WMA within six months of the expiration date demonstrating that the construction schedule will be extended and dewatering for construction activities will continue to be needed.
- C-6. Additional Permit Conditions – MDE WMA may at any time (including triennial review

or when a change application is submitted) revise any condition of this appropriation or add additional conditions concerning the character, amount, means and manner of the appropriation or use, which may be necessary to properly protect, control and manage the water resources of the State. Condition revisions and additions will be accompanied by issuance of a revised appropriation.

- C-7. Right of Entry – ODEC Wildcat Point shall allow authorized representatives of MDE WMA and the PSC staff access to the facility to conduct inspections and evaluations necessary to assure compliance with the conditions of this appropriation. ODEC Wildcat Point shall provide such assistance as may be necessary to effectively and safely conduct such inspections and evaluations.
- C-8. Appropriation Suspension or Revocation – MDE WMA may suspend or revoke this appropriation upon violation of the conditions of this appropriation, or upon violation of any regulation promulgated pursuant to Title 5 of the Environment Article, Annotated Code of Maryland (2007 replacement volume) as amended.
- C-9. Non-Transferable – This appropriation is only transferable to a new owner if the new owner acquires prior authorization to continue this appropriation by filing a new application with MDE WMA. Authorization will be accomplished by issuance of a new appropriation permit by MDE WMA.
- C-10. Drought Period Emergency Restrictions – If the Department determines that a drought period or emergency exists, ODEC Wildcat Point may be required under the Department’s direction to stop or reduce water use. Any cessation or reduction of water use must continue for the duration of the drought period or emergency, or until the department directs ODEC Wildcat Point that water use under standard permit conditions may be resumed.

II. Groundwater Potable Supply

- C-11. ODEC shall work with its operating partner at the Rock Springs generating facility to eliminate the existing Rock Springs water appropriation permits as follows: (a) request deactivation of the existing surface water permit (CE2000S009(05)), and (b) file for a notice of exemption for the existing groundwater permit (CE2000G008(05)). The notice of exemption shall include the second supply well and list the uses as potable and sanitary only. If the request for an exemption is approved, groundwater appropriation permit CE2000G008(05) will be inactivated.
- C-12. Groundwater withdrawn will be used as a potable supply to serve more than 25 employees at both the ODEC Wildcat Point Generation Facility and the existing Rock Springs power plant (owned by ODEC and Essential Power). Therefore, the proposed groundwater withdrawal will be classified as a non-transient non-community water system as defined in COMAR 26.04.01.01, and must meet the requirements set forth under this regulation, including:
 - a. ODEC shall obtain MDE WMA approval for siting of the proposed new well, and County approval for the well drilling;

- b. ODEC shall perform water quality sampling to demonstrate that it meets drinking water quality standards before the new well can be put into service; and
- c. ODEC shall obtain a Certificate of Potability from MDE prior to operation of the Wildcat Point facility.

III. Susquehanna River Appropriation

- C-13. ODEC shall not begin construction of the Wildcat Point Project prior to obtaining approval from the Susquehanna River Basin Commission (SRBC) for the requested water withdrawal and consumptive use from the Susquehanna River. Documentation of SRBC approval shall be provided to PPRP and to MDE Water Management Administration (WMA) before ODEC begins construction of the Wildcat Point facility.
- C-14. Following the effective date of this CPCN, ODEC Wildcat Point shall submit to the PSC, PPRP and MDE WMA a status report every six months on progress toward obtaining all necessary approvals for the water supply pipeline and intake structure, until all approvals are received.

TERRESTRIAL AND AQUATIC ECOLOGY

- D-1. Construction and operation of the Wildcat Point project and all its appurtenant features shall comply with all applicable local, State, and federal regulations, including but not limited to the following:
 - a. Nontidal Wetlands – COMAR 26.23 applies to activities conducted in nontidal wetlands.
 - b. Water Quality and Water Pollution Control – COMAR 26.08.01 through COMAR 26.08.04 apply to discharges to surface water and maintenance of surface water quality.
 - c. Erosion and Sediment Control – COMAR 26.17.01 applies to the preparation, submittal, review, approval, and enforcement of erosion and sediment control plans.
- D-2. Areas that are disturbed during construction of the Wildcat Point Project shall be stabilized within 24 hours after the cessation of construction activities within that portion of the construction footprint, followed by seed application, in accordance with the best management practices presented in the MDE document *2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control*, and as approved by Cecil County. In wetlands and wetland buffers, seed application shall consist of the following species: annual ryegrass (*Lolium multiflorum*), millet (*Setaria italica*), barley (*Hordeum* spp.), oats (*Uniola* spp.), and/or rye (*Secale cereale*). Other non-persistent vegetation may be acceptable if approved by the MDE Water Management Administration. Kentucky 31 fescue and other non-native invasive species shall never be used in wetlands or buffers.
- D-3. The CPCN is not an authorization to discharge stormwater or wastewater to waters of the State. If required by MDE, ODEC shall obtain a discharge permit from MDE under

the National Pollutant Discharge Elimination System (NPDES) for the Wildcat Point Project.

- D-4. ODEC shall develop and implement a plan to replant two (2) acres of trees as replacement for the loss of trees as a result of construction. ODEC shall submit the plan to DNR within 90 days following the effective date of this CPCN, and shall obtain approval from DNR within six (6) months following the effective date of this CPCN.

STORMWATER MANAGEMENT/EROSION AND SEDIMENT CONTROL

- E-1. At a minimum, sediment control during construction of all aspects of this project shall include the following Best Management Practices: construction of earth dikes and retaining walls in appropriate locations, sediment traps, use of super silt fences, stabilizing disturbed areas as quickly as possible, and converting silt traps to permanent features as soon as practicable.

NOISE LEVELS

- F-1. Before construction begins, ODEC shall prepare an updated predictive analysis of noise impacts from the Wildcat Point project to demonstrate expected compliance with State noise limits. This analysis shall provide data on noise levels to be produced by the major project components, and shall describe the specific abatement measures incorporated into the design to meet the 55 dBA noise limit at residential property boundaries within Maryland. ODEC shall provide the analysis to PPRP and the PSC for review.
- F-2. ODEC shall monitor noise levels at the boundaries of the Wildcat Point/Rock Springs site, after the Wildcat Point facility is operational, to verify results of the predictive analysis. The scope of work for the noise monitoring shall be provided to PPRP and the PSC for review and approval within one year after the effective date of this CPCN. Measurements shall be taken while both the Wildcat Point and Rock Springs units are operating, to represent maximum noise emissions. ODEC shall provide results within six (6) months after the Wildcat Point facility begins commercial operation.
- F-3. The facility shall operate in compliance with all applicable noise regulations. If the results of the predictive noise analysis indicate a potential for exceedance of applicable State noise standards, or if the post-construction noise monitoring indicate that the facility is not operating in compliance with those standards, ODEC shall work with PPRP and the PSC to incorporate appropriate noise mitigation strategies into facility design or operation to ensure regulatory compliance.

TRAFFIC

- G-1. Prior to the start of construction, ODEC, or its general contractor shall submit a detailed project construction plan to the Maryland State Highway Administration (SHA) for review. ODEC shall obtain SHA approval and shall complete any roadway improvements necessary to mitigate construction traffic impacts prior to the site generating substantial traffic demand. The SHA reserves the right to require temporary

improvements at any of the intersections within the study area in order to reduce impacts to traffic operations and maintain safety.

- G-2. ODEC shall obtain any required permits from the District Office of the SHA and Cecil County Department of Public Works.
- G-3. Prior to dispatching oversize/overweight vehicles to staging or construction sites for the Project, ODEC shall comply with all weight and size restrictions and/or bonding requirements on all State highways and obtain appropriate oversize/overweight approvals as necessary.
- G-4. ODEC shall submit to the SHA a mobile Maintenance of Traffic (MOT) plan for the transport of oversize/overweight loads over State highways, addressing utility adjustments, utility line clearances, bridging over culverts, loads on bridges, adjustment to traffic signals, road closures and emergency vehicle access. ODEC shall obtain SHA approval of the MOT plan prior to dispatching oversize/overweight vehicles to staging or construction sites.
- G-5. ODEC shall submit a travel routing and MOT plan to the Cecil County Department of Public Works Roads Division and affected incorporated municipalities, as appropriate, at least five days prior to dispatching oversize/overweight vehicles over local roads to the construction site.
- G-6. ODEC shall mitigate disruptions to commuter traffic to the extent practicable by scheduling the transport of materials and equipment to the construction site during non-peak hours.
- G-7. ODEC shall instruct its contractors to route all truck traffic to the construction site via US 222 (Rock Springs Road) and avoid Connelly Road/New Bridge Road.

VISUAL QUALITY

- H-1. ODEC shall design the facility in substantial conformity with the Site Plan drawings reviewed by the Cecil County Office of Planning and Zoning.
- H-2. ODEC shall include landscaping details that mitigate views to the extent practicable in its Site Plan submission to the county.
- H-3. ODEC shall develop a lighting distribution plan that will mitigate intrusive night lighting and avoid undue glare onto adjoining properties. ODEC shall obtain plan approval from the PSC and PPRP prior to operation of the facility.

PUBLIC SAFETY

- I-1. Prior to the start of construction, ODEC shall contact Cecil County's Department of Emergency Services to address site safety/EMS coverage during construction, establish timely response options and facilitate emergency vehicle access throughout the site in case of an accident or injury. Where existing emergency response capabilities are determined to be inadequate, ODEC shall assist these organizations through contributions, training, and/or general support.

CULTURAL RESOURCES

- J-1. ODEC shall establish an archeological protection zone for site 18CE153 by erecting temporary protective fencing around it during construction and avoiding any ground disturbance below one foot within the perimeter of this area, except with the written approval of the Maryland Historical Trust (MHT).
- J-2. In the event that relics of unforeseen archeological sites are revealed and identified during construction, ODEC shall consult with the MHT and shall develop and implement a plan for avoidance and protection, data recovery, or destruction without recovery of such relics or sites, subject to MHT's written approval.

NATURAL GAS SUPPLY

- K-1. ODEC shall submit to the PSC and to PPRP a status report on the Federal Energy Regulatory Commission (FERC) licensing of the natural gas lateral pipeline, within six (6) months after the effective date of this CPCN and every 6 months thereafter until the FERC approval is received.
- K-2. ODEC shall immediately notify the PSC and PPRP if it becomes aware of any significant changes in the routing, permitting, or construction of that portion of the natural gas pipeline within Maryland. If necessary, the PSC may determine, in consultation with State agencies, whether the change constitutes a modification of this CPCN.
- K-3. ODEC shall notify the PSC and PPRP if it becomes aware that Transcontinental Gas Pipe Line Co., LLC, will not be able to meet the expected delivery date of August 2016 to supply natural gas to the Wildcat Point project, and provide updated information on the natural gas supply plan.

Appendix B
Detailed Air Emissions
Calculations

Assumptions and Data Sources

CTs and HRSGs

Emission factors

NOX, CO, VOC, PM, PM10, PM2.5	Vendor performance specifications
SO2, SAM	Vendor performance specification basde on sulfur content of 0.75 gr/dscf
CO2, CH4, N2O	40 CFR Part 98 (GHG Mandatory Reporting Rule)
Lead	AP-42 emission factors
HAPs	AP-42 emission factors (Section 3-1)
Ammonia	Slip limits of 5 ppm

Operating scenarios

Scenario 1: CTs - 4,760 hours per year; Duct firing: 4,000 hours per year, no SU/SD

Scenario 2: CTs -1,153 hours per year; Duct firing: 4,000 hours per year, SU/SD

Auxiliary Boiler and Dew Point Heater

NOX, VOC	LAER limits
CO, PM, PM10, PM2.5, SO2	BACT limits
HAPs	AP-42 emission factors
CO2, CH4, N2O	40 CFR Part 98 (GHG Mandatory Reporting Rule)

Operating Limits

Auxiliary Boiler	2000 hours per year
Dew Point Heater	8,760 hours per year

Emergency Generator and Fire water Pump

NOX, VOC, CO, PM, PM10, PM2.5	NSPS Subpart IIII
CO2, CH4, N2O	40 CFR Part 98 (GHG Mandatory Reporting Rule)
Operating Limits	100 hours per year

Circuit Breakers

Leak rate assumption	0.5% of quantity of SF6 stored

Fugitive Components

Component count	ODEC estimates
Emission factor	API GHG Compendium and gas sample data

Facility-Wide Emissions Summary

(i) Annual Emissions (tpy)

Unit	NO _x	VOCs	CO	PM	PM10	PM2.5	SO _x	Pb	Sulfuric Acid Mist	CO2e
CT/Duct Burners	228.4	340.00	506.21	162.60	271.48	271.48	62.79	0.004	96.22	3,489,558
Auxiliary Boiler	0.45	0.15	1.62	0.34	0.34	0.34	0.03	2.3E-05	0.0004	5,265
2,250-kW Generator	1.59	0.09	0.87	0.05	0.05	0.05	0.002	-	-	176
477-hp Fire Water Pump	0.157	0.06	0.14	0.01	0.01	0.01	0.0003	-	-	27.90
Dew Point Heater	1.07	0.12	1.80	0.16	0.16	0.16	0.01	1.1E-05	2.0E-04	2562.31
Cooling Tower	-	-	-	13.66	6.19	0.03	-	-	-	
Circuit Breakers	-	-	-	-	-	-	-	-	-	280.73
Fugitives	-	-	-	-	-	-	-	-	-	156.38
Fuel Oil Storage Tanks	-	0.0003	-	-	-	-	-	-	-	-
Total	231.7	340.4	510.6	176.8	278.2	272.1	62.8	0.004	96.2	3,498,026

Offsets Required 301 443

(ii) Short-term Emissions (lb/hr)

Unit	NO _x	VOCs	CO	PM	PM10	PM2.5	SO _x	Pb	Sulfuric Acid Mist	CO2e
CT/Duct Burners	29.7	8.1	18.1	22.8	38.0	38.0	8.2	0.0004	12.50	456,528
Auxiliary Boiler	0.45	0.15	1.62	0.34	0.34	0.34	0.03	2.3E-05	0.000	5,265
2,250-kW Generator	31.7	1.86	17.36	0.99	0.99	0.99	0.04	-	-	-
477-hp Fire Water Pump	3.137	1.13	2.74	0.16	0.16	0.16	0.01	-	-	-
Dew Point Heater	0.25	0.0	0.41	0.04	0.04	0.04	0.00	2.5E-06	0.00	585
Cooling Tower	-	-	-	3.12	1.41	0.01	-	-	-	-
Circuit Breakers	-	-	-	-	-	-	-	-	-	64
Fugitives	-	-	-	-	-	-	-	-	-	37
Fuel Oil Storage Tanks	-	7.1E-05	-	-	-	-	-	-	-	-
Total	65.2	11.3	40.2	27.4	40.9	39.5	8.3	0.0005	12.5	462,479

Facility-Wide Emissions Summary - All Units Combined

Unit		NO _x	VOCs	CO	PM	PM10	PM2.5	SO _x	Pb	Sulfuric Acid Mist	CO2e
CT/Duct Burners	Without duct firing	2 ppm @ 15% O2 23.1 lb/hr 7.3e-03 lb/MMbtu	0.7 ppm @15% O2 2.8 lb/hr 8.8e-04 lb/MMBtu	1.5 ppm @15% O2 10.5 lb/hr 3.3e-03 lb/MMBtu	15.0 lb/hr 4.72e-03 lb/MMBtu	25.1 lb/hr 7.9e-03 lb/MMBtu	25.1 lb/hr 7.9e-03 lb/MMBtu	6.3 lb/hr 1.98e-03 lb/MMbtu	-	9.7 lb/hr 3.05e-03 lb/MMBtu	427,623 lb/hr 1.34e02 lb/MMBtu
	With duct firing	2 ppm @ 15% O2 29.7 lb/hr 7.3e-03 lb/MMBtu	1.6 ppm @15% O2 8.1 lb/hr 2.0e-03 lb/MMBtu	2.4 ppm @15% O2 18.1 lb/hr 4.5e-03 lb/MMBtu	22.8 lb/hr 5.63e-03 lb/MMBtu	38 lb/hr 9.3e-03 lb/MMBtu	38 lb/hr 9.3e-03 lb/MMBtu	8.2 lb/hr 2e-03 lb/MMbtu	4.6E-4 lb/hr 1.1e-07 lb/MMBtu	12.5 lb/hr 3.1e-03 lb/MMBtu	550,704 lb/hr 1.34e02 lb/MMBtu
Auxiliary Boiler	lb/MMBtu	0.01	0.0033	0.0360	0.0075	0.0075	0.0075	0.0006	5.0E-07	9.19E-06	117
	lb/hr	0.45	0.15	1.62	0.34	0.34	0.34	0.03	2.3E-05	4.13E-04	5,265
2,250-kW Generator	g/bhp-hr	4.8	0.28	2.61	0.15	0.15	0.15	0.006	-	-	
	lb/MMBtu	-	-	-	-	-	-	-	-	-	164
	lb/hr	31.73	1.86	17.36	0.99	0.99	0.99	0.04	-	-	3518
477-hp Fire Water Pump	g/bhp-hr	3.0	1.07	2.61	0.15	0.15	0.15	0.005	-	-	
	lb/MMBtu	-	-	-	-	-	-	-	-	-	163.63
	lb/hr	3.137	1.13	2.74	0.16	0.16	0.16	0.01	-	-	557.98
Dew Point Heater	lb/MMBtu	0.0490	0.0054	0.0824	0.0075	0.0075	0.0075	0.0006	5.0E-07	9.2E-06	117.00
	lb/hr	0.245	0.027	0.412	0.038	0.038	0.038	0.003	2.5E-06	4.6E-05	584.76
Cooling Tower	lb/hr	-	-	-	3.12	1.41	0.01	-	-	-	-
Circuit Breakers	lb/hr	-	-	-	-	-	-	-	-	-	64.09
Fuel Oil Tanks	tpy	-	0.0003	-	-	-	-	-	-	-	-

Emission Calculations Associated with the CTs and Duct Burners Wildcat Point Project

CTs Only Case # (from CT Vendor)			1	2	3	13	14	15	28	29	30	28	29	30
Amb Temp (deg F)			-14	-14	-14	54.2	54.2	54.2	105	105	105	105	105	105
Humidity (%)			46	46	46	67.9	67.9	67.9	48	48	48	48	48	48
Evap Cooler Status			OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON
Load (%)			100	100	75	50	100	75	100	100	75	100	75	50
Load Output (MW)				242.1	161.4	271	203.2	135.5	238.1		181.5	133.1	238.1	133.1
Exhaust Temp (deg F)				1,056	1,164	1,149	1,107	1,202	1,166		1,140	1,202	1,166	1,140
Heat Rate (Btu/KW- HHV)		10373	10,373	10,894	11,076	10,551	11,027	11,779	10,885	10,885	11,696	12,045		
Exhaust flow (acfm)	5996100	5,996,100	5,243,700	3,437,000	5,294,300	5,294,300	4,477,000	3,179,000	4,853,200	4,853,200	4,170,100	3,191,000		

CT Only Emission Rates - Without Duct Firing

NOX - ppmvd					15	15	15		15	15	15		15	15	15	15	15	
CO - ppmvd					12.3	12.6	12.7		12.2	12.2	13.4		13.2	12.9	13.4	13.2	12.9	
UHC - ppmvd					5.6	5.6	5.7		5.6	5.6	5.9		6.1	6	5.9	6.1	6	
	Maximum																	Annual Emissions (tpy)
	W/O DB	W/DB																
NOX - lb/hr	23.1	29.7	23.05	29.68	19.12	12.96	20.73	27.37	16.24	11.57	18.79	25.56	15.39	11.62				212.4
CO - lb/hr	10.5	18.1	10.52	18.1	8.73	5.92	9.47	16.7	7.42	5.28	8.58	15.6	7.03	5.31				506.2
VOC - lb/hr	2.8	8.1	2.8	8.1	2.3	1.5	2.5	7.6	2	1.4	2.3	7.2	1.9	1.4				340.0
PM10 and PM2.5 - lb/hr	25.1	38.0	25.1	38	22.8	19.4	23.8	36.7	21.2	18.6	22.7	35.9	20.7	18.6				197.5
PM - lb/hr	15.0	22.8	15	22.8	13.7	11.6	14.3	22	12.7	11.1	13.6	21.5	12.4	11.2				125.0
NH3 - lb/hr	93.4	131.6	93.4	131.6	77.5	52.5	84	122.3	65.8	46.9	76.2	115.2	62.4	47.1				634.1
SO2 - lb/hr	9.3	8.2	6.3	8.2	5.3	3.6	5.7	7.5	4.5	3.2	5.2	7	4.2	3.2				41.6
\$AM - lb/hr	9.7	12.5	9.71	12.5	8.05	5.46	8.73	11.53	6.84	4.87	7.91	10.77	6.48	4.89				67.5
CO2 - lb/hr	345,975	451,971	384,659	490,377	319,077	216,348	345,975	451,971	271,161	193,116	313,632	421,600	256,883	193,963				2,206,795
CH4 - lb/hr	27.0	35.3	30.07	38.34	24.95	16.91	27.05	35.34	21.20	15.10	24.52	32.96	20.08	15.16				172.5
N2O - lb/hr	9.4	12.3	10.49	13.37	8.70	5.90	9.44	12.33	7.40	5.27	8.55	11.50	7.01	5.29				60.19
CO2e - lb/hr	349,463	456,528																2,313,725
Lead - lb/hr	0.0E+00	4.4E-04		4.28E-04				4.29E-04				4.37E-04						1.75E-03
Duct Burner Size (MMBtu/hr) -LHV				788.6				790.7				805.4			805.4			
Duct Burner Size (MMBtu/hr) -HHV				873.7				876				892.3			892.3			
GTs - MMBtu/hr - LHV			2870		2380	1613	2581		2022	1441	2339		1916	1447	2339	1916	1447	
GTs - MMBtu/hr - HHV			3179	4052.7	2637	1788	2859.3	3735.3	2241	1596	2592	3484.3	2123	1603	2592	2123	1603	
GTs with DB - MMBtu/hr - LHV			3127.6				2706.7				2252.4							
GTs with DB - MMBtu/hr - HHV			3465.7				2999				2495.3							
Emission Rates																		
Duct Firing (without controls)																		
NOX (lb/MMBtu)	0.08		69.90				70.08				71.38							
CO (lb/MMBtu)	0.06		52.42				52.56				53.54							
VOC (lb/MMBtu)	0.02		17.47				17.52				17.85							
PM- Front Half (lb/MMBtu)	0.005		4.37				4.38				4.46							
PM -Total (lb/MMBtu)	0.01		8.74				8.76				8.92							
SO2 (lb/MMBtu)	0.0022		1.93				1.94				1.97							
CO2 (lb/MMBtu)	121.0																	
CH4 (lb/MMBtu)	9.46E-03																	
N2O (lb/MMBtu)	3.30E-03																	
Emission Rates (lb/MMBtu) - HHV																		
NOX	7.25E-03	7.32E-03																
CO	3.31E-03	4.47E-03																
VOC	8.81E-04	2.00E-03																
PM10 and PM2.5	7.90E-03	9.38E-03																
PM	4.72E-03	5.63E-03																
NH3	2.94E-02	3.25E-02																
SO2	1.98E-03	2.02E-03																
\$AM	3.05E-03	3.08E-03																
CO2	1.09E+02	1.12E+02																
CH4	8.51E-03	8.72E-03																
N2O	2.97E-03	3.04E-03																
CO2e	1.10E+02	1.13E+02																
Lead	0.00E+00	1.08E-07																

Annual Emissions (tpy)																	
NOX			101.0	114.2	83.7	56.8	90.8	104.1	71.1	50.7	82.3	95.8	67.4	50.9			
CO			46.1	61.2	38.2	25.9	41.5	55.9	32.5	23.1	37.6	51.6	30.8	23.3			
VOC			12.3	22.9	10.1	6.6	11.0	21.2	8.8	6.1	10.1	19.9	8.3	6.1			
PM10 and PM2.5			109.9	135.7	99.9	85.0	104.2	130.0	92.9	81.5	99.4	125.8	90.7	81.5			
PM			65.7	81.3	60.0	50.8	62.6	78.0	55.6	48.6	59.6	75.4	54.3	49.1			
NH3			409.1	485.5	339.5	230.0	367.9	444.5	288.2	205.4	333.8	411.8	273.3	206.3			
SO2			27.6	31.4	23.2	15.8	25.0	28.6	19.7	14.0	22.8	26.4	18.4	14.0			
SAM			42.5	48.1	35.3	23.9	38.2	43.8	30.0	21.3	34.6	40.4	28.4	21.4			
CO2			1,684,806	1,896,242	1,397,557	947,604	1,515,372	1,727,364	1,187,685	845,848	1,373,708	1,589,645	1,125,148	849,558			
CH4			131.7	148.3	109.3	74.1	118.5	135.0	92.9	66.1	107.4	124.3	88.0	66.4			
N2O			45.9	51.7	38.1	25.8	41.3	47.1	32.4	23.1	37.5	43.4	30.7	23.2			
CO2e			1,701,817	1,915,387	1,411,668	957,172	1,530,672	1,744,804	1,199,676	854,388	1,387,578	1,605,694	1,136,507	858,135			
Lead			1.9E-03				1.9E-03				1.9E-03						

Scenario 1: Total Emissions (2 CTG plus 2 STG) - Without SU/SD; CTs - 4,760 hrs, Duct firing - 4,000 hrs																	
NOX			228.4														
CO			122.5														
VOC			45.7														
PM10 and PM2.5			271.5														
PM			162.6														
NH3			971.0														
SO2			62.8														
SAM			96.2														
CO2			3,454,728														
CH4			270														
N2O			94														
CO2e			3,489,558														
Lead			0.004														

Scenario 2: Total Emissions (2 CTG plus 2 STG) - SU/SD included; Duct firing - 4,000 hrs, CTs - 1,143 hrs																	
NOX			212.4														
CO			506.2														
VOC			340.0														
PM10 and PM2.5			197.5														
PM			125.0														
NH3			634.1														
SO2			41.6														
SAM			67.5														
CO2			2,206,795														
CH4			172.5														
N2O			60.2														
CO2e			2,313,725														
Lead			0.002														

Note: Shaded values indicate worst-case annual emissions scenarios

1 - AP-42 emission factor for Gas Turbines, Section 3-1; Table 3-1.2a

Wildcat Point Generation Facility Project CT Startup and Shutdown Emissions
CT Startup and Shutdown Emissions

Description of Startup and Shutdown Events

Type	Sub-Type	Duration (min/event)	No. Events per Year	Total Hours/ year
Startup	Cold	270.0	15.0	67.5
	Warm	174.0	60.0	174.0
	Hot	96.0	175.0	280.0
Shutdown	-	30.0	250.0	125.0
				646.5

Emission Factors

Type	Sub-Type	Emission Factors (lb/event)						
		NOX	CO	VOC	PM/ PM10/ PM2.5	SO2	SAM	CO2e
Startup	Cold	870	13767	6720	225	10	87	970,000
	Warm	610	3840	4290	143	10	55	700,000
	Hot	340	1154	566	82	10	32	440,000
Shutdown	-	100	818	606	27	2	10	143,000

Potential Emissions

Type	Sub-Type	Emissions (tpy)						
		NOX	CO	VOC	PM/ PM10/ PM2.5	SO2	SAM	CO2e
Startup	Cold	7	103	50	2	0.1	0.7	7,275
	Warm	18	115	129	4	0.3	1.7	21,000
	Hot	30	101	50	7	0.9	2.8	38,500
Shutdown	-	13	102	76	3	0.3	1.3	17,875
Total		67	422	304	17	1.5	6.4	84,650

Notes:

1. Number of startup and shutdown events per year, duration of each event is based on CPCN Application, Table 4-4.
2. Emission factor for all pollutants for startup and shutdown events is based on CPCN Application, Table 4-5.

Maximum WildCat Point Generation Facility Project HAP Emissions

Parameters	Units	CT ⁽¹⁾	CT ⁽²⁾	DB	AB	Emer. Gen.#1	Emer. Gen. #2	Fire Pump	Dew Point heater
Max Heat Input	MMBtu/hr	3178	2859	1747	45.00	21.50	14.33	1.92	5.00
Operation Hrs	hrs/yr	8760	8760	4000	2000	100	100	100	8760

⁽¹⁾ Operation @ 0°F Data taken from application (Appendix G Page 279 of PDF)

⁽²⁾ Operation @ 54°F

HAP	CT Emission Factor (lb/MMBtu)	DB Emission Factor (lb/MMBtu)	CT (lb/hr)	DB (lb/hr)	CT + DB (lb/hr)	AUX Boiler (lb/hr)	Emergency Diesel Generator #1 (lb/hr)	Emergency Diesel Generator #2 (lb/hr)	Emergency Diesel Firewater Pump (lb/hr)	Dew Point Heater (lb/hr)	Facility Total by HAP (tpy)
1,3-Butadiene	4.3E-07	NA	1.37E-03	NA	0.001	NA	NA	NA	1.33E-04	NA	0.012
Acetaldehyde	4.0E-05	NA	1.27E-01	NA	0.127	NA	5.42E-04	3.61E-04	2.62E-03	NA	1.114
Acrolein	6.4E-06	NA	2.03E-02	NA	0.020	NA	1.69E-04	1.13E-04	3.15E-04	NA	0.178
Benzene	1.2E-05	2.1E-06	3.81E-02	3.67E-03	0.042	9.26E-05	1.67E-02	1.11E-02	3.18E-03	4.51E-05	2.011
Dichlorobenzene	NA	NA	NA	NA	NA	5.29E-05	NA	NA	NA	2.58E-05	0.000
Ethylbenzene	3.2E-05	NA	1.02E-01	NA	0.102	NA	NA	NA	NA	NA	0.891
Formaldehyde	2.0E-05	7.4E-05	6.36E-02	1.29E-01	0.193	3.31E-03	1.70E-03	1.13E-03	4.02E-03	1.61E-03	0.826
Hexane	NA	1.8E-03	NA	3.14E+00	3.145	7.94E-02	NA	NA	NA	3.86E-02	6.538
Naphthalene	1.3E-06	6.0E-07	4.13E-03	1.05E-03	0.005	2.69E-05	2.80E-03	1.86E-03	2.89E-04	1.31E-05	0.035
POM	2.2E-06	NA	6.99E-03	NA	0.007	2.29E-06	4.56E-03	3.04E-03	5.73E-04	2.54E-07	0.008
Propylene Oxide	2.9E-05	NA	9.22E-02	NA	0.092	NA	NA	NA	NA	NA	0.807
Toluene	1.3E-04	3.3E-06	4.13E-01	5.77E-03	0.419	1.50E-04	6.04E-03	4.03E-03	1.39E-03	7.30E-05	3.268
Xylene	6.4E-05	NA	2.03E-01	NA	0.203	NA	4.15E-03	2.77E-03	9.72E-04	NA	1.782
HAP Metals	NA	NA	NA	NA	NA	2.44E-04	NA	NA	NA	2.71E-05	0.000
Max individual HAP											6.5
Total HAPs											17.5

NA = Not reported

⁽¹⁾ EPA AP42 Section 3.1

firing at ambient temperature of 54°F.

⁽²⁾ EPA AP42 Section 1.4

HAP	CT/HRSG (tpy)	Aux Boiler (tpy)	Dew Point Heater (tpy)	Emergency Diesel Generator #1 (tpy)	Emergency Diesel Generator #2 (tpy)	Emergency Diesel Firewater Pump (tpy)	Total (tpy)
1,3-Butadiene	3.51E-03	-	-	-	-	6.67E-06	3.52E-03
Acetaldehyde	3.27E-01	-	-	2.71E-05	1.81E-05	1.31E-04	3.27E-01
Acrolein	5.23E-02	-	-	8.47E-06	5.65E-06	1.58E-05	5.23E-02
Benzene	2.91E-02	9.26E-05	1.97E-04	8.34E-04	5.56E-04	1.59E-04	3.10E-02
Dichlorobenzene	-	5.29E-05	1.13E-04	-	-	-	1.66E-04
Ethylbenzene	2.62E-01	-	-	-	-	-	2.62E-01
Formaldehyde	2.95E-01	3.31E-03	7.05E-03	8.48E-05	5.65E-05	2.01E-04	3.06E-01
Hexane	6.29E+00	7.94E-02	1.69E-01	-	-	-	6.54E+00
Naphthalene	4.46E-03	2.69E-05	5.74E-05	1.40E-04	9.31E-05	1.45E-05	4.79E-03

POM	1.80E-02	2.29E-06	1.11E-06	2.28E-04	1.52E-04	2.86E-05	1.84E-02
Propylene Oxide	2.37E-01	-	-	-	-	-	2.37E-01
Toluene	2.48E-01	1.50E-04	3.20E-04	3.02E-04	2.01E-04	6.97E-05	2.49E-01
Xylene	5.23E-01	-	-	2.07E-04	1.38E-04	4.86E-05	5.23E-01
HAP Metals	-	2.44E-04	1.19E-04	-	-	-	3.62E-04
Max individual HAP	6.3	7.9E-02	1.7E-01	8.3E-04	5.6E-04	2.0E-04	6.5E+00
Total HAPs	8.3	0.0833	0.1771	0.0018	0.0012	0.0007	8.5517

HAP Emissions During Startup and Shutdown Periods

Uncontrolled CO Emissions (AP-42) 0.082 lb/MMBtu
Controlled CO Emissions (vendor specification) 260.678 lb/MMBtu

		Emissions		# events/Yr
Startup	Cold	13,767	lb/event	15
	Warm	3,840	lb/event	60
	Hot	1,154	lb/event	175
Shutdown	-	818	lb/event	250

HAP	Normal	Emission Factor (lb HAP/ event)				Emissions (tpy)				
		Cold SU	Warm SU	Hot SU	SD	Cold SU	Warm SU	Hot SU	SD	Total
1,3-Butadiene	4.30E-07	7.22E-02	2.01E-02	6.05E-03	4.29E-03	5.41E-04	6.04E-04	5.30E-04	5.36E-04	0.00
Acetaldehyde	4.00E-05	6.72E+00	1.87E+00	5.63E-01	3.99E-01	5.04E-02	5.62E-02	4.93E-02	4.99E-02	0.21
Acrolein	6.40E-06	1.07E+00	3.00E-01	9.01E-02	6.38E-02	8.06E-03	8.99E-03	7.88E-03	7.98E-03	0.03
Benzene	1.20E-05	2.01E+00	5.62E-01	1.69E-01	1.20E-01	1.51E-02	1.69E-02	1.48E-02	1.50E-02	0.06
Ethylbenzene	3.20E-05	5.37E+00	1.50E+00	4.50E-01	3.19E-01	4.03E-02	4.50E-02	3.94E-02	3.99E-02	0.16
Formaldehyde	2.00E-04	3.36E+01	9.37E+00	2.81E+00	2.00E+00	2.52E-01	2.81E-01	2.46E-01	2.49E-01	1.03
Hexane	1.80E-03	9.51E-02	2.65E-02	7.97E-03	5.65E-03	7.13E-04	7.95E-04	6.97E-04	7.06E-04	0.003
Naphthalene	1.30E-06	2.18E-01	6.09E-02	1.83E-02	1.30E-02	1.64E-03	1.83E-03	1.60E-03	1.62E-03	0.01
POM	2.20E-06	3.69E-01	1.03E-01	3.10E-02	2.19E-02	2.77E-03	3.09E-03	2.71E-03	2.74E-03	0.01
Propylene Oxide	2.90E-05	4.87E+00	1.36E+00	4.08E-01	2.89E-01	3.65E-02	4.07E-02	3.57E-02	3.62E-02	0.15
Toluene	1.30E-04	2.18E+01	6.09E+00	1.83E+00	1.30E+00	1.64E-01	1.83E-01	1.60E-01	1.62E-01	0.67
Xylene	6.40E-05	1.07E+01	3.00E+00	9.01E-01	6.38E-01	8.06E-02	8.99E-02	7.88E-02	7.98E-02	0.33
HAP Metals						-	-			0.00
Max individual HAP						0.25	0.28	0.25	0.25	1.03
Total HAPs						0.90	0.73	0.64	0.65	2.66

Total HAP Emissions

Normal Operation	8.5517
SU/SD	2.6632
Total	11.2149
Rocksprings	4.1000
Total	15.3149

Wildcat Point Generation Facility
Emission Calculations for Proposed Aux Boiler

Project Specific	
NG. Heat Content (Btu/scf)	1020
Unit Specific	
Rated Heat Input (MMBtu/hr):	45
Rated Heat Input (Btu/hr)	45000000
Fuel Usage (scf/hr)	44117.64706
Fuel Usage (MMscf/hr)	0.044117647
Operation hrs/yr	2000

* heating content of natural gas from permit application

Pollutant	Emission Factor (lb/MMBtu)	Emissions (lb/hr)	Emissions (tpy)
NO _x	0.0100	0.45	0.450
CO	0.0360	1.62	1.620
VOC	0.0033	0.15	0.149
PM	0.0075	0.338	0.338
PM10	0.0075	0.338	0.338
PM2.5	0.0075	0.338	0.338
SO ₂	0.0006	0.027	0.027
SAM	9.19E-06	0.0004	0.0004
Pb	5.00E-07	2.25E-05	0.00002
CO2	117	5.26E+03	5,260
CH4	2.20E-03	9.90E-02	0.099
N2O	2.00E-04	9.00E-03	0.009
		5264.92	5264.92

Hazardous Air Pollutant (HAP)	Emission Factor (lb/MMscf)²	Emissions (lb/hr)	Emissions (tpy)
2-Methylnaphthalene	2.4E-05	1.06E-06	1.06E-06
Arsenic	2.0E-04	8.82E-06	8.82E-06
Benzene	2.1E-03	9.26E-05	9.26E-05
Cadmium	1.1E-03	4.85E-05	4.85E-05
Chromium	1.4E-03	6.18E-05	6.18E-05
Cobalt	8.4E-05	3.71E-06	3.71E-06
Dichlorobenzene	1.2E-03	5.29E-05	5.29E-05
Fluoranthene	3.0E-06	1.32E-07	1.32E-07
Fluorene	2.8E-06	1.24E-07	1.24E-07
Formaldehyde	7.5E-02	3.31E-03	3.31E-03
Hexane	1.8E+00	7.94E-02	7.94E-02
Manganese	3.8E-04	1.68E-05	1.68E-05
Mercury	2.6E-04	1.15E-05	1.15E-05
Naphthalene	6.1E-04	2.69E-05	2.69E-05
Nickel	2.1E-03	9.26E-05	9.26E-05
Phenanthrene	1.7E-05	7.50E-07	7.50E-07
Pyrene	5.0E-06	2.21E-07	2.21E-07
Toluene	3.4E-03	1.50E-04	1.50E-04

Wildcat Point Generation Facility
Emission Calculations for Proposed Dew Point Heater

<i>Project Specific</i>	
NG. Heat Content (Btu/scf)	1020
<i>Unit Specific</i>	
Rated Heat Input (MMBtu/hr):	5
Rated Heat Input (Btu/hr)	5000000
Fuel Usage (scf/hr)	4901.960784
Fuel Usage (MMscf/hr)	0.004901961
Operation hrs/yr	8760

* heating content of natural gas from permit application

Pollutant	Emission Factor (lb/MMBtu)	Emissions (lb/hr)	Emissions (tpy)
NO _x	0.0490	0.25	1.073
CO	0.0824	0.41	1.805
VOC	0.0054	0.03	0.118
PM	0.0075	0.038	0.164
PM10	0.0075	0.038	0.164
PM2.5	0.0075	0.038	0.164
SO ₂	0.0006	0.003	0.013
SAM	9.19E-06	0.00005	0.0002
Pb	5.00E-07	2.50E-06	0.00001
CO2	117	5.84E+02	2,560
CH4	2.20E-03	1.10E-02	4.82E-02
N2O	2.00E-04	1.00E-03	4.38E-03
CO2e		584.99	2562.26

Hazardous Air Pollutant (HAP)	Emission Factor (lb/MMscf) ²	Emissions (lb/hr)	Emissions (tpy)
2-Methylnaphalene	2.4E-05	1.18E-07	5.15E-07
Arsenic	2.0E-04	9.80E-07	4.29E-06
Benzene	2.1E-03	1.03E-05	4.51E-05
Cadmium	1.1E-03	5.39E-06	2.36E-05
Chromium	1.4E-03	6.86E-06	3.01E-05
Cobalt	8.4E-05	4.12E-07	1.80E-06
Dichlorobenzene	1.2E-03	5.88E-06	2.58E-05
Fluoranthene	3.0E-06	1.47E-08	6.44E-08
Fluorene	2.8E-06	1.37E-08	6.01E-08
Formaldehyde	7.5E-02	3.68E-04	1.61E-03
Hexane	1.8E+00	8.82E-03	3.86E-02
Manganese	3.8E-04	1.86E-06	8.16E-06
Mercury	2.6E-04	1.27E-06	5.58E-06
Naphthalene	6.1E-04	2.99E-06	1.31E-05
Nickel	2.1E-03	1.03E-05	4.51E-05
Phenanthrene	1.7E-05	8.33E-08	3.65E-07
Pyrene	5.0E-06	2.45E-08	1.07E-07
Toluene	3.4E-03	1.67E-05	7.30E-05

Wildcat Point Generation Facility
Emission Calculations for the Proposed Diesel-Fired Emergency Generator #1 at Plant (2250 KW)

<i>Fuel Specific*</i>	
Heating Value of Diesel Fuel (Btu/gal):	137,000
Diesel Fuel Sulfur Content (%):	0.0015
<i>Unit Specific*</i>	
Nominal Capacity (kw):	2,250
Rated Output (hp):	3,017
Fuel Consumption (gal/hr):	156.9
Heat Input (MMBtu/hr):	21.5
Operation (hrs/yr)	100

* Provided by Wildcat

Criteria Pollutants

Pollutant	Emission Factor (g/bhp-hr)	Emissions (lb/hr)	Emissions (tpy)
NOx	4.77	31.7	1.59
CO	2.61	17.36	0.87
VOC	0.28	1.86	0.09
SO ₂	0.006	0.04	0.002
PM	0.15	0.99	0.05
PM10, PM2.5	0.15	0.99	0.05

Notes:

1. Emission factors from NOX, CO, and PM/PM10/PM2.5 based on NSPS Subpart IIII (60.4202(b)(2) and 89.112, Table 1)
2. VOC emission factor from AP-42, Ch. 3.4, Table 3.4-1; corrected for non-methane HC (91%)
3. SO2 based on ULSD limit.

Hazardous Air Pollutants

Pollutant	Emission Factor (lb/MMBtu)²	Emissions (lb/hr)	Emissions (tpy)
Acetaldehyde	2.52E-05	5.42E-04	2.71E-05
Acrolein	7.88E-06	1.69E-04	8.47E-06
Benzene	7.76E-04	1.67E-02	8.34E-04
Formaldehyde	7.89E-05	1.70E-03	8.48E-05
Naphthalene	1.30E-04	2.80E-03	1.40E-04
POM*	2.12E-04	4.56E-03	2.28E-04
Toluene	2.81E-04	6.04E-03	3.02E-04
Xylenes	1.93E-04	4.15E-03	2.07E-04

² Emission factors provided AP-42, Tables 3.4-3 and 3.4-4

0.002

* Polycyclic Organic Matter (listed as "Total PAH" in AP-42)

GHG

Pollutant	Emission Factor (lb/MMBtu)	Emissions (lb/hr)	Emissions (tpy)
CO2	163.1	3.51E+03	1.75E+02
CH4	0.007	1.42E-01	7.11E-03
N2O	0.001	2.84E-02	1.42E-03

Factors from GHG Reporting Rule 40 CFR 98 - Subpart C of Part 98

175

Wildcat Point Generation Facility
Emission Calculations for Criteria Pollutants from the Proposed Diesel-Fired
Fire Water Pump (477 HP)

Fuel Specific*	
Heating Value of Diesel Fuel (Btu/gal):	137,000
Diesel Fuel Sulfur Content (%):	0.05
Unit Specific*	
Rated Output (hp):	477
Fuel Consumption (gal/hr):	24.9
Heat Input (MMBtu/hr):	3.41
Operation (hrs/yr):	100

* Provided by Wildcat

Criteria Pollutants

Pollutant	Emission Factor (g/bhp-hr)¹	Emissions (lb/hr)	Emissions (tpy)
NO _x	2.98	3.14	0.16
CO	2.61	2.74	0.14
VOC	1.07	1.13	0.06
SO ₂ *	0.0049	0.005	0.0003
PM	0.15	0.16	0.0079
PM10, PM2.5	0.15	0.16	0.0079

Notes:

1. Emission factors from NO_x, CO, and PM/PM10/PM2.5 based on NSPS Subpart IIII (60.4205(c) and Table 4)
2. VOC emission factor from AP-42, Ch. 3.3, Table 3.3-1; corrected for non-methane HC (91%)
3. SO₂ based on ULSD limit.

Hazardous Air Pollutants

Pollutant	Emission Factor (lb/MMBtu)²	Emissions (lb/hr)	Emissions (tpy)
1,3-Butadiene	3.91E-05	1.33E-04	6.67E-06
Acetaldehyde	7.67E-04	2.62E-03	1.31E-04
Acrolein	9.25E-05	3.15E-04	1.58E-05
Benzene	9.33E-04	3.18E-03	1.59E-04
Formaldehyde	1.18E-03	4.02E-03	2.01E-04
Naphthalene	8.48E-05	2.89E-04	1.45E-05
POM*	1.68E-04	5.73E-04	2.86E-05
Toluene	4.09E-04	1.39E-03	6.97E-05
Xylenes	2.85E-04	9.72E-04	4.86E-05

² AP-42, Ch. 3.3, Table 3.3-2

* Polycyclic Organic Matter (listed as "Total PAH" in AP-42)

GHG

Pollutant	Emission Factor (lb/MMBtu)²	Emissions (lb/hr)	Emissions (tpy)
CO ₂	163	5.56E+02	2.78E+01
CH ₄	6.62E-03	2.26E-02	1.13E-03
N ₂ O	1.32E-03	4.51E-03	2.26E-04

Factors from GHG Reporting Rule 40 CFR 98 - Subpart C of Part 98

Wildcat Point Generation Facility
Cooling Tower Emissions

Parameter	
Number of Units	1
Design Water Flow Rate (gpm)	370,768
Cooling Tower Drift Rate (% of circulating water)	0.0005
Total Dissolved Solids (ppm)	3,360
Cycles of Concentration Ratio (tower/makeup water)	1
PM ₁₀ Fraction	0.45
PM _{2.5} Fraction	0.00

	PM	PM10	PM2.5
Hourly (lb/hr)	3.1	1.4	0.01
Daily (lb/day)	74.9	33.9	0.2
Annual (tpy)	13.7	6.2	0.03

Factors

60 min/hr
8.345 water density (CWS)
8760 hr/yr
2000 lb/ton

Example from Reisman/Frisbie Paper

EPRI Droplet Diameter (um)	Droplet Volume (um ³)	Droplet Mass (ug)	Particle Mass (Solids) (ug)	Solid Particle Volume (ug ³)	Solid Particle Diameter (um)	EPRI % Mass Smaller
10	524	5.24E-04	1.76E-06	0.80	1.152	0.000
20	4189	4.19E-03	1.41E-05	6.40	2.304	0.196
30	14137	1.41E-02	4.75E-05	21.60	3.456	0.226
40	33510	3.35E-02	1.13E-04	51.21	4.607	0.514
50	65450	6.55E-02	2.20E-04	100.02	5.759	1.816
60	113097	1.13E-01	3.80E-04	172.83	6.911	5.702
70	179594	1.80E-01	6.04E-04	274.45	8.063	21.348
90	381704	3.82E-01	1.28E-03	583.31	10.367	49.812
110	696910	6.97E-01	2.34E-03	1065.01	12.670	70.509
130	1150347	1.15E+00	3.87E-03	1757.95	14.974	82.023
150	1767146	1.77E+00	5.94E-03	2700.53	17.278	88.012
180	3053628	3.06E+00	1.03E-02	4666.52	20.733	91.032
210	4849048	4.85E+00	1.63E-02	7410.26	24.189	92.468
240	7238229	7.24E+00	2.43E-02	11061.38	27.644	94.091
270	10305995	1.03E+01	3.46E-02	15749.50	31.100	94.689
300	14137167	1.41E+01	4.75E-02	21604.25	34.555	96.288
350	22449298	2.25E+01	7.55E-02	34306.76	40.314	97.011
400	33510322	3.35E+01	1.13E-01	51210.08	46.074	98.340
450	47712938	4.77E+01	1.60E-01	72914.36	51.833	99.071
500	65449847	6.55E+01	2.20E-01	100019.69	57.592	99.071
600	113097336	1.13E+02	3.80E-01	172834.03	69.110	100.000

20.11%

4528.28%

Wildcat Point Generation Facility

Tank Summary

	Working Loss (lbs)	Breathing Loss (lbs)	Total Emissions (lbs)	Total Emissions (tons)
Tank 1	0.05	0.09	0.13	6.74E-05
Tank 3	0.19	0.30	0.49	2.46E-04

Total (tpy) 0.0003

Wildcat Point Generation Facility
Emissions Associated With Circuit Breakers

Circuit Breakers:

SF6 calculation

Number of 525 kV Breakers	3
Quantity of SF6 in each 525 kV Breaker (lbs)	1,625
Number of 19 kV Breakers	2
Quantity of SF6 in each 19 kV Breaker (lbs)	25
Global Warming Potential of SF6 (100yr)	22,800

Fugitive Emissions of SF6

Source	# of Units	Quantity of SF6 per Breaker (lbs)	Emissions of SF6 per Breaker (lb/yr)	Total SF6 Emissions (lbs/yr)	GWP	Total CO2e Emissions (ton/yr)**	Total CO2e Emissions (lbs/hr)
525 kV Breakers	3	1625	8.13	24.38	22,800	277.88	63.44
19 kV Breakers	2	25	0.13	0.25	22,800	2.85	0.65

* Assumes 0.5% leakage rate

** Short tons

280.73 64.09

Wildcat Point Generation Facility
Emissions Associated With Fugitives Pipeline Components

Components	# of Components	Gas Emission Factors (scf/hr/component)	CH4 (lb/hr)	CH4 (tpy)	CO2 (lb/hr)	CO2 (tpy)	CO2e (lb/hr)	CO2e (tpy)
Valves	490	0.027	0.51	2.25	0.27	1.18	11.59	50.78
Flanges	291	0.003	0.03	0.15	0.02	0.08	0.77	3.35
Sampling Connections	8	0.061	0.02	0.08	0.01	0.04	0.43	1.87
Compressors	2	13.3	1.03	4.53	0.54	2.38	23.31	102.11
Relief Valves	36	0.04	0.06	0.25	0.03	0.13	1.26	5.53
			1.66	7.26	0.87	3.81	37.36	156.4

Notes:

1. CH4 and CO2 emission factors based on content in gas provided in CT vendor specification sheets

Appendix C
Summary of EPA's RBLC
Database and Recent Permit
Determinations

CTS ONLY

				CO	PM	PM10	NOx	VOC	Comments
	Rated Capacity	Manufacturer		BACT	BACT	BACT	LAER	LAER	
<i>CT without DB (@ 15% O2)</i> <i>ODEC LIMITS</i>	<i>1000 MW</i>			<i>1.5 ppmvd</i> <i>10.5 lb/hr</i>	<i>0.0426 lb/MMBtu</i> <i>22.8 lb/hr</i>	<i>0.0426 lb/MMBtu</i> <i>38 lb/hr</i>	<i>2 ppmvd</i> <i>23 lb/hr</i>	<i>0.7 ppmvd</i> <i>2.8 lb/hr</i>	CO: 1.5 ppmvd is lowest NOx: 2.0 ppmvd is lowest
			<i>Burner Size (MMBtu/hr)</i>	<i>0.012 lb/MMBtu</i>			<i>0.026 lb/MMBtu</i>	<i>0.003 lb/MMBtu</i>	
Virginia Electric Brunswick, VA		Mitsubishi	501	1.5		9.7	2.0	0.7	
Dominion Warren County		Mitsubishi	500	1.5		8	2.0	0.7	
Huntington Beach	939	Mitsubishi		2.0		4.5	2.0	1.0	
Pioneer Valley	387	Mitsubishi		2.0			2.0	1.0	
Georgia Plant McDonough	250	Mitsubishi	650	1.8		No Limit	No Limit	1.0	
Moxie Patriot	472	Mitsubishi	387	2.0			2.0	1.0	
Moxie Liberty	468	Mitsubishi	387	2.0			2.0	1.0	
FPL Fort Everglades (3 x 1)	200	Mitsubishi		9.0			2.0	1.0	
Oregon Clean Energy Center, OH		Mitsubishi	301	2.0		11.3	2.0	2.0	
FPL West County Energy Center	1250	Mitsubishi	475	4.1		12	2.0	1.2	
Fore River Station, Constellation	775	Mitsubishi		2.0		32.5	2.0	1	
Covert Generating, MI	1,082	Mitsubishi	256						
Wolf Hollow, TX - Granbury Plant	730	Mitsubishi	230						
Port Westward Plant, OR	400	Mitsubishi	198	4.9	0.1 gr/dscf	0.1 gr/dscf	2.5	7.74 lb/hr	

CTS WITH DUCT BURNERS

				CO	PM	PM10	NOx	VOC	Comments
<i>CT with DB (@ 15% O2)</i>	<i>892.3 MMBTU/HR</i>		<i>892.3 MMBTU/HR each</i>	<i>2.4 ppmvd</i>	<i>0.0426 lb/MMBtu</i>	<i>0.0426 lb/MMBtu</i>	<i>2 ppmvd</i>	<i>1.7 ppmvd</i>	NOx: 2.0 ppmvd is lowest
<i>ODEC LIMITS</i>	<i>each</i>		<i>DUCT BURNER SIZES (MMBTU/HR)</i>	<i>21.7 lb/hr</i>	<i>22.8 lb/hr</i>	<i>38 lb/hr</i>	<i>29.7 lb/hr</i>	<i>15.4 lb/hr</i>	
				<i>0.024 lb/MMBtu</i>			<i>0.033 lb/MMBtu</i>	<i>0.017 lb/MMBtu</i>	
Virginia Electric Brunswick, VA		Mitsubishi	501	2.4		16.3	2.0	1.6	
Dominion Warren County	1280	Mitsubishi	500	2.4		14	2.0	1.6	
Huntington Beach	939	Mitsubishi		2.0		9.5	2.0	1.0	
Pioneer Valley	387	Mitsubishi		2.0			2.0	1.0	
Georgia Plant McDonough	254	Mitsubishi	650	1.8		No Limit	No Limit	1.8	
Moxie Patriot	472	Mitsubishi	387	2.0			2.0	1.5	
Moxie Liberty	468	Mitsubishi	387	2.0			2.0	1.5	
FPL Fort Everglades (3 x 1)	200	Mitsubishi							
Oregon Clean Energy Center, OH		Mitsubishi	301	2.0		10.1	2.0	2.0	
FPL West County Energy Center	1250	Mitsubishi	475	7.6		14	2.0	1.5	
Fore River Station, Constellation	775	Mitsubishi		2.0		32.5	2.0	1.7	
Covert Generating, MI	1,082	Mitsubishi	256			33.8	2.5		
Wolf Hollow, TX - Granbury Plant	730	Mitsubishi	230	10.0		-	9.0	4.0	
Port Westward Plant, OR	400	Mitsubishi	198			-	2.5		
Fairbault Energy Center				11	0.015	0.015	4.5	3	Mitubishi or GE unit

AUXILIARY BOILER

ODEC PM LIMIT = 0.0075
 ODEC CO LIMIT = 0.036
 ODEC NOx= 0.01
 ODEC VOC= 0.0033
 SO2= 0.0006
 H2SO4 Mist= 0.0004

FACILITY	STATE	CO	PM	PM10	NOx	VOC	SO2
Virginia Electric Brunswick, VA	VA	0.4 LB/HR, 0.006 lb/MMBtu	0.5 LB/HR, 0.0075 lb/MMBtu	0.5 LB/HR, 0.0075 lb/MMBtu	0.8 LB/HR, 0.0119 LB/mmbTU	2.5 LB/HR, 0.0375 LB/mmbTU	
Dominion Warren County	VA	0.037 lb/Mmbtu	0.44 lb/hr, 0.005 lb/MMBtu	0.005 lb/MMBtu	0.011 lb/MMBtu	0.47 lb/hr, 0.0053 lb/MMBtu	
Huntington Beach	CA	-	-	-	-	-	-
Pioneer Valley	MA	0.037 lb/Mmbtu	0.0048 lb/MMBtu	0.0048 lb/MMBtu	0.029 lb/MMBtu	0.003 lb/MMBtu	-
Georgia Plant McDonough	GA	0.037 lb/MMBtu	-	-	-	0.0051 lb/MMBtu	-
Moxie Patriot	PA	-	-	-	-	-	-
Moxie Liberty	PA	-	-	-	-	-	-
FPL Fort Everglades (3 x 1)	FL	-	-	-	-	-	-
Oregon Clean Energy Center, OH	OH	0.037 lb/Mmbtu	0.005 lb/MMBtu	0.005 lb/MMBtu			0.0007 lb/MMBtu
FPL West County Energy Center	FL		0.002 lb/MMBtu	0.002 lb/MMBtu	0.1 lb/MMBtu	0.005 lb/MMBtu	
Fore River Station, Constellation	MA	-	-	-	-	-	-
Covert Generating, MI	MI	-	-	-	-	-	-
Wolf Hollow, TX - Granbury Plant	TX	-	-	-	-	-	-
Port Westward Plant, OR	OR	0.08 lb/MMBtu	0.002 lb/MMBtu	0.002 lb/MMBtu	0.05 lb/MMBtu	0.005 lb/MMBtu	-

AUXILIARY BOILER

ODEC PM LIMIT = 0.0075 LB/MMBTU
 ODEC CO LIMIT = 0.036 LB/MMBTU
 ODEC NOx= 0.01 LB/MMBTU
 ODEC VOC= 0.0033 LB/MMBTU
 SO2= 0.0006 LB/MMBTU
 H2SO4 Mist= 0.004 tpy

RBLCID	FACILITY	STATE	PERMIT DATE	PROCESS	FUEL	THROUGHPUT	UNITS	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	UNIT	CASE-BY-CASE
TN-0089	PROCTOR & GAMBLE MANUFACTURING COMPANY	TN	3/5/2001	NATURAL GAS-FIRED BOILER/INERT GAS GENERATOR #4	NG	13.5	MMBTU/H	CO		0		BACT-PSD
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT FL01	NG	14.34	MMBTU/H	CO	FLUE GAS RECIRCULATION	0.0705	LB/MMBTU	BACT-PSD
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT IP04	NG	16.7	MMBTU/H	CO	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0074	LB/MMBTU	Other
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT BA01	NG	16.8	MMBTU/H	CO	FLUE GAS RECIRCULATION	0.0173	LB/MMBTU	BACT-PSD
OK-0045	REDBUD POWER PLT	OK	8/15/2001	BOILER, AUXILIARY	NG	20	MMBTU/H	CO	GOOD OPERATING PRACTICE	0.082	LB/MMBTU	BACT-PSD
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT PA15	NG	21	MMBTU/H	CO	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.848	LB/MMBTU	Other
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT CP26	NG	24	MMBTU/H	CO	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.037	LB/MMBTU	Other
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT BA03	NG	31.38	MMBTU/H	CO	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION.	0.0172	LB/MMBTU	Other
AR-0070	GENOVA ARKANSAS I, LLC	AR	8/23/2002	AUXILIARY BOILER	NG	33	MMBTU/H	CO	GOOD COMBUSTION PRACTICE	0.04	LB/MMBTU	Other
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT CP03	NG	33.48	MMBTU/H	CO	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0075	LB/MMBTU	BACT-PSD
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT CP01	NG	35.4	MMBTU/H	CO	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0073	LB/MMBTU	BACT-PSD
NV-0050	MGM MIRAGE	NV	11/30/2009	BOILERS - UNITS CC001, CC002, AND CC003 AT CITY CENTER	NG	41.64	MMBTU/H	CO	GOOD COMBUSTION PRACTICES AND LIMITING THE FUEL TO NATURAL GAS ONLY	0.0184	LB/MMBTU	BACT-PSD
NV-0050	MGM MIRAGE	NV	11/30/2009	BOILERS - UNITS CC026, CC027 AND CC028 AT CITY CENTER	NG	44	MMBTU/H	CO	GOOD COMBUSTION PRACTICES INCLUDING THE USE OF PROPER AIR TO FUEL RATIO	0.0148	LB/MMBTU	LAER
TN-0153	WILLIAMS REFINING & MARKETING, L.L.C.	TN	4/3/2002	HEATERS, (5)	NG	50	MMBTU/H	CO		0.07	LB/MMBTU	Other
AL-0230	THYSSENKRUPP STEEL AND STAINLESS USA, LLC	AL	8/17/2007	3 NATURAL GAS-FIRED BOILERS WITH ULNB & EGR (537-539)	NG	64.9	MMBTU each	CO		0.04	LB/MMBTU	Other
TN-0153	WILLIAMS REFINING & MARKETING, L.L.C.	TN	4/3/2002	BOILER, NO. 9	NG	95	MMBTU/H	CO		0.09	LB/MMBTU	Other
*CA-1212	PALMDALE HYBRID POWER PROJECT	CA	10/18/2011	AUXILIARY HEATER	NG	40	MMBTU/HR	CO2e	ANNUAL BOILER TUNEUPS	0		BACT-PSD
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT FL01	NG	14.34	MMBTU/H	FPM10	FLUE GAS RECIRCULATION AND OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0075	LB/MMBTU	BACT-PSD
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT IP04	NG	16.7	MMBTU/H	FPM10	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0078	LB/MMBTU	LAER
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT BA01	NG	16.8	MMBTU/H	FPM10	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0077	LB/MMBTU	BACT-PSD

AUXILIARY BOILER

ODEC PM LIMIT = 0.0075 LB/MMBTU
 ODEC CO LIMIT = 0.036 LB/MMBTU
 ODEC NOx= 0.01 LB/MMBTU
 ODEC VOC= 0.0033 LB/MMBTU
 SO2= 0.0006 LB/MMBTU
 H2SO4 Mist= 0.004 tpy

RBLCID	FACILITY	STATE	PERMIT DATE	PROCESS	FUEL	THROUGHPUT	UNITS	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	UNIT	CASE-BY-CASE
OK-0045	REDBUD POWER PLT	OK	8/15/2001	BOILER, AUXILIARY	NG	20	MMBTU/H	FPM10	USE OF LOW ASH FUEL, EFFICIENT COMBUSTION	0.0074	LB/MMBTU	BACT-PSD
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT PA15	NG	21	MMBTU/H	FPM10	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0076	LB/MMBTU	Other
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT CP26	NG	24	MMBTU/H	FPM10	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0075	LB/MMBTU	Other
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT BA03	NG	31.38	MMBTU/H	FPM10	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0076	LB/MMBTU	BACT-PSD
AR-0070	GENOVA ARKANSAS I, LLC	AR	8/23/2002	AUXILIARY BOILER	NG	33	MMBTU/H	FPM10	GOOD COMBUSTION PRACTICE	0.012	LB/MMBTU	BACT-PSD
AL-0230	THYSSENKRUPP STEEL AND STAINLESS USA, LLC	AL	8/17/2007	NATURAL GAS-FIRED BATCH ANNEALING FURNACES (LA63, LA64)	NG	33.4	MMBTU each	FPM10		0.0076	LB/MMBTU	BACT-PSD
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT CP03	NG	33.48	MMBTU/H	FPM10	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0075	LB/MMBTU	
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT CP01	NG	35.4	MMBTU/H	FPM10	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0076	LB/MMBTU	BACT-PSD
NV-0050	MGM MIRAGE	NV	11/30/2009	BOILERS - UNITS CC001, CC002, AND CC003 AT CITY CENTER	NG	41.64	MMBTU/H	FPM10	LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES	0.0077	LB/MMBTU	BACT-PSD
NV-0050	MGM MIRAGE	NV	11/30/2009	BOILERS - UNITS CC026, CC027 AND CC028 AT CITY CENTER	NG	44	MMBTU/H	FPM10	LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES	0.0075	LB/MMBTU	Other
AL-0230	THYSSENKRUPP STEEL AND STAINLESS USA, LLC	AL	8/17/2007	3 NATURAL GAS-FIRED BOILERS WITH ULNB & EGR (537-539)	NG	64.9	MMBTU each	FPM10		0.0076	LB/MMBTU	Other
TN-0153	WILLIAMS REFINING & MARKETING, L.L.C.	TN	4/3/2002	BOILER, NO. 9	NG	95	MMBTU/H	FPM10		0.0075	LB/MMBTU	Other
AL-0230	THYSSENKRUPP STEEL AND STAINLESS USA, LLC	AL	8/17/2007	NATURAL GAS-FIRED BATCH ANNEALING FURNACE (535)	NG	99	MMBTU/H	FPM10		0.0076	LB/MMBTU	Other
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT FL01	NG	14.34	MMBTU/H	NOx	LOW NOX BURNER AND FLUE GAS RECIRCULATION	0.0353	LB/MMBTU	BACT-PSD
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT IP04	NG	16.7	MMBTU/H	NOx	LOW NOX BURNER	0.049	LB/MMBTU	BACT-PSD
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT BA01	NG	16.8	MMBTU/H	NOx	LOW-NOX BURNER AND BLUE GAS RECIRCULATION	0.03	LB/MMBTU	Other
OK-0045	REDBUD POWER PLT	OK	8/15/2001	BOILER, AUXILIARY	NG	20	MMBTU/H	NOx	LOW NOX BURNERS	0.049	LB/MMBTU	BACT-PSD
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT PA15	NG	21	MMBTU/H	NOx	LOW NOX BURNER	0.0366	LB/MMBTU	BACT-PSD
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT CP26	NG	24	MMBTU/H	NOx	LOW NOX BURNER	0.0108	LB/MMBTU	Other
AL-0230	THYSSENKRUPP STEEL AND STAINLESS USA, LLC	AL	8/17/2007	NG-FIRED PASSIVE ANNEALING FURNACE (LO41)	NG	27.2	MMBTU/H	NOx	ULTRA LOW NOX BURNERS (ULNB) WITH EXHAUST GAS RECIRCULATION (EGR)	0.1100	LB/MMBTU	BACT-PSD
AL-0230	THYSSENKRUPP STEEL AND STAINLESS USA, LLC	AL	8/17/2007	NG-FIRED PASSIVE ANNEALING FURNACE (LO41)	NG	27.2	MMBTU/H	NOx	ULTRA LOW NOX BURNERS (ULNB) WITH EXHAUST GAS RECIRCULATION	0.1100	LB/MMBTU	BACT-PSD

AUXILIARY BOILER

ODEC PM LIMIT = 0.0075 LB/MMBTU
 ODEC CO LIMIT = 0.036 LB/MMBTU
 ODEC NOx= 0.01 LB/MMBTU
 ODEC VOC= 0.0033 LB/MMBTU
 SO2= 0.0006 LB/MMBTU
 H2SO4 Mist= 0.004 tpy

RBLCID	FACILITY	STATE	PERMIT DATE	PROCESS	FUEL	THROUGHPUT	UNITS	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	UNIT	CASE-BY-CASE
LA-0194	SABINE PASS LNG TERMINAL	LA	11/24/2004	30 MW GAS TURBINE GENERATORS (4) LOW LOAD OPERATIONS	NG	30	mw each	NOx	DRY LOW NOX BURNER	50.0000		BACT-PSD
PA-0255	ELLWOOD QUALITY STEELS COMPANY	PA	8/1/2007	ELECTRIC ARC FURNACE	NG	30	MCF/H	NOx	DEC AND OXYFUEL BURNER CONTROL SYSTEM	28.5000	PPMVD @ 15	BACT-PSD
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT BA03	NG	31.38	MMBTU/H	NOx	LOW-NOX BURNER	0.0306	T/YR	BACT-PSD
AR-0070	GENOVA ARKANSAS I, LLC	AR	8/23/2002	AUXILIARY BOILER	NG	33	MMBTU/H	NOx	LOW NOX OPTION (LOW NOX BURNER AND/OR FLUE GAS RECIRCULATION)	0.0400	LB/MMBTU	BACT-PSD

AUXILIARY BOILER

ODEC PM LIMIT = 0.0075 LB/MMBTU
 ODEC CO LIMIT = 0.036 LB/MMBTU
 ODEC NOx= 0.01 LB/MMBTU
 ODEC VOC= 0.0033 LB/MMBTU
 SO2= 0.0006 LB/MMBTU
 H2SO4 Mist= 0.004 tpy

RBLCID	FACILITY	STATE	PERMIT DATE	PROCESS	FUEL	THROUGHPUT	UNITS	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	UNIT	CASE-BY-CASE
AL-0230	THYSSENKRUPP STEEL AND STAINLESS USA, LLC	AL	8/17/2007	NG-FIRED BATCH ANNEALING FURNACES (LA63, LA64)	NG	33.4	MMBTU each	NOx	UNLB WITH EGR	0.1100	LB/MMBTU	BACT-PSD
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT CP03	NG	33.48	MMBTU/H	NOx	LOW NOX BURNER	0.0367	LB/MMBTU	BACT-PSD
CA-1146	CELITE	CA	6/11/2007	HEATER-OTHER PROCESS	NG	35	35 MMBTU/H	NOx	LOW-NOX BURNER	20.0000	PPMVD @ 3%	BACT-PSD
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT CP01	NG	35.4	MMBTU/H	NOx	LOW NOX BURNER	0.0350	LB/MMBTU	BACT-PSD
TX-0437	HARTBURG POWER, LP	TX	7/5/2002	BOILERS, AUXILIARY	NG	40	mmbtu/h	NOx	LOW NOX BURNERS, CLEAN FUEL. BOILER WILL OPERATE A MAXIMUM OF 3000 H/YR	0.0000		BACT-PSD
NV-0050	MGM MIRAGE	NV	11/30/2009	BOILERS - UNITS CC001, CC002, AND CC003 AT CITY CENTER	NG	41.64	MMBTU/H	NOx	LOW NOX BURNER AND FLUE GAS RECIRCULATION	0.0110	LB/MMBTU	LAER
NV-0050	MGM MIRAGE	NV	11/30/2009	BOILERS - UNITS CC026, CC027 AND CC028 AT CITY CENTER	NG	44	MMBTU/H	NOx	LOW NOX BURNER AND GOOD COMBUSTION PRACTICES	0.0109	LB/MMBTU	BACT-PSD
CA-1147	CELITE	CA	6/11/2007	HEATER-OTHER PROCESS	NG	48	48 MMBTU/H	NOx	LOW-NOX BURNER	20.0000	PPMVD @ 3%	Other
CA-1148	CELITE	CA	6/11/2007	HEATER-OTHER PROCESS	NG	50	50 MMBTU/H	NOx	LOW-NOX BURNER	73.0000	PPMVD @ 3%	Other
ID-0015	J R SIMPLOT COMPANY - DON SIDING PLANT	ID	4/5/2004	BOILER, 64 MMBTU/H	NG	64	MMBTU/H	NOx	LOW-NOX BURNER	2.8800	LB/H	Other
PA-0255	ELLWOOD QUALITY STEELS COMPANY	PA	8/1/2007	6 ANNEALING FURNACES	NG	65	MMCF	NOx	LNB	65.0000	MMCF	Other
LA-0229	SHINTECH PLAQUEMINE PLANT 2	LA	7/10/2008	EQT122-EQT125 - FOUR VCM CRACKING FURNACES	NG	90	MMBTU/H	NOx	LOW NOX BURNERS (LNB) IN COMBINATION WITH SELECTIVE CATALYTIC REDUCTION (SCR)	0.0090	LB/MMBTU	Other
TN-0153	WILLIAMS REFINING & MARKETING, L.L.C.	TN	4/3/2002	BOILER, NO. 9	NG	95	MMBTU/H	NOx		0.0840	LB/MMBTU	Other
ID-0017	POWER COUNTY ADVANCED ENERGY CENTER	ID	2/10/2009	GASIFIER HEATERS (2), 25 MMBTU/H, SRC14 & SRC15	NG	25	MMBTU/H	PM	GOOD COMBUSTION PRACTICES	20	%	Other
OK-0045	REDBUD POWER PLT	OK	8/15/2001	AUXILIARY BOILER	NG	20	MMBTU/H	SO2	PIPELINE QUALITY NATURAL G	0.0006	LB/MMBTU	BACT-PSD
AL-0230	THYSSENKRUPP STEEL AND STAINLESS USA, LLC	AL	8/17/2007	AUXILIARY BOILER	NG	27.2	MMBTU/H	SO2		0.0006	LB/MMBTU	Other
AL-0230	THYSSENKRUPP STEEL AND STAINLESS USA, LLC	AL	8/17/2007	AUXILIARY BOILER	NG	33.4	MMBTU	SO2		0.0006	LB/MMBTU	BACT-PSD
NV-0050	MGM MIRAGE	NV	11/30/2009	AUXILIARY BOILER	NG	41.64	MMBTU/H	SO2	LIMITING THE FUEL TO NATUR	0.0007	LB/MMBTU	BACT-PSD
AL-0230	THYSSENKRUPP STEEL AND STAINLESS USA, LLC	AL	8/17/2007	AUXILIARY BOILER	NG	64.9	MMBTU	SO2		0.0006	LB/MMBTU	Other
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT FL01	NG	14.34	MMBTU/H	VOC	FLUE GAS RECIRCULATION	0.0054	LB/MMBTU	Other
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT IP04	NG	16.7	MMBTU/H	VOC	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0053	LB/MMBTU	Other
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT BA01	NG	16.8	MMBTU/H	VOC	FLUE GAS RECIRCULATION	0.0054	LB/MMBTU	BACT-PSD
OK-0045	REDBUD POWER PLT	OK	8/15/2001	BOILER, AUXILIARY	NG	20	MMBTU/H	VOC	GOOD OPERATING PRACTICES	0.005	LB/MMBTU	BACT-PSD
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT CP26	NG	24	MMBTU/H	VOC	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0054	LB/MMBTU	Other
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT BA03	NG	31.38	MMBTU/H	VOC	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0054	LB/MMBTU	RACT
AR-0070	GENOVA ARKANSAS I, LLC	AR	8/23/2002	AUXILIARY BOILER	NG	33	MMBTU/H	VOC	GOOD COMBUSTION PRACTICE	0.018	LB/MMBTU	BACT-PSD
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT CP03	NG	33.48	MMBTU/H	VOC	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0054	LB/MMBTU	BACT-PSD

AUXILIARY BOILER

ODEC PM LIMIT = 0.0075 LB/MMBTU
 ODEC CO LIMIT = 0.036 LB/MMBTU
 ODEC NOx= 0.01 LB/MMBTU
 ODEC VOC= 0.0033 LB/MMBTU
 SO2= 0.0006 LB/MMBTU
 H2SO4 Mist= 0.004 tpy

RBLCID	FACILITY	STATE	PERMIT DATE	PROCESS	FUEL	THROUGHPUT	UNITS	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	UNIT	CASE-BY-CASE
NV-0049	HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	BOILER - UNIT CP01	NG	35.4	MMBTU/H	VOC	FLUE GAS RECIRCULATION AND OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0054	LB/MMBTU	BACT-PSD
TX-0437	HARTBURG POWER, LP	TX	7/5/2002	BOILERS, AUXILIARY	NG	40	mmbtu/h	VOC	GOOD COMBUSTION PRACTICES PROPER DESIGN, CLEAN FUEL	0.02	LB/MMBTU	BACT-PSD
NV-0050	MGM MIRAGE	NV	11/30/2009	BOILERS - UNITS CC001, CC002, AND CC003 AT CITY CENTER	NG	41.64	MMBTU/H	VOC	LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES	0.0024	LB/MMBTU	BACT-PSD
NV-0050	MGM MIRAGE	NV	11/30/2009	BOILERS - UNITS CC026, CC027 AND CC028 AT CITY CENTER	NG	44	MMBTU/H	VOC	LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES	0.0055	LB/MMBTU	BACT-PSD
AL-0230	THYSSENKRUPP STEEL AND STAINLESS USA, LLC	AL	8/17/2007	3 NATURAL GAS-FIRED BOILERS WITH ULNB & EGR (537-539)	NG	64.9	MMBTU each	VOC		0.0055	LB/MMBTU	Other

Dew Point Heater

ODEC PM LIMIT = 0.0075 LB/MMBTU
 ODEC CO LIMIT = 0.082 LB/MMBTU
 ODEC NOx= 0.05 LB/MMBTU
 ODEC VOC= 0.005 LB/MMBTU
 SO2= 0.0006 LB/MMBTU
 H2SO4 Mist= 0.00005 lb/hr

RBLCID	FACILITY	STATE	PERMIT DATE	PROCESS	FUEL	THROUGHPUT	UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT_1	EMISSION LIMIT_1 UNIT	EMISSION Limit lb/MM Btu	EMISSION LIMIT_1 AVG TIME CONDITION	CASE-BY-CASE BASIS
OH-0315	NEW STEEL INTERNATIONAL, INC., HAVERHILL	OH	5/6/2008	TUNDISH PREHEATER (8)	NG	0.22	MMSCFH	CO		1.85	LB/H	8.4091		BACT-PSD
WI-0228	WPS - WESTON PLANT	WI	10/19/2004	B63, S63; B64, S64 - NG STATION HEATER 1 AND 2	NG	0.75	MMBTU/H	CO	NG	0.06	LB/H	0.0800		BACT-PSD
*SC-0132	ARGOS HARLEYVILLE PLANT	SC	12/14/2007	PREHEATER/PRECALCINER KILN 1		1.32	MILLION T	CO	GOOD COMBUSTION PRACTICES	10.5	LB/TON CLINKER	10.5000	30 DAY ROLLING AVERAGE	BACT-PSD
MD-0040	CPV ST CHARLES	MD	11/12/2008	HEATER	NG	1.7	MMBTU/H	CO		0.08	LB/MMBTU	0.0800		BACT-PSD
*SC-0132	ARGOS HARLEYVILLE PLANT	SC	12/14/2007	PREHEATER/PRECALCINER KILN 2		1.92	MILLION T	CO	GOOD COMBUSTION PRACTICES	6.8	LB/TON CLINKER	6.8000	30 DAY ROLLING AVERAGE	BACT-PSD
FL-0285	PROGRESS BARTOW POWER PLANT	FL	1/26/2007	FIVE 3 MM BTU/HR GASEOUS-FUELED PROCESS HEATERS	NG	3	MMBTU/H	CO		0.08	LB/MMBTU	0.0800		BACT-PSD
NV-0035	TRACY SUBSTATION EXPANSION PROJECT	NV	8/16/2005	FUEL PREHEATER #2	NG	4	MMBTU/H	CO	BEST COMBUSTION PRACTICES	0.03	LB/MMBTU	0.0300	3-HOUR ROLLING AVERAGE	BACT-PSD
NV-0035	TRACY SUBSTATION EXPANSION PROJECT	NV	8/16/2005	FUEL PREHEATER #1	NG	4	MMBTU/H	CO	BEST COMBUSTION PRACTICES	0.03	LB/MMBTU	0.0300	3-HOUR ROLLING AVERAGE	BACT-PSD
OH-0317	OHIO RIVER CLEAN FUELS, LLC	OH	11/20/2008	GAS FIRED HEATERS (3)	NG	4	MMBTU/H	CO	GOOD COMBUSTION PRACTICES	0.9	LB/H	0.2250	FOR EACH OF 3 GAS HEATERS	BACT-PSD
GA-0105	MCINTOSH COMBINED CYCLE FACILITY	GA	4/17/2003	FUEL GAS HEATER	NG	5	MMBTU/H	CO		37	PPM @ 15% O2	37.0000		BACT-PSD
GA-0107	TALBOT ENERGY FACILITY	GA	6/9/2003	FUEL GAS PREHEATERS, (3)	NG	5	MMBTU/H	CO	GOOD COMBUSTION PRACTICE	0.022	LB/MMBTU	0.0220		BACT-PSD
IA-0087	GERDAU AMERISTEEL WILTON	IA	5/29/2007	SOUTH LADLE DRYERS AND PREHEATERS	NG	5	MMBTU/H	CO	GOOD COMBUSTION CONTROLS	84	LB/MMCF	84.0000	AVG OF THREE (3) TESTS	BACT-PSD
KY-0094	NORTH AMERICAN STAINLESS	KY	12/1/2003	HEATER, SALT BATH, EMISSION POINT 84	NG	5.6	mmbtu/h	CO		0.46	LB/H	0.0821		BACT-PSD
IA-0184	TITANIUM DIOXIDE FACILITY	IA	5/13/2003	OXYGEN SUPERHEATERS W340-AX & W340-B	NG	5.61	MMBTU/H	CO	GOOD EQUIPMENT DESIGN AND PROPER COMBUSTION TECHNIQUES	0.508	LB/H	0.0906	HOURLY MAXIMUM	BACT-PSD
IA-0068	EMERY GENERATING STATION	IA	6/26/2003	GAS HEATER	NG	9	MMBTU/H	CO	GOOD COMBUSTION PRACTICES	0.082	LB/MMBTU	0.0820	Other Case-by-Case	BACT-PSD
FL-0286	FPL WEST COUNTY ENERGY CENTER	FL	1/10/2007	TWO GAS-FUELED 10 MMBTU/H PROCESS HEATER	NG	10	MMBTU/H	CO		0.08	LB/MMBTU	0.0800		BACT-PSD
FL-0303	FPL WEST COUNTY ENERGY CENTER UNIT 3	FL	7/30/2008	TWO NOMINAL 10 MMBTU/H NG-FIRED PROCESS HEATERS	NG	10	MMBTU/H	CO	GOOD COMBUSTION	0.08	LB/MMBTU	0.0800		BACT-PSD
MD-0031	CHALK POINT	MD	4/1/2005	(2) NG FUEL HEATERS	NG	10	MMBTU/H	CO	GOOD COMBUSTION CONTROL AND NG FIRING ONLY	0.1	LB/MMBTU	0.1000	EACH	BACT-PSD
WI-0227	PORT WASHINGTON GENERATING STATION	WI	10/13/2004	GAS HEATER (P06, S06)	NG	10	MMBTU/H	CO	NG FUEL	0.47	LB/H	0.0470		BACT-PSD
AR-0077	BLUEWATER PROJECT	AR	7/22/2004	FURNACES, HEATERS, & DRYERS	NG	11	MMBTU/H	CO	GOOD COMBUSTION PRACTICE	0.84	LB/MMBTU	0.8400		BACT-PSD
OH-0276	CHARTER STEEL	OH	6/10/2004	TUNDISH PREHEATER, 3 UNITS	NG	12	MMBTU/H	CO		0.99	LB/H	0.0825		BACT-PSD
WA-0301	BP CHERRY POINT REFINERY	WA	4/20/2005	PROCESS HEATER, IHT	NG	13	MMBTU/H	CO	GOOD COMBUSTION PRACTICES	70	PPM	70.0000	7% O2, 24 hr ave	BACT-PSD
LA-0193	STYRENE MONOMER PLANT	LA	2/11/2003	REGENERATION GAS HEATER HS-2102		14.4	MMBTU/H	CO	GOOD COMBUSTION PRACTICES - GOOD EQUIPMENT DESIGN, USE OF GASEOUS FUELS FOR GOOD MIXING, AND PROPER COMBUSTION TECHNIQUES	1.2	LB/H	0.0833	HOURLY MAXIMUM	BACT-PSD
*PA-0288	SUNBURY GENERATION LP/SUNBURY SES	PA	4/1/2013	DEW POINT HEATER	NG	15	MMBTU/hr	CO		0.037	LBS/MMBTU	0.0370	OTHER CASE-BY-CASE	BACT-PSD
TX-0501	TEXSTAR GAS PROCESS FACILITY	TX	7/11/2006	BOTTOM HEATERS (2)		15	MMBTU/H	CO		1.35	LB/H	0.0900		BACT-PSD
*FL-0334	ANCLOTE POWER GENERATING FACILITY	FL	9/14/2012	NG Process Heater	NG	16.5	MMBTU/hr	CO		0.08	LB/MMBTU	0.0800		BACT-PSD
OK-0129	CHOUTEAU POWER PLANT	OK	1/23/2009	FUEL GAS HEATER (H2O BATH)		18.8	MMBTU/H	CO		0.39	LB/H	0.0207	N/A	BACT-PSD
LA-0192	CRESCENT CITY POWER	LA	6/6/2005	FUEL GAS HEATERS (3)		19	MMBTU/H	CO	GOOD COMBUSTION PRACTICES	1.52	LB/H	0.0800	HOURLY AVERAGE	BACT-PSD
SC-0114	GP ALLENDALE LP	SC	11/25/2008	NG SPACE HEATERS - 14 UNITS (ID 18)	NG	20.89	MMBTU/H	CO		1.67	LB/H	0.0799		BACT-PSD
SC-0115	GP CLARENDON LP	SC	2/10/2009	NG SPACE HEATERS - 14 UNITS (ID 17)	NG	20.89	MMBTU/H	CO		1.67	LB/H	0.0799		BACT-PSD
CA-1146	CELITE	CA	6/11/2007	HEATER-OTHER PROCESS	NG	35	35 MMBTU	CO		100	PPMVD @ 3% O2	100.0000	6-MINUTES AVG	BACT-PSD
WI-0212	SENA - NIAGARA MILL	WI	7/15/2005	PROCESS HEATER PAPER MACHINE P51 DRYER	NG	35.3	MMBTU/H	CO	GOOD COMBUSTION	0.06	LB/MMBTU	0.0600		BACT-PSD
*CA-1191	VICTORVILLE 2 HYBRID POWER PROJECT	CA	3/11/2010	AUXILIARY HEATER	NG	40	MMBTU/H	CO	OPERATIONAL RESTRICTION OF 1000 HR/YR	50	PPMVD	50.0000	1-HR AVG, @3% O2	BACT-PSD
*CA-1212	PALMDALE HYBRID POWER PROJECT	CA	10/18/2011	AUXILIARY HEATER	NG	40	MMBTU/H	CO		50	PPMVD	50.0000	@3% O2, 3-HR AVG	BACT-PSD
CO-0058	CHEYENNE STATION	CO	6/12/2004	HEATERS	NG	45	MMBTU/H	CO	GOOD COMBUSTION PRACTICES	0.037	LB/MMBTU	0.0370	1-HR AVERAGE	BACT-PSD
CA-1147	CELITE	CA	6/11/2007	HEATER-OTHER PROCESS	NG	48	48 MMBTU	CO	LOW-NOX BURNER	100	PPMVD @ 3% O2	100.0000	6-MINUTES AVG	BACT-PSD
*IA-0106	CF NITROGEN, LLC - PORT NEAL NITROGEN COMPLEX	IA	7/12/2013	Startup Heater	NG	58.8	MMBTU/hr	CO	good operating practices & use of NG	0.0194	LB/MMBTU	0.0194	AVERAGE OF THREE (3) TESTS	BACT-PSD
TX-0478	CITGO CORPUS CHRISTI REFINERY - WEST PLANT	TX	4/20/2005	MIXED DISTILLATE HYDROHEATER		62	MMBTU/H	CO		5.1	LB/H	0.0823		BACT-PSD
LA-0203	OAKDALE OSB PLANT	LA	6/13/2005	AUXILIARY THERMAL OIL HEATER	NG	66.5	MMBTU/H	CO	USE OF NG AS FUEL AND GOOD COMBUSTION PRACTICES	6.57	LB/H	0.0988	HOURLY MAXIMUM	BACT-PSD
MN-0070	MINNESOTA STEEL INDUSTRIES, LLC	MN	9/7/2007	SMALL BOILERS & HEATERS(100 MMBTU)	NG	99	MMBTU/H	CO		0.08	LB/MMBTU	0.0800	1 HOUR AVERAGE	BACT-PSD
OH-0315	NEW STEEL INTERNATIONAL, INC., HAVERHILL	OH	5/6/2008	TUNDISH PREHEATER (8)	NG	0.22	MMSCFH	NOX	LOW NOX BURNERS	1.1	LB/H	5.0000		BACT-PSD
WI-0228	WPS - WESTON PLANT	WI	10/19/2004	B63, S63; B64, S64 - NG STATION HEATER 1 AND 2	NG	0.75	MMBTU/H	NOX	NG	0.073	LB/H	0.0973		BACT-PSD
*SC-0132	ARGOS HARLEYVILLE PLANT	SC	12/14/2007	PREHEATER/PRECALCINER KILN 1		1.32	MILLION T	NOX	SELECTIVE NON-CATALYTIC REDUCTION (SNCR), STAGED COMBUSTION, INDIRECT FIRING, AND LOW NOX BURNERS	2.65	LB/TON CLINKER	2.6500	30 DAY ROLLING AVERAGE	BACT-PSD
MD-0040	CPV ST CHARLES	MD	11/12/2008	HEATER	NG	1.7	MMBTU/H	NOX		0.1	LB/MMBTU	0.1000		BACT-PSD
*SC-0132	ARGOS HARLEYVILLE PLANT	SC	12/14/2007	PREHEATER/PRECALCINER KILN 2		1.92	MILLION T	NOX	SELECTIVE NON-CATALYTIC REDUCTION (SNCR), STAGED COMBUSTION, INDIRECT FIRING, AND LOW NOX BURNERS	1.95	LB/TON CLINKER	1.9500	30 DAY ROLLING AVERAGE	BACT-PSD
NV-0035	TRACY SUBSTATION EXPANSION PROJECT	NV	8/16/2005	FUEL PREHEATER #2	NG	4	MMBTU/H	NOX	BEST COMBUSTION PRACTICES	0.14	LB/MMBTU	0.1400	3-HOUR ROLLING AVERAGE	BACT-PSD
NV-0035	TRACY SUBSTATION EXPANSION PROJECT	NV	8/16/2005	FUEL PREHEATER #1	NG	4	MMBTU/H	NOX	BEST COMBUSTION PRACTICES	0.14	LB/MMBTU	0.1400	3-HOUR ROLLING AVERAGE	BACT-PSD
OH-0317	OHIO RIVER CLEAN FUELS, LLC	OH	11/20/2008	GAS FIRED HEATERS (3)	NG	4	MMBTU/H	NOX	GOOD COMBUSTION PRACTICES	1.13	LB/H	0.2825	FOR EACH OF 3 GAS HEATERS	BACT-PSD

Dew Point Heater

ODEC PM LIMIT = 0.0075 LB/MMBTU
 ODEC CO LIMIT = 0.082 LB/MMBTU
 ODEC NOx= 0.05 LB/MMBTU
 ODEC VOC= 0.005 LB/MMBTU
 SO2= 0.0006 LB/MMBTU
 H2SO4 Mist= 0.00005 lb/hr

RBLCID	FACILITY	STATE	PERMIT DATE	PROCESS	FUEL	THROUGH HPUT	UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION_LIMIT_1 UNIT	EMISSION Limit_lb/MM Btu	EMISSION_LIMIT_1_AV G TIME CONDITION	CASE-BY-CASE BASIS
MO-0067	SOUTH HARPER PEAKING FACILITY	MO	12/29/2004	FUEL GAS HEATER	NG	9.8	mmBtu/h	NOX	LOW NOX BURNERS	0		0.0000	SEE NOTE	BACT-PSD
WI-0227	PORT WASHINGTON GENERATING STATION	WI	10/13/2004	GAS HEATER (P06, S06)	NG	10	MMBTU/H	NOX	NG FUEL	0.1	LBS/MMBTU	0.1000		N/A
OH-0276	CHARTER STEEL	OH	6/10/2004	TUNDISH PREHEATER, 3 UNITS	NG	12	MMBTU/H	NOX		1.18	LB/H	0.0983		BACT-PSD
WA-0301	BP CHERRY POINT REFINERY	WA	4/20/2005	PROCESS HEATER, IHT	NG	13	MMBTU/H	NOX	ULTRA LOW NOX BURNERS	0.1	LB/MMBTU	0.1000	7% O2, 24 hr ave	BACT-PSD
*PA-0288	SUNBURY GENERATION LP/SUNBURY SES	PA	4/1/2013	DEW POINT HEATER	NG	15	MMBTU/hr	NOX		0.085	LBS/MMBTU	0.0850		OTHER CASE-BY-CASE
TX-0501	TEXSTAR GAS PROCESS FACILITY	TX	7/11/2006	BOTTOM HEATERS (2)		15	MMBTU/H	NOX		1.61	LB/H	0.1073		BACT-PSD
									MAINTENANCE/OPERATION PER MANUFACTURE'S SPECIFICATION, AND EXCLUSIVELY FIRING COMMERCIAL NG OR PROPANE.	2.48	LB/H	0.1550		BACT-PSD
OK-0097	QUAD GRAPHICS OKC FAC	OK	2/3/2004	HEATERS/OXIDIZERS	NG	16	MMBTU/H	NOX		2.7	LB/H	0.1436		BACT-PSD
OK-0129	CHOUTEAU POWER PLANT	OK	1/23/2009	FUEL GAS HEATER (H2O BATH)		18.8	MMBTU/H	NOX		1.99	LB/H	0.0953		BACT-PSD
SC-0114	GP ALLENDALE LP	SC	11/25/2008	NG SPACE HEATERS - 14 UNITS (ID 18)	NG	20.89	MMBTU/H	NOX		1.99	LB/H	0.0953		BACT-PSD
SC-0115	GP CLARENDON LP	SC	2/10/2009	NG SPACE HEATERS - 14 UNITS (ID 17)	NG	20.89	MMBTU/H	NOX		0.44	LB/MMBTU	0.0440		BACT-PSD
WI-0212	SENA - NIAGARA MILL	WI	7/15/2005	PROCESS HEATER PAPER MACHINE P51 DRYER	NG	35.3	MMBTU/H	NOX	LOW-NOX BURNERS					
OH-0315	NEW STEEL INTERNATIONAL, INC., HAVERHILL	OH	5/6/2008	TUNDISH PREHEATER (8)	NG	0.22	MMSCFH	PM	BAGHOUSE	0.0017	LB/H	0.0077		BACT-PSD
WI-0228	WPS - WESTON PLANT	WI	10/19/2004	B63, S63; B64, S64 - NG STATION HEATER 1 AND 2	NG	0.75	MMBTU/H	PM	NG	0.01	LB/H	0.0133		BACT-PSD
*SC-0132	ARGOS HARLEYVILLE PLANT	SC	12/14/2007	PREHEATER/PRECALCINER KILN 1		1.32	MILLION T	PM	BAGHOUSE	0		0.0000		BACT-PSD
MD-0040	CPV ST CHARLES	MD	11/12/2008	HEATER	NG	1.7	MMBTU/H	PM		0.007	LB/MMBTU	0.0070		BACT-PSD
*SC-0132	ARGOS HARLEYVILLE PLANT	SC	12/14/2007	PREHEATER/PRECALCINER KILN 2		1.92	MILLION T	PM	BAGHOUSE	0		0.0000		BACT-PSD
									EXCLUSIVE USE OF COMMERCIAL NATURAL GAS OR PROPANE.	0.12	LB/H	0.0075		BACT-PSD
OK-0097	QUAD GRAPHICS OKC FAC	OK	2/3/2004	HEATERS/OXIDIZERS	NG	16	MMBTU/H	PM		0.006	LB/H	0.0080		BACT-PSD
WI-0228	WPS - WESTON PLANT	WI	10/19/2004	B63, S63; B64, S64 - NG STATION HEATER 1 AND 2	NG	0.75	MMBTU/H	FPM10	NG FUEL	0		0.0000		BACT-PSD
*SC-0132	ARGOS HARLEYVILLE PLANT	SC	12/14/2007	PREHEATER/PRECALCINER KILN 1		1.32	MILLION T	FPM10	BAGHOUSE	0.007	LB/MMBTU	0.0070		BACT-PSD
MD-0040	CPV ST CHARLES	MD	11/12/2008	HEATER	NG	1.7	MMBTU/H	FPM10		0		0.0000		BACT-PSD
*SC-0132	ARGOS HARLEYVILLE PLANT	SC	12/14/2007	PREHEATER/PRECALCINER KILN 2		1.92	MILLION T	FPM10	BAGHOUSE	0.02	LB/MMBTU	0.0200	3-HOUR ROLLING	BACT-PSD
NV-0035	TRACY SUBSTATION EXPANSION PROJECT	NV	8/16/2005	FUEL PREHEATER #2	NG	4	MMBTU/H	FPM10	BEST COMBUSTION PRACTICES.	0.02	LB/MMBTU	0.0200	3-HOUR ROLLING	BACT-PSD
NV-0035	TRACY SUBSTATION EXPANSION PROJECT	NV	8/16/2005	FUEL PREHEATER #1	NG	4	MMBTU/H	FPM10	BEST COMBUSTION PRACTICES	0.02	LB/MMBTU	0.0200	3-HOUR ROLLING	BACT-PSD
OH-0317	OHIO RIVER CLEAN FUELS, LLC	OH	11/20/2008	GAS FIRED HEATERS (3)	5/TAI	4	MMBTU/H	FPM10	NG FUEL	0.09	LB/H	0.0225	FOR EACH OF 3 GAS HEATERS	BACT-PSD
WI-0227	PORT WASHINGTON GENERATING STATION	WI	10/13/2004	GAS HEATER (P06, S06)	NG	10	MMBTU/H	FPM10	BAGHOUSE	0.08	LB/H	0.0080		BACT-PSD
OH-0276	CHARTER STEEL	OH	6/10/2004	TUNDISH PREHEATER, 3 UNITS	NG	12	MMBTU/H	FPM10		0.09	LB/H	0.0075		BACT-PSD
TX-0501	TEXSTAR GAS PROCESS FACILITY	TX	7/11/2006	BOTTOM HEATERS (2)		15	MMBTU/H	FPM10		0.12	LB/H	0.0080		BACT-PSD
SC-0114	GP ALLENDALE LP	SC	11/25/2008	NG SPACE HEATERS - 14 UNITS (ID 18)	NG	20.89	MMBTU/H	FPM10		0.15	LB/H	0.0072		BACT-PSD
SC-0115	GP CLARENDON LP	SC	2/10/2009	NG SPACE HEATERS - 14 UNITS (ID 17)	NG	20.89	MMBTU/H	FPM10		0.15	LB/H	0.0072		BACT-PSD
WI-0212	SENA - NIAGARA MILL	WI	7/15/2005	PROCESS HEATER PAPER MACHINE P51 DRYER	NG	35.3	MMBTU/H	FPM10	GOOD COMBUSTION WITH ONLY NATURAL GAS AS FUEL	0.023	LB/MMBTU	0.0230		BACT-PSD
OH-0315	NEW STEEL INTERNATIONAL, INC., HAVERHILL	OH	5/6/2008	TUNDISH PREHEATER (8)	NG	0.22	MMSCFH	FPM2.5	BAGHOUSE	0.0017	LB/H	0.0077		LAER
MD-0040	CPV ST CHARLES	MD	11/12/2008	HEATER	NG	1.7	MMBTU/H	FPM2.5		0.007	LB/MMBTU	0.0070		LAER
*PA-0284	AK STEEL CORP/BUTLER WORKS	PA	3/11/2005	2.5 MMBTU/HR ⁢ SPACEHEATERS ⁢ 10 MMB	NG	20		FPM		0.4	LB/MMBTU	0.4000		BACT-PSD
OK-0129	CHOUTEAU POWER PLANT	OK	1/23/2009	FUEL GAS HEATER (H2O BATH)		18.8	MMBTU/H	FPM10		0.1	LB/H	0.0053		N/A
*PA-0288	SUNBURY GENERATION LP/SUNBURY SES	PA	4/1/2013	DEW POINT HEATER	NG	15	MMBTU/hr	TPM		0.008	LBS/MMBTU	0.0080		OTHER CASE-BY-CASE
SC-0114	GP ALLENDALE LP	SC	11/25/2008	NG SPACE HEATERS - 14 UNITS (ID 18)	NG	20.89	MMBTU/H	TPM		0.15	LB/H	0.0072		BACT-PSD
SC-0115	GP CLARENDON LP	SC	2/10/2009	NG SPACE HEATERS - 14 UNITS (ID 17)	NG	20.89	MMBTU/H	TPM		0.15	LB/H	0.0072		BACT-PSD
OH-0315	NEW STEEL INTERNATIONAL, INC., HAVERHILL	OH	5/6/2008	TUNDISH PREHEATER (8)	NG	0.22	MMSCFH	SO2		0.013	LB/H	0.0591		BACT-PSD
WI-0228	WPS - WESTON PLANT	WI	10/19/2004	B63, S63; B64, S64 - NG STATION HEATER 1 AND 2	NG	0.75	MMBTU/H	SO2	NG	0.0004	LB/H	0.0005		BACT-PSD
*SC-0132	ARGOS HARLEYVILLE PLANT	SC	12/14/2007	PREHEATER/PRECALCINER KILN 1		1.32	MILLION T	SO2		0.9	LB/TON CLINKER	0.9000	30 DAY ROLLING AVERAGE	BACT-PSD
MD-0040	CPV ST CHARLES	MD	11/12/2008	HEATER	NG	1.7	MMBTU/H	SO2		0		0.0000	SEE NOTE	BACT-PSD
*SC-0132	ARGOS HARLEYVILLE PLANT	SC	12/14/2007	PREHEATER/PRECALCINER KILN 2		1.92	MILLION T	SO2		0.9	LB/TON CLINKER	0.9000	30 DAY ROLLING AVERAGE	BACT-PSD
OH-0317	OHIO RIVER CLEAN FUELS, LLC	OH	11/20/2008	GAS FIRED HEATERS (3)	5/TAI	4	MMBTU/H	SO2	GOOD COMBUSTION PRACTICES	0.01	LB/H	0.0025	FOR EACH OF 3 GAS HEATERS	BACT-PSD
									FUEL SULFUR LIMIT: 0.8 GR/100 DSCF ANNUAL AVG., 1.5 GR/100 DSCF ON AN HOURLY BASIS	0		0.0000	see note	BACT-PSD
VA-0279	CINCAP - MARTINSVILLE	VA	1/8/2003	HEATER, PIPELINE WATER BATH, NG	NG	5	MMBTU/H	SO2		0.02	LB/H	0.0020		N/A
WI-0227	PORT WASHINGTON GENERATING STATION	WI	10/13/2004	GAS HEATER (P06, S06)	NG	10	MMBTU/H	SO2	NG FUEL	0.007	LB/H	0.0006		BACT-PSD
OH-0276	CHARTER STEEL	OH	6/10/2004	TUNDISH PREHEATER, 3 UNITS	NG	12	MMBTU/H	SO2		0.01	LB/H	0.0007		BACT-PSD
TX-0501	TEXSTAR GAS PROCESS FACILITY	TX	7/11/2006	BOTTOM HEATERS (2)		15	MMBTU/H	SO2		0.01	LB/H	0.0005		N/A
OK-0129	CHOUTEAU POWER PLANT	OK	1/23/2009	FUEL GAS HEATER (H2O BATH)		18.8	MMBTU/H	SO2	LOW SULFUR FUEL	0.01	LB/H	0.0005		BACT-PSD
SC-0114	GP ALLENDALE LP	SC	11/25/2008	NG SPACE HEATERS - 14 UNITS (ID 18)	NG	20.89	MMBTU/H	SO2		0.01	LB/H	0.0005		BACT-PSD
SC-0115	GP CLARENDON LP	SC	2/10/2009	NG SPACE HEATERS - 14 UNITS (ID 17)	NG	20.89	MMBTU/H	SO2		0	LB/H	0.0005		BACT-PSD
WI-0212	SENA - NIAGARA MILL	WI	7/15/2005	PROCESS HEATER PAPER MACHINE P51 DRYER	NG	35.3	MMBTU/H	SO2	NG AS FUEL	0		0.0000	SEE NOTE	BACT-PSD
*PA-0288	SUNBURY GENERATION LP/SUNBURY SES	PA	4/1/2013	DEW POINT HEATER	NG	15	MMBTU/hr	SO2		0.003	LBS/MMBTU	0.0030		OTHER CASE-BY-CASE
*PA-0284	AK STEEL CORP/BUTLER WORKS	PA	3/11/2005	2.5 MMBTU/HR ⁢ SPACEHEATERS ⁢ 10 MMB	NG	20		SO2		4	LB/MMBTU	4.0000	OVER ANY 1-HOUR PERIOD	

Dew Point Heater

ODEC PM LIMIT = 0.0075 LB/MMBTU
 ODEC CO LIMIT = 0.082 LB/MMBTU
 ODEC NOx= 0.05 LB/MMBTU
 ODEC VOC= 0.005 LB/MMBTU
 SO2= 0.0006 LB/MMBTU
 H2SO4 Mist= 0.00005 lb/hr

RBLCID	FACILITY	STATE	PERMIT DATE	PROCESS	FUEL	THROUGHPUT	UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT_1	EMISSION LIMIT_1 UNIT	EMISSION Limit_lb/MMBtu	EMISSION LIMIT_1 AVG TIME CONDITION	CASE-BY-CASE BASIS
WI-0228	WPS - WESTON PLANT	WI	10/19/2004	B63, S63; B64, S64 - NG STATION HEATER 1 AND 2	NG	0.75	MMBTU/H	Sulfuric Acid	NG	0.0001	LB/H	0.0001	SULFURIC ACID MIST	BACT-PSD
OH-0315	NEW STEEL INTERNATIONAL, INC., HAVERHILL	OH	5/6/2008	TUNDISH PREHEATER (8)	NG	0.22	MMSCFH	VOC		0.12	LB/H	0.5455		BACT-PSD
WI-0228	WPS - WESTON PLANT	WI	10/19/2004	B63, S63; B64, S64 - NG STATION HEATER 1 AND 2	NG	0.75	MMBTU/H	VOC	NG	0.004	LB/H	0.0053		BACT-PSD
*SC-0132	ARGOS HARLEYVILLE PLANT	SC	12/14/2007	PREHEATER/PRECALCINER KILN 1		1.32	MILLION T/	VOC	GOOD COMBUSTION PRACTICES	0.55	LB/TON CLINKER	0.5500	3 HOUR BLOCK AVERAGE	BACT-PSD
MD-0040	CPV ST CHARLES	MD	11/12/2008	HEATER	NG	1.7	MMBTU/H	VOC		0.005	LB/MMBTU	0.0050		LAER
*SC-0132	ARGOS HARLEYVILLE PLANT	SC	12/14/2007	PREHEATER/PRECALCINER KILN 2		1.92	MILLION T/	VOC	GOOD COMBUSTION PRACTICES	0.55	LB/TON CLINKER	0.5500	3 HOUR BLOCK AVERAGE	BACT-PSD
NV-0035	TRACY SUBSTATION EXPANSION PROJECT	NV	8/16/2005	FUEL PREHEATER #2	NG	4	MMBTU/H	VOC	BEST COMBUSTION PRACTICES	0.08	LB/MMBTU	0.0800	3-HOUR ROLLING	BACT-PSD
NV-0035	TRACY SUBSTATION EXPANSION PROJECT	NV	8/16/2005	FUEL PREHEATER #1	NG	4	MMBTU/H	VOC	BEST COMBUSTION PRACTICES	0.08	LB/MMBTU	0.0800	3-HOUR AVERAGE	BACT-PSD
OH-0317	OHIO RIVER CLEAN FUELS, LLC	OH	11/20/2008	GAS FIRED HEATERS (3)	S/TAILED GAS	4	MMBTU/H	VOC	GOOD COMBUSTION PRACTICES	0.06	LB/H	0.0150	FOR EACH OF 3 GAS HEATERS	BACT-PSD
WI-0227	PORT WASHINGTON GENERATING STATION	WI	10/13/2004	GAS HEATER (P06, S06)	NG	10	MMBTU/H	VOC	NG FUEL	0.06	LB/H	0.0060		BACT-PSD
OH-0276	CHARTER STEEL	OH	6/10/2004	TUNDISH PREHEATER, 3 UNITS	NG	12	MMBTU/H	VOC		0.06	LB/H	0.0050		BACT-PSD
*PA-0288	SUNBURY GENERATION LP/SUNBURY SES	PA	4/1/2013	DEW POINT HEATER	NG	15	MMBTU/hr	VOC		0.006	LBS/MMBTU	0.0060		OTHER CASE-BY-CASE
TX-0501	TEXSTAR GAS PROCESS FACILITY	TX	7/11/2006	BOTTOM HEATERS (2)		15	MMBTU/H	VOC		0.09	LB/H	0.0060		BACT-PSD
OK-0129	CHOUTEAU POWER PLANT	OK	1/23/2009	FUEL GAS HEATER (H2O BATH)		18.8	MMBTU/H	VOC		0.1	LB/H	0.0053		BACT-PSD
SC-0114	GP ALLENDALE LP	SC	11/25/2008	NG SPACE HEATERS - 14 UNITS (ID 18)	NG	20.89	MMBTU/H	VOC		0.11	LB/H	0.0053		BACT-PSD
SC-0115	GP CLARENDON LP	SC	2/10/2009	NG SPACE HEATERS - 14 UNITS (ID 17)	NG	20.89	MMBTU/H	VOC		0.11	LB/H	0.0053		BACT-PSD
WI-0212	SENA - NIAGARA MILL	WI	7/15/2005	PROCESS HEATER PAPER MACHINE P51 DRYER	NG	35.3	MMBTU/H	VOC	BACT FOR VOC EMISSIONS FROM IR BURNERS IS LOW NOX IR BURNERS, GOOD COMBUSTION CONTROL AND USE OF NG	0		0.0000	SEE NOTE	BACT-PSD

Cooling Towers

RBLCID	FACILITY	DATE	PROCESS	THROUGHPUT	UNIT	POLLUTANT	CONTROL METHOD	EMISSION LIMIT	UNIT
*AK-0080	ANCHORAGE MUNICIPAL LIGHT & POWER	8/30/2013	Cooling Tower	0		TPM2.5	Install, operate, and maintain a high efficiency drift eliminator with a maximum drift of 0.0005 percent of circulating water.	0	
AL-0242	TUSCALOOSA REFINERY	7/24/2008	COOLING TOWER & STORAGE TANKS			FPM10	USE DRIFT ELIMINATORS AS OUTLINED IN THE RBLC.	0	
AL-0246	TUSCALOOSA	3/2/2010	COOLING TOWER			TPM	DRIFT ELIMINATORS WILL BE INSTALLED, NOT MINIMIZE EMISSIONS.	0.4	T/YR PM10
AR-0074	PLUM POINT ENERGY	3/2/2004	COOLING TOWER , SN-03			FPM10	MIST ELIMINATORS	0.8	LB/H
AR-0077	BLUEWATER PROJECT	10/25/2004	COOLING TOWERS			FPM10	DRIFT/MIST ELIMINATORS	6	LB/H
AR-0078	NUCOR STEEL, ARKANSAS	5/10/2007	COOLING TOWER			FPM10		3.6	T/YR
AR-0079	PLUM POINT ENERGY	1/26/2009	COOLING TOWER - SN-03			FPM10	MIST ELIMINATORS	0.8	LB/H
AR-0094	JOHN W. TURK JR. POWER PLANT	4/9/2010	COOLING TOWER			FPM10	DRIFT ELIMINATORS 0.0005% DRIFT RATE	5.2	LB/H
AR-0100	LION OIL COMPANY	4/9/2010	#9 COOLING TOWER, SN-853-9	10.5	BILLION GAL/12-MONTH	PM	DRIFT ELIMINATORS, 0.005%	3000	MG/LTDS CONCENTR ATI
AZ-0046	ARIZONA CLEAN FUELS YUMA	8/25/2006	COOLING TOWER			PM	HIGH EFFICIENCY DRIFT ELIMINATORS	1.6	LB/H
AZ-0047	WELLTON MOHAWK GENERATING STATION	1/31/2006	MECHANICAL DRAFT COOLING TOWERS	170000	Gal/Min	FPM10	DRIFT ELIMINATORS (NOT TO EXCEED A TOTAL DRIFT RATE OF 0.0005 PERCENT OF CIRCULATING WATER FLOW)	3	LB/H
AZ-0049	LA PAZ GENERATING FACILITY	7/24/2007	MECHANICAL DRAFT COOLING TOWERS FOR GE TURBINES	173870	GAL/MIN	FPM10	DRIFT ELIMINATORS	0.0005	% BY VOL
AZ-0049	LA PAZ GENERATING FACILITY	7/24/2007	MECHANICAL DRAFT COOLING TOWERS FOR SIEMENS TURBINES	141400	GAL/MIN	FPM10	DRIFT ELIMINATORS	0.0005	% BY VOL
*CA-1191	VICTORVILLE 2 HYBRID POWER PROJECT	2/15/2013	COOLING TOWER	130000	GAL/MIN	TPM		1.6	LB/HR
*CA-1191	VICTORVILLE 2 HYBRID POWER PROJECT	2/15/2013	COOLING TOWER	130000	GAL/MIN	TPM2.5		1.6	LB/HR
*CA-1208	BURNEY MOUNTAIN POWER	2/14/2013	EVAPORATIVE COOLING TOWER	7600	GAL/MIN	fugitive PM	SEE WORK PRACTICE REQUIREMENTS IN NOTES	0	
*CA-1212	PALMDALE HYBRID POWER PROJECT	4/29/2013	COOLING TOWER	130000	GAL/MIN CIRCULATION RATE	TPM		1.6	LB/HR
*CA-1212	PALMDALE HYBRID POWER PROJECT	4/29/2013	COOLING TOWER	130000	GAL/MIN CIRCULATION RATE	TPM10		1.6	LB/HR
*CA-1212	PALMDALE HYBRID POWER PROJECT	4/29/2013	COOLING TOWER	130000	GAL/MIN CIRCULATION RATE	TPM2.5		1.6	LB/HR
CO-0057	COMANCHE STATION	8/24/2006	COOLING TOWER	140650	GAL/MIN	PM	DRIFT ELIMINATORS TO ACHIEVE 0.0005 % DRIFT OR LESS.	0	
CO-0057	COMANCHE STATION	8/24/2006	COOLING TOWER	140650	GAL/MIN	FPM10	DRIFT ELIMINATORS TO ACHIEVE 0.0005% DRIFT OR LESS	0	
FL-0284	HILLSBOROUGH COUNTY RESOURCE RECOVERY FACILITY	8/1/2008	COOLING TOWER			FPM10	DRIFT ELIMINATORS	0.001	% DRIFT RATE
FL-0293	CRYSTAL RIVER POWER PLANT	6/19/2008	PORTABLE COOLING TOWER	180000	GAL/MIN	PM	DRIFT ELIMINATORS	0.0015	% DRIFT RATE
FL-0294	ANCLOTE POWER PLANT	6/19/2008	COOLING TOWERS	660000	GAL/MIN	PM	DRIFT ELIMINATORS	108	T/YR
FL-0299	CRYSTAL RIVER POWER PLANT	12/15/2008	COOLING TOWERS	342306	GAL/MIN	PM		0.0005	PERCENT

Cooling Towers

RBLCID	FACILITY	DATE	PROCESS	THROUGHPUT	UNIT	POLLUTANT	CONTROL METHOD	EMISSION LIMIT	UNIT
FL-0303	FPL WEST COUNTY ENERGY CENTER UNIT 3	1/5/2011	ONE 26-CELL MECHANICAL DRAFT COOLING TOWER			PM	THE PERMITTEE SHALL CERTIFY THAT THE COOLING TOWER WAS CONSTRUCTED TO ACHIEVE THE SPECIFIED DRIFT RATE OF NO MORE THAN 0.0005 PERCENT OF THE CIRCULATING WATER FLOW RATE.	0.0005	%
FL-0304	CANE ISLAND POWER PARK	4/20/2009	AN EIGHT-CELL MECHANICAL COOLING TOWER			TPM10		0	% DRIFT
FL-0316	LEVY NUCLEAR PLANT	10/5/2010	Industrial Process Cooling Tower	600000	GAL/MIN	TPM	Drift eliminators	0.0005	RATE
FL-0317	FPL TURKEY POINT NUCLEAR PLANT	10/5/2010	Industrial Cooling Towers	210367	GAL/MIN/TOWER	TPM	Cooling tower design plus high efficiency drift eliminators	0.0005	%
FL-0317	FPL TURKEY POINT NUCLEAR PLANT	10/5/2010	Industrial Cooling Towers	210367	GAL/MIN/TOWER	FPM10	Cooling Tower design plus high efficiency drift eliminators; higher concentrations of solids in cooling water results in foramtion of PM/PM10.	0.0005	%
FL-0323	GAINESVILLE RENEWABLE ENERGY CENTER	2/10/2012	Mechanical draft cooling tower	78000	Gal/Min	TPM10	The tower will be equipped with drift eliminatores to meet a proposed drift rate of 0.0005%	1	T/YR
GA-0141	WARREN COUNTY BIOMASS ENERGY FACILITY	7/21/2011	Cooling Tower	0		FPM	Drift Eliminators	0.0005	% EFFECTIVE
GA-0142	OSCEOLA STEEL CO.	10/13/2011	Cooling Towers, CT1, CT21, CT22, and CT23	0		FPM10	Drift Eliminators	0.0005	% MASS FLOW RATE
IA-0067	WALTER SCOTT JR. ENERGY CENTER	12/3/2010	COOLING TOWER	349400	GAL/M	FPM10	MIST ELIMINATOR	1050	MG/L
IA-0067	WALTER SCOTT JR. ENERGY CENTER	12/3/2010	COOLING TOWER	349400	GAL/M	PM	MIST ELIMINATORS	1050	MG/L
IA-0082	GOLDEN GRAIN ENERGY	7/26/2006	COOLING TOWER			FPM10	MIST ELIMINATOR	1.33	LB/H
IA-0088	ADM CORN PROCESSING - CEDAR RAPIDS	10/9/2007	INDUSTRIAL COOLING TOWER	150000	GAL/MIN	PM	DRIFT ELIMINATORS	0.0005	%
IA-0088	ADM CORN PROCESSING - CEDAR RAPIDS	10/9/2007	INDUSTRIAL COOLING TOWER	150000	GAL/MIN	FPM10	DRIFT ELIMINATORS	0.0005	% EFF. DRIFT
IA-0089	HOMELAND ENERGY SOLUTIONS, LLC, PN 06-672	7/21/2008	COOLING TOWER, F80 (07-A-979P)	50000	GAL/MIN	PM	DRIFT ELIMINATOR / DEMISTER	0.0005	% DRIFT LOSS
IA-0089	HOMELAND ENERGY SOLUTIONS, LLC, PN 06-672	7/21/2008	COOLING TOWER, F80 (07-A-979P)	50000	GAL/MIN	FPM10	DRIFT ELIMINATOR / DEMISTER	0.0005	% DRIFT LOSS
IA-0092	SOUTHWEST IOWA RENEWABLE ENERGY	11/17/2008	COOLING TOWERS	3000000	GAL/H	FPM10	MIST ELIMINATOR 0.005%	3.12	LB/H
IA-0095	TATE & LYLE INDGREDIENTS AMERICAS, INC.	1/30/2009	COOLING TOWER			PM	DRIFT ELIMINATORS	0.0005	%
IA-0095	TATE & LYLE INDGREDIENTS AMERICAS, INC.	1/30/2009	COOLING TOWER			FPM10	DRIFT ELIMINATORS	0.0005	%
IA-0105	IOWA FERTILIZER COMPANY	8/13/2013	Cooling Tower	0		TPM	drift eliminator	0.0005	%
IA-0105	IOWA FERTILIZER COMPANY	8/13/2013	Cooling Tower	0		TPM10	drift eliminator	0.0005	%
IA-0105	IOWA FERTILIZER COMPANY	8/13/2013	Cooling Tower	0		TPM2.5	drift eliminator	0.0005	%

Cooling Towers

RBLCID	FACILITY	DATE	PROCESS	THROUGHPUT	UNIT	POLLUTANT	CONTROL METHOD	EMISSION LIMIT	UNIT
*IA-0106	CF INDUSTRIES NITROGEN, LLC - PORT NEAL NITROGEN COMPLEX	7/18/2013	Cooling Towers	0		TPM	drift eliminator	0.0005	%
*IA-0106	CF INDUSTRIES NITROGEN, LLC - PORT NEAL NITROGEN COMPLEX	7/18/2013	Cooling Towers	0		TPM10	drift eliminator	0.0005	%
*IA-0106	CF INDUSTRIES NITROGEN, LLC - PORT NEAL NITROGEN COMPLEX	7/18/2013	Cooling Towers	0		TPM2.5	drift eliminator	0.0005	%
ID-0015	J R SIMPLOT COMPANY - DON SIDING PLANT	6/27/2005	COOLING TOWERS, RECLAIM			FPM10	DRIFT ELIMINATORS	3.53	LB/H
ID-0017	POWER COUNTY ADVANCED ENERGY CENTER	2/5/2010	COOLING TOWER, SRC22	121000	GAL/MIN	PM	DRIFT/MIST ELIMINATORS	0.0005	% OF TOTAL CIRC FLOW
ID-0017	POWER COUNTY ADVANCED ENERGY CENTER	2/5/2010	COOLING TOWER, SRC22	121000	GAL/MIN	FPM10	DRIFT/MIST ELIMINATORS	0.0005	% OF TOTAL CIRC FLOW
ID-0017	POWER COUNTY ADVANCED ENERGY CENTER	2/5/2010	ZLDS COOLING TOWER, SRC30	985	GAL/MIN	PM	DRIFT/MIST ELIMINATORS	0.001	% OF TOTAL CIRC FLOW
ID-0017	POWER COUNTY ADVANCED ENERGY CENTER	2/5/2010	ZLDS COOLING TOWER, SRC30	985	GAL/MIN	FPM10	DRIFT/MIST ELIMINATORS	0.001	% OF TOTAL CIRC FLOW
ID-0018	LANGLEY GULCH POWER PLANT	10/5/2010	COOLING TOWER	63200	GAL/MIN	PM	DRIFT ELIMINATORS, GOOD OPERATING PRACTICES	0	% DRIFT LOSS
IL-0102	AVENTINE RENEWABLE ENERGY, INC.	7/24/2007	COOLING TOWER FEED COOLING / TRANSPORT SYSTEM			PM	DRIFT ELIMINATOR	0.005	GR/SCF
IL-0102	AVENTINE RENEWABLE ENERGY, INC.	7/24/2007				PM	BAGHOUSE	0.005	% OF THROUGHPUT
IN-0119	AUBURN NUGGET	12/4/2012	COOLING TOWER	23450	GAL/MIN	FPM		0.005	UT
*IN-0156	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	8/20/2013	COOLING TOWER: ROLLING MILL/CASTER (NON-CONTACT) ID#15E	18000	GAL/M	FPM	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0.003	% DRIFT RATE
*IN-0156	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	8/20/2013	COOLING TOWER: ROLLING MILL/CASTER (NON-CONTACT) ID#15E	18000	GAL/M	FPM10	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0.003	% DRIFT RATE
*IN-0156	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	8/20/2013	COOLING TOWER: CASTER SPRAYS (CONTACT) ID#15F	3500	GAL/M	FPM	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0.001	% DRIFT RATE
*IN-0156	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	8/20/2013	COOLING TOWER: CASTER SPRAYS (CONTACT) ID#15F	3500	GAL/M	FPM10	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0.001	% DRIFT RATE
*IN-0156	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	8/20/2013	COOLING TOWER: ROLLING MILL (CONTACT) ID#15A	8000	GAL/M	FPM	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0.001	% DRIFT RATE
*IN-0156	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	8/20/2013	COOLING TOWER: ROLLING MILL (CONTACT) ID#15A	8000	GAL/M	FPM10	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0.001	% DRIFT RATE

Cooling Towers

RBLCID	FACILITY	DATE	PROCESS	THROUGHPUT	UNIT	POLLUTANT	CONTROL METHOD	EMISSION LIMIT	UNIT
*IN-0156	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	8/20/2013	COOLING TOWER: LVD BOILER (CONTACT) ID#15G	2500	GAL/M	FPM	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0.005	% DRIFT RATE
*IN-0156	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	8/20/2013	COOLING TOWER: LVD BOILER (CONTACT) ID#15G	2500	GAL/M	FPM10	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0.005	% DRIFT RATE
*IN-0156	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	8/20/2013	COOLING TOWER: ROLLING MILL (CONTACT) ID#15B	4000	GAL/M	FPM	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS	0.001	% DRIFT RATE
*IN-0156	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	8/20/2013	COOLING TOWER: ROLLING MILL (CONTACT) ID#15B	4000	GAL/M	FPM10	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS	0.001	% DRIFT RATE
*IN-0156	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	8/20/2013	COOLING TOWER: ROLLING MILL ID#15C (NONCONTACT)	81250	GAL/M	FPM	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0.001	% DRIFT RATE
*IN-0156	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	8/20/2013	COOLING TOWER: ROLLING MILL ID#15C (NONCONTACT)	81250	GAL/M	FPM10	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0.001	% DRIFT RATE
*IN-0156	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	8/20/2013	COOLING TOWER: #1 CAST ID#15D (CONTACT)	5000	GAL/M	FPM	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS	0.001	% DRAFT RATE
*IN-0156	STEEL DYNAMICS, INC. - STRUCTURAL AND RAIL DIVISION	8/20/2013	COOLING TOWER: #1 CAST ID#15D (CONTACT)	5000	GAL/M	FPM10	DRIFT ELIMINATOR; DO NOT USE CHROMIUM-BASED WATER TREATMENT CHEMICALS IN ANY OF THE COOLING TOWERS.	0.001	% DRAFT RATE
*IN-0158	ST. JOSEPH ENEGRY CENTER, LLC	8/15/2013	TWO (2) COOLING TOWERS	170000	GAL/M EACH	FPM	DRIFT ELIMINATOR	0.0005	% DRIFT LOSS
*IN-0158	ST. JOSEPH ENEGRY CENTER, LLC	8/15/2013	TWO (2) COOLING TOWERS	170000	GAL/M EACH	FPM10	DRIFT ELIMINATOR	0.0005	% DRIFT LOSS
*IN-0158	ST. JOSEPH ENEGRY CENTER, LLC	8/15/2013	TWO (2) COOLING TOWERS	170000	GAL/M EACH	FPM2.5	DRIFT ELIMINATOR	0.0005	% DRIFT LOSS
*IN-0166	INDIANA GASIFICATION, LLC	8/16/2013	ASU COOLING TOWER	54960	GPM	FPM	HIGH EFFICIENCY DRIFT ELIMINATORS DESIGNED WITH A DRIFT LOSS RATE OF LESS THAN 0.0005%	1500	PPM
*IN-0166	INDIANA GASIFICATION, LLC	8/16/2013	ASU COOLING TOWER	54960	GPM	TPM10	HIGH EFFICIENCY DRIFT ELIMINATORS DESIGNED WITH A DRIFT LOSS RATE OF LESS THAN 0.0005%	1500	PPM
*IN-0166	INDIANA GASIFICATION, LLC	8/16/2013	ASU COOLING TOWER	54960	GPM	TPM2.5	HIGH EFFICIENCY DRIFT ELIMINATORS DESIGNED WITH A DRIFT LOSS RATE OF LESS THAN 0.0005%	1500	PPM
*IN-0167	MAGNETATION LLC	8/16/2013	COOLING TOWER	4600	GAL/MIN OF CIRCULATING WATER	TPM10	DRIFT ELIMINATORS	0.001	% MAX DRIFT RATE
*IN-0167	MAGNETATION LLC	8/16/2013	COOLING TOWER	4600	GAL/MIN OF CIRCULATING WATER	TPM2.5	DRIFT ELIMINATORS	0.001	% MAXIMUM DRIFT RATE

Cooling Towers

RBLCID	FACILITY	DATE	PROCESS	THROUGHPUT	UNIT	POLLUTANT	CONTROL METHOD	EMISSION LIMIT	UNIT
*IN-0167	MAGNETATION LLC	8/16/2013	COOLING TOWER	4600	GAL/MIN OF CIRCULATING WATER	FPM	DRIFT EMILINATORS	0.001	% MAXIMUM DRIFT RATE
LA-0136	PLAQUEMINE COGENERATION FACILITY	4/28/2009	COOLING TOWER	0.01	% DRIFT RATE	FPM10	GOOD OPERATING PRACTICES	1.4	LB/H
LA-0148	ACTIVATED CARBON FACILITY	11/3/2008	COOLING TOWERS	10750	GAL/MIN	FPM10	DRIFT ELIMINATION SYSTEM	0.41	LB/H
LA-0191	MICHOUD ELECTRIC GENERATING PLANT	6/2/2006	COOLING TOWERS (2)	1728	Gal/min	FPM10	DRIFT ELIMINATORS AND GOOD OPERATING PRACTICES	0.052	LB/H
LA-0192	CRESCENT CITY POWER	4/8/2008	MAIN COOLING TOWER	290200	GAL/MIN	FPM10	MARLEY EXCEL DRIFT ELIMINATORS	2.61	LB/H
LA-0192	CRESCENT CITY POWER	4/8/2008	CHILLER COOLING TOWER	35000	GAL H2O/MIN	FPM10		1.75	LB/H
LA-0204	PLAQUEMINE PVC PLANT	8/6/2009	C/A COOLING TOWER (C-4)	38750	GAL/MIN	FPM10	GOOD DESIGN, MAINTENANCE, AND INTEGRATED DRIFT ELIMINATORS	0.08	LB/MM GAL
LA-0204	PLAQUEMINE PVC PLANT	8/6/2009	VCM COOLING TOWER (M-7)	106000	GAL/MIN	FPM10	GOOD DESIGN, MAINTENANCE, AND INTEGRATED DRIFT ELIMINATORS	0.06	LB/MM GAL
LA-0204	PLAQUEMINE PVC PLANT	8/6/2009	COOLING TOWER (P-15)	43000	GAL/MIN	FPM10	GOOD DESIGN, MAINTENANCE, AND INTEGRATED DRIFT ELIMINATORS	0.057	LB/MM GAL
LA-0206	BATON ROUGE REFINERY	8/9/2007	COOLING TOWERS			FPM10	DRIFT ELIMINATOR SYSTEM	0.003	% DRIFT
LA-0211	GARYVILLE REFINERY	7/16/2008	COOLING TOWER NOS. 1 & 2 (24-08 & 32-08) & HYDROGEN PLANT COOLING TOWER (53-08)			FPM10	HIGH EFFICIENCY DRIFT ELIMINATORS	0.005	PERCENT
LA-0213	ST. CHARLES REFINERY	3/5/2010	COOLING TOWERS (13-81, 2004-6, 2005-42, 2005-43, 2008-35)			TPM10	DRIFT ELIMINATORS	0	
LA-0221	LITTLE GYPSY GENERATING PLANT	3/3/2009	COOLING TOWER	5000	GAL/MIN	FPM10	DRIFT ELIMINATOR WITH A 99.999% CONTROL EFFICIENCY	0.05	LB/H
LA-0224	ARSENAL HILL POWER PLANT	5/18/2012	COOLING TOWER	140000	GAL/MIN	FPM10	USE OF MIST ELIMINATORS	1.4	LB/H
LA-0229	SHINTECH PLAQUEMINE PLANT 2	4/20/2009	EQT120 COOLING TOWER (2C-4)	38750	GAL/MIN	TPM10	GOOD DESIGNS, GOOD MAINTENANCE, AND MIST ELIMINATORS	0.08	LB/MMGAL
LA-0229	SHINTECH PLAQUEMINE PLANT 2	4/20/2009	EQT128 - COOLING TOWER (2M-7)	106000	GAL/MIN	TPM10	GOOD DESIGN, GOOD MAINTENANCE, AND MIST ELIMINATORS	0.06	LB/MMGAL
LA-0230	FORMOSA PLASTICS - BATON ROUGE PLANT	8/6/2009	VCM UNIT COOLING TOWER	154000	GAL/MIN	TPM10	GOOD DESIGN, MAINTENANCE AND DRIFT ELIMINATORS	0.0006	LB/1000 GAL
LA-0231	LAKE CHARLES GASIFICATION FACILITY	5/17/2010	COOLING TOWERS	436000	GAL/MIN	TPM10	DRIFT ELIMINATORS	1.64	LB/H
LA-0239	NUCOR STEEL LOUISIANA	5/18/2012	TWR-101 - Blast Furnace Cooling Tower	0		FPM	BACT is selected to be a combination of less than 1,000 milligrams per liter TDS concentration in the cooling water and drift eliminators employing a drift maximum of 0.0005%.	0.32	LB/H

Cooling Towers

RBLCID	FACILITY	DATE	PROCESS	THROUGHPUT	UNIT	POLLUTANT	CONTROL METHOD	EMISSION LIMIT	UNIT
LA-0239	NUCOR STEEL LOUISIANA	5/18/2012	TWR-102 - Iron Solidification Cooling Tower	0		FPM	BACT is selected to be a combination of less than 1,000 milligrams per liter TDS concentration in the cooling water and drift eliminators employing a drift maximum of 0.0005%.	0.042	LB/H
LA-0239	NUCOR STEEL LOUISIANA	5/18/2012	TWR-103 - Air Separation Plant Cooling Tower	0		FPM	BACT is selected to be a combination of less than 1,000 milligrams per liter TDS concentration in the cooling water and drift eliminators employing a drift maximum of 0.0005%.	0.026	LB/H
LA-0246	ST. CHARLES REFINERY	7/6/2011	EQT0010 - Cooling Tower 403	61250	GAL/MIN	TPM10	Drift eliminators	1.2	LB/H
LA-0246	ST. CHARLES REFINERY	7/6/2011	EQT0035 - Cooling Tower CT-600	45000	GAL/MIN	TPM10	Drift eliminators	0.09	LB/H
LA-0246	ST. CHARLES REFINERY	7/6/2011	EQT0243 - HCU Cooling Tower	50000	GAL/MIN	TPM10	Drift eliminators	0.1	LB/H
LA-0246	ST. CHARLES REFINERY	7/6/2011	EQT0244 - New West Cooling Tower	40000	GAL/MIN	TPM10	drift eliminators	0.08	LB/H
LA-0248	DIRECT REDUCTION IRON PLANT	12/8/2011	DRI-113 - DRI Unit #1 Process Water Cooling Tower	26857	gpm	FPM10	BACT is a combination of less than or equal to 1,000 milligrams per liter TDS concentration in the cooling water and drift eliminators employing a drift maximum of 0.0005%.	0.11	LB/H
LA-0248	DIRECT REDUCTION IRON PLANT	12/8/2011	DRI-213 - DRI Unit #2 Process Water Cooling Tower	26857	gpm	FPM10	BACT is a combination of less than or equal to 1,000 milligrams per liter TDS concentration in the cooling water and drift eliminators employing a drift maximum of 0.0005%.	0.11	LB/H
LA-0248	DIRECT REDUCTION IRON PLANT	12/8/2011	DRI-114 - DRI Unit #1 Clean Water Cooling Tower	17611	gpm	FPM10	BACT is a combination of less than or equal to 1,000 milligrams per liter TDS concentration in the cooling water and drift eliminators employing a drift maximum of 0.0005%.	0.07	LB/H
LA-0248	DIRECT REDUCTION IRON PLANT	12/8/2011	DRI-214 - DRI Unit #1 Clean Water Cooling Tower	17611	gpm	FPM10	BACT is a combination of less than or equal to 1,000 milligrams per liter TDS concentration in the cooling water and drift eliminators employing a drift maximum of 0.0005%.	0.07	LB/H
LA-0251	FLOPAM INC. FACILITY	12/12/2011	cooling towers (10 units)	3640	G/MIN	FPM10	No additional control	0.01	LB/H
LA-0254	NINEMILE POINT ELECTRIC GENERATING PLANT	12/12/2011	CHILLER COOLING TOWER (CHILL CT)	12000	GALS/MIN	TPM10	HIGH EFFICIENCY MIST ELIMINATOR	0.001	PERCENT
LA-0254	NINEMILE POINT ELECTRIC GENERATING PLANT	12/12/2011	CHILLER COOLING TOWER (CHILL CT)	12000	GALS/MIN	TPM2.5	HIGH EFFICIENCY MIST ELIMINATOR	0.001	PERCENT
LA-0254	NINEMILE POINT ELECTRIC GENERATING PLANT	12/12/2011	UNIT 6 COOLING TOWER	115847	GALS/MIN	TPM10	HIGH EFFICIENCY MIST ELIMINATOR	0.0005	PERCENT
LA-0254	NINEMILE POINT ELECTRIC GENERATING PLANT	12/12/2011	UNIT 6 COOLING TOWER	115847	GALS/MIN	TPM2.5	HIGH EFFICIENCY MIST ELIMINATOR	0.0005	PERCENT
*LA-0264	NORCO HYDROGEN PLANT	8/21/2013	Cooling Tower (EQT0004)	11200	gpm	TPM	Drift eliminators	0.78	LB/HR
MA-0036	BRAYTON POINT STATION	6/17/2010	NATURAL DRAFT COOLING TOWERS (2)	400000	GAL/MIN WATER	FPM10	DRIFT ELIMINATORS	1066	LB/H
MA-0036	BRAYTON POINT STATION	6/17/2010	NATURAL DRAFT COOLING TOWERS (2)	400000	GAL/MIN WATER	FPM2.5	DRIFT ELIMINATORS	1066	LB/H
MD-0032	DICKERSON	4/12/2005	COOLING TOWER	10	CELLS	PM	MIST ELIMINATORS	0.001	%
MD-0040	CPV ST CHARLES	2/20/2009	COOLING TOWER			PM		0	
MD-0040	CPV ST CHARLES	2/20/2009	COOLING TOWER			FPM10		0	
MD-0040	CPV ST CHARLES	2/20/2009	COOLING TOWER			FPM2.5		0	

Cooling Towers

RBLCID	FACILITY	DATE	PROCESS	THROUGHPUT	UNIT	POLLUTANT	CONTROL METHOD	EMISSION LIMIT	UNIT
*MI-0400	WOLVERINE POWER	5/9/2013	Cooling Tower (EU-COOLINGTWR)	0		FPM	Drift eliminators	0.0005	%
*MI-0401	MIDLAND POWER STATION	6/21/2013	Cooling Tower	0		FPM	High efficiency drift eliminators	0.0005	%
*MI-0404	GERDAU MACSTEEL, INC.	3/21/2013	Caster Cooling Tower (EUCASTERCOOLTWR)	1630	GAL/MIN	TPM10	Drift eliminator	0.0005	% DRIFT LOSS
MN-0070	MINNESOTA STEEL INDUSTRIES, LLC	10/30/2008	COOLING TOWER			PM	DESIGNED TO MINIMIZE DRIFT	0.005	% DRIFT RATE
MN-0070	MINNESOTA STEEL INDUSTRIES, LLC	10/30/2008	COOLING TOWER			FPM10	DESIGNED TO MINIMIZE DRIFT	0.005	% DRIFT RATE
MN-0078	SAPPI CLOQUET LLC	11/6/2009	COOLING TOWER			TPM2.5	DRIFT ELIMINATORS	0.01	LB/H
*MO-0079	AMERICAN ENERGY PRODUCERS, INC.	4/25/2013	Cooling Tower	0		TPM	High efficiency drift eliminators with a drift design to less than 0.001 percent. Recirculation cannot exceed 990,000 gallons per hour and TDS cannot exceed 1050 ppm.	0	
*MO-0081	AMERICAN ENERGY PRODUCERS, INC.	4/25/2013	Cooling Towers	0		FPM10	The cooling towers shall be equipped with high efficiency drift eliminators that are designed to reduce drift to less than 0.001 percent.	1050	PPM TDS
*MO-0081	AMERICAN ENERGY PRODUCERS, INC.	4/25/2013	Meal drying decks (3) and meal cooling deck	0		FPM10	Each deck is controlled by a minimum of one cyclone.	0.005	GR/DSCF
NC-0101	FORSYTH ENERGY PLANT	8/30/2006	COOLING TOWER	3834	GAL/MIN	PM		0.007	LB/H
NC-0101	FORSYTH ENERGY PLANT	8/30/2006	COOLING TOWER	3834	GAL/MIN	FPM10		0.002	LB/H
NC-0112	NUCOR STEEL	8/14/2007	COOLING TOWERS			PM	MIST ELIMINATORS WITH A 0.008 PERCENT DRIFT LOSS	0.008	%
ND-0024	SPIRITWOOD STATION	3/27/2008	COOLING TOWER	80000	GAL/MIN	FPM	DRIFT ELIMINATOR	0.0005	% COOLING WATER FLOW
NE-0029	ABENGOA BIOENERGY CORPORATION - YORK	6/29/2006	COOLING TOWER			PM		0.005	%
NE-0031	OPPD - NEBRASKA CITY STATION	8/30/2006	COOLING TOWER			FPM10		0.001	LB/H
NE-0046	AVENTINE RENEWABLE ENERGY - AURORA WEST LLC	8/1/2008	COOLING TOWER			PM	MIST ELIMINATOR	0.0005	%
NH-0018	BERLIN BIOPOWER	7/18/2012	EU02 4-CELL WET COOLING TOWER	60000	GAL/MIN	fugitive PM	DRIFT ELIMINATORS	0.0005	% BY WGT OF FLOW
NV-0036	TS POWER PLANT	8/31/2006	COOLING TOWER			FPM10	DRIFT ELIMINATORS	0.0005	PERCENT DRIFT
NV-0047	NELLIS AIR FORCE BASE	10/21/2008	COOLING TOWERS			FPM10	LIMIT OF TOTAL DISSOLVED SOLIDS IN THE CIRCULATING WATER TO 0.03 LBS/GAL, LIMIT OF THROUGHPUT TO 1,200 GAL/MIN, AND LIMIT OF DRIFT PERCENT TO 0.005	0.051	LB/H
NV-0049	HARRAH'S OPERATING COMPANY, INC.	12/1/2009	COOLING TOWER - UNIT HA19	7200	GAL/MIN	FPM10	A DRIFT ELIMINATOR CONTROLS DRIFT RATE TO 0.005%, AND THE PERMITTEE IS REQUIRED TO MAINTAIN TSD CONTENT IN THE COOLING WATER TO A MAXIMUM OF 2,520 PPM.	0.215	LB/H

Cooling Towers

RBLCID	FACILITY	DATE	PROCESS	THROUGHPUT	UNIT	POLLUTANT	CONTROL METHOD	EMISSION LIMIT	UNIT
NV-0049	HARRAH'S OPERATING COMPANY, INC.	12/1/2009	COOLING TOWER - UNIT FL17	6900	GAL/MIN	FPM10	DRIFT ELIMINATOR TO REDUCE DRIFT RATE TO LESS THAN 0.005% AND MAINTAINING TOTAL DISSOLVED SOLIDS CONTENT IN THE COOLING WATER TO BELOW 3,000 PPM.	0.425	LB/H
NV-0049	HARRAH'S OPERATING COMPANY, INC.	12/1/2009	COOLING TOWER - UNIT BA14	20400	GAL/MIN	FPM10	BACT CONSISTS OF THE TWO REQUIREMENTS DESCRIBED IN THE PROCESS.	0.744	LB/H
NV-0050	MGM MIRAGE	3/15/2010	COOLING TOWERS - UNITS CC026, CC027, AND CC028 AT CITY CENTER	10890	GAL/MIN	FPM10	EACH UNIT IS EQUIPPED WITH A DRIFT ELIMINATOR LIMITING THE DRIFT RATE TO 0.001% AND THE TOTAL DISSOLVED SOLIDS IN THE CURCULATION WATER IS LIMITED TO 3,600 PPM.	0.091	LB/H
NY-0093	TRIGEN-NASSAU ENERGY CORPORATION	8/31/2006	COOLING TOWER			FPM10		0.0005	% DRIFT
OH-0252	DUKE ENERGY HANGING ROCK ENERGY FACILITY	7/5/2005	COOLING TOWER, (2) 10 CELL MECHANICAL DRAFT			FPM10	DRIFT ELIMINATORS	2.6	LB/H
OH-0254	DUKE ENERGY WASHINGTON COUNTY LLC	7/5/2005	COOLING TOWER			PM		2.08	LB/H
OH-0256	LIMA CHEMICALS COMPLEX	1/23/2004	COOLING TOWER	175	MMLB/YR	PM	DRIFT ELIMINATORS + LDAR PROGRAM	1.4	LB/H
OH-0276	CHARTER STEEL	8/4/2008	COOLING TOWER	25000	GAL/MIN	FPM10		1.5	LB/H
OH-0303	ASA BLOOMINGBURG, LLC	5/25/2007	COOLING TOWER	3300000	GAL/H	PM	PARAMETRIC MONITORING OF THE DRIFT ELIMINATOR. MAXIMUM DRIFT LOSS FACTOR OF 0.005%	2.64	LB/H
OH-0308	SUN COMPANY, INC., TOLEDO REFINERY	3/31/2011	COOLING TOWER	2000	GAL/MIN	FPM	DRIFT ELIMINATOR	0.12	LB/H
OH-0315	NEW STEEL INTERNATIONAL, INC., HAVERHILL	5/18/2012	COOLING TOWERS (12)	1440000	GAL/H	PM	DRIFT ELIMINATORS	3.42	LB/H
OH-0315	NEW STEEL INTERNATIONAL, INC., HAVERHILL	5/18/2012	COOLING TOWERS (12)	1440000	GAL/H	FPM2.5	DRIFT ELIMINATORS	3.42	LB/H
OH-0317	OHIO RIVER CLEAN FUELS, LLC	5/18/2012	COOLING TOWERS	120425	T/H	FPM10	HIGH EFFICIENCY DRIFT ELIMINATORS	2.4	LB/H

Cooling Towers

RBLCID	FACILITY	DATE	PROCESS	THROUGHPUT	UNIT	POLLUTANT	CONTROL METHOD	EMISSION LIMIT	UNIT
OH-0328	V & M STAR	11/6/2009	MELT SHOP COOLING TOWER	3000000	GAL/H	FPM10	DRIFT ELIMINATOR WITH 0.005% DRIFT LOSS OF CIRCULATING WATER FLOW RATE	1.25	LB/H
OH-0328	V & M STAR	11/6/2009	PIPE MILL COOLING TOWER	1800000	GAL/H	FPM10	DRIFT ELIMINATOR WITH A MAXIMUM DRIFT RATE OF 0.005% OF CIRCULATING WATER FLOW RATE INTO THE EMISSIONS UNIT.	0.75	LB/H
OH-0341	NUCOR STEEL MARION, INC.	10/13/2011	Melt Shop Spray Contact Cooling Tower	198360	GAL/H	TPM2.5		0.04	LB/H
OH-0341	NUCOR STEEL MARION, INC.	10/13/2011	Melt Shop Spray Contact Cooling Tower	198360	GAL/H	TPM		0.22	LB/H
OH-0341	NUCOR STEEL MARION, INC.	10/13/2011	Rolling Mill Contact Cooling Tower	225000	GAL/H	TPM2.5		0.07	LB/H
OH-0341	NUCOR STEEL MARION, INC.	10/13/2011	Rolling Mill Contact Cooling Tower	225000	GAL/H	TPM		0.46	LB/H
*OH-0352	OREGON CLEAN ENERGY CENTER	8/5/2013	Mechanical draft wet cooling tower, 16 cell	322000	gal/min	TPM10		1.03	LB/H
*OH-0352	OREGON CLEAN ENERGY CENTER	8/5/2013	Mechanical draft wet cooling tower, 16 cell	322000	gal/min	TPM2.5		0.0034	LB/H
OK-0090	DUKE ENERGY STEPHENS, LLC STEPHENS ENERGY	10/10/2003	COOLING TOWER			FPM10	DRIFT ELIMINATORS	1.2	LB/H
OK-0124	ENID NITROGEN PLANT	4/9/2009	COOLING TOWER			FPM10	HIGH-EFFICIENCY DRIFT ELIMINATOR	0	
OK-0128	MID AMERICAN STEEL ROLLING MILL	12/17/2010	Cooling Towers	3000	gallons per minute	FPM10	high-efficiency draft eliminators	0	
OK-0129	CHOUTEAU POWER PLANT	2/18/2010	COOLING TOWER	9	CELLS	TPM	DRIFT ELIMINATORS	0.4	LB/H/CELL
OK-0135	PRYOR PLANT CHEMICAL	2/18/2010	COOLING TOWER #2	2.4	MMGAL/H	TPM10	MIST ELIMINATORS	1.92	LB/H
OK-0135	PRYOR PLANT CHEMICAL	2/18/2010	COOLING TOWER #1	1.47	MMGAL/H	TPM10	MIST ELIMINATORS	1.18	LB/H
OR-0041	WANAPA ENERGY CENTER	8/18/2008	COOLING TOWER	6.2	CF/SEC	PM	INSTALLATION OF HIGH EFFICIENCY 0.0005% DRIFT ELIMINATORS. LIMIT TOTAL DISSOLVED SOLIDS IN THE WATER TO LESS THAN 3,532 PPMW.	3532	PPMW

Cooling Towers

RBLCID	FACILITY	DATE	PROCESS	THROUGHPUT	UNIT	POLLUTANT	CONTROL METHOD	EMISSION LIMIT	UNIT
PA-0275	CRAWFORD RENEWABLE ENERGY LLC/GREENWOOD TWP	9/7/2012	Material Handling, Plant Roadways, and Cooling Tower	0		FPM10	Each silo will be equipped with a bin vent dust collection system. Aqueous 19% ammonia will be delivered by either rail or truck and stored in 19500 gallon tank equipped with a pressure relief valve. A five cycle wet mechanical draft cooling tower utilizing drift eliminators to minimize drift of particulate entrained in water droplets is used.	7.29	T/YR
SC-0104	SANTEE COOPER CROSS GENERATING STATION	8/31/2006	COOLING TOWERS (2)			PM		1.86	LB/H
TX-0445	SMI TEXAS	7/3/2007	COOLING TOWER-D MELT SHOP ELEC. EQUIP.			FPM10		0.246	LB/H
TX-0445	SMI TEXAS	7/3/2007	COOLING TOWER F-CASTER MOLDS (4)			FPM10		0.142	LB/H
TX-0445	SMI TEXAS	7/3/2007	COOLING TOWER GA-CASTER MOLDS (4)			FPM10		0.199	LB/H
TX-0445	SMI TEXAS	7/3/2007	COOLING TOWER GB-CASTER MOLDS (4)			FPM10		0.249	LB/H
TX-0445	SMI TEXAS	7/3/2007	CASTER SPRAY COOLING TOWER (4)			FPM10		0.324	LB/H
TX-0445	SMI TEXAS	7/3/2007	ELECTROMAGNETIC MIXING STATION COOLING TOWER (4)			FPM10		0.0072	LB/H
TX-0445	SMI TEXAS	7/3/2007	COOLING TOWER-A EAF (4)			FPM10		0.424	LB/H
TX-0445	SMI TEXAS	7/3/2007	COOLING TOWER-B EAF (4)			FPM10		1.14	LB/H
TX-0445	SMI TEXAS	7/3/2007	ROLLING MILL COOLING BED COOLING TOWER (4)			FPM10		0.0177	LB/H
TX-0445	SMI TEXAS	7/3/2007	SHREDDER COOLING TOWER (4)			FPM10		0.0405	LB/H
TX-0445	SMI TEXAS	7/3/2007	COOLING TOWER-C MELT SHOP DUCTWORK			FPM10		1.48	LB/H
TX-0451	DIAMOND SHAMROCK REFINING VALERO	9/24/2012	COMBUSTION UNITS, TANKS, PROCESS VENTS, LOADING, FLARES, FUGITIVES (4), WASTEWATER, COOLING TOWERS			PM		69.21	LB/H
TX-0458	JACK COUNTY POWER PLANT	8/14/2007	COOLING TOWER VENTS (4)			PM		3	LB/H
TX-0458	JACK COUNTY POWER PLANT	8/14/2007	COOLING TOWER VENTS (4)			FPM10		0.4	LB/H
TX-0459	ALCOA SAN ANTONIO WORKS	8/14/2007	COOLING TOWER (4)			PM		1.68	LB/H
TX-0481	AIR PRODUCTS BAYTOWN I I	10/1/2007	COOLING TOWER			FPM10		1.36	LB/H
TX-0481	AIR PRODUCTS BAYTOWN I I	10/1/2007	SUPPLEMENTARY COOLING TOWER			FPM10		0.34	LB/H

Cooling Towers

RBLCID	FACILITY	DATE	PROCESS	THROUGHPUT	UNIT	POLLUTANT	CONTROL METHOD	EMISSION LIMIT	UNIT
TX-0487	ROHM AND HAAS CHEMICALS LLC LONE STAR PLANT	10/15/2007	N-5 COOLING TOWER NORTH			PM	DRIFT ELIMINATORS	2.04	LB/H
TX-0487	ROHM AND HAAS CHEMICALS LLC LONE STAR PLANT	10/15/2007	N-5 COOLING TOWER SOUTH			PM	DRIFT ELIMINATORS	2.84	LB/H
TX-0487	ROHM AND HAAS CHEMICALS LLC LONE STAR PLANT	10/15/2007	N-7 COOLING TOWER			PM	DRIFT ELIMINATORS	7.65	LB/H
TX-0507	NRG COAL HANDLING PLANT	11/8/2007	COOLING TOWER			FPM10		5.78	LB/H
TX-0549	CHOCOLATE BAYOU FACILITY	1/5/2010	COOLING TOWER	165000	GAL/MIN	FPM10	DRIFT ELIMINATORS	0.002	%
TX-0551	PANDA SHERMAN POWER STATION	5/17/2010	Cooling tower	0		TPM	Drift eliminators	0.0005	% DRIFT
TX-0552	WOLF HOLLOW POWER PLANT NO. 2	5/18/2010	Cooling tower	0		TPM	Drift eliminators	0.0005	% DRIFT
TX-0553	LINDALE RENEWABLE ENERGY	5/18/2010	Cooling tower	0		TPM	Drift eliminators	0.0005	% DRIFT
*VA-0319	GATEWAY COGENERATION 1, LLC - SMART WATER PROJECT	5/2/2013	COOLING TOWER	55000	Gallons/min	FPM10	Use of drift eliminators to a drift rate of 0.001% of the circulating water flow and a total dissolved solids content of the cooling water of no more than 1200 mg/l.	0.1	LB/H
*VA-0319	GATEWAY COGENERATION 1, LLC - SMART WATER PROJECT	5/2/2013	COOLING TOWER	55000	Gallons/min	TPM2.5	Use of drift eliminators to a drift rate of 0.001% of the circulating water flow and a total dissolved solids content of the cooling water of no more than 1200 mg/l.	0.1	LB/H
WA-0291	WALLULA POWER PLANT	8/31/2006	COOLING TOWER			FPM10	WATER TREATMENT PLUS A 0.0005% DRIFT RATE HAS BEEN SELECTED TO BE LAER FOR THE CONTROL OF PM10 EMISSIONS FROM THE COOLING TOWERS.	3.7	LB/H
WA-0291	WALLULA POWER PLANT	8/31/2006	COOLING TOWER			PM	WATER PRETREATMENT PLUS A 0.0005% DRIFT RATE	3.7	LB/H
WA-0328	BP CHERRY POINT COGENERATION PROJECT	8/14/2007	COOLING TOWER			PM	INSTALLATION OF DRIFT ELIMINATORS WITH DRIFT LOSS OF LESS THAN 0.001% OF THE RECIRCULATING WATER FLOW RATE.	0	
WA-0329	DARRINGTON ENERGY COGENERATION POWER PLANT	7/5/2006	COOLING TOWER			PM	INSTALLATION OF DRIFT ELIMINATORS WITH DRIFT LOSS OF LESS THAN 0.001% OF THE RECIRCULATING WATER FLOW RATE.	0	
WI-0204	UWGP - FUEL GRADE ETHANOL PLANT	12/9/2003	COOLING TOWERS, P80	22000	GAL/MIN	PM	0.005% MAX. DRIFT RATE; 2000 PPM SOLIDS; MAX FLOW OF 22,000 GPM	1.1	LB/H
WI-0207	ACE ETHANOL - STANLEY	8/16/2005	COOLING TOWERS, F06			PM	MIST ELIMINATORS	0.65	LB/H
WI-0207	ACE ETHANOL - STANLEY	8/16/2005	DDGS DRYER, COOLING CYCLONE, P40, P41, P42	55	mmbtu/h	PM	CYCLONE, RTO	0.025	GR/DSCF
WI-0228	WPS - WESTON PLANT	8/31/2006	UNIT 4 WATER COOLING TOWER (P26, S26)			FPM10	HIGH EFFICIENCY DRIFT ELIMINATORS (0.002%)	3.76	LB/H

Cooling Towers

RBLCID	FACILITY	DATE	PROCESS	THROUGHPUT	UNIT	POLLUTANT	CONTROL METHOD	EMISSION LIMIT	UNIT
WI-0252	SPECIALTY MINERALS INC. - SUPERIOR	1/4/2012	P30 - DIRECT CONTACT SCRUBBER WITH COOLING TOWER	515	GAL/MIN	PM	HIGH EFFICIENCY MIST / DRIFT ELIMINATOR (WITH ADDITIONAL LAYER), LIMITS ON % SOLIDS	0.0005	% CIRCULATI ON DRIFT
WI-0252	SPECIALTY MINERALS INC. - SUPERIOR	1/4/2012	P30 - DIRECT CONTACT SCRUBBER WITH COOLING TOWER	515	GAL/MIN	FPM2.5	HIGH EFFICIENCY DRIFT ELIMINATOR (W/ ADDITIONAL LAYER)	0.0005	% CIRCULATI ON DRIFT
WI-0252	SPECIALTY MINERALS INC. - SUPERIOR	1/4/2012	P40, P50 - COOLING TOWERS	700	GAL/MIN	PM	HIGH EFFICIENCY MIST / DRIFT ELIMINATORS (W/ ADDITIONAL LAYER)	0.0005	% CIRCULATI ON DRIFT
WI-0252	SPECIALTY MINERALS INC. - SUPERIOR	1/4/2012	P40, P50 - COOLING TOWERS	700	GAL/MIN	FPM2.5	HIGH EFFICIENCY MIST / DRIFT ELIMINATOR (W/ ADDITIONAL LAYER)	0.0005	% CIRCULATI ON DRIFT
WI-0252	SPECIALTY MINERALS INC. - SUPERIOR	1/4/2012	P60 - COOLING TOWER	200	GAL/MIN	PM	HIGH EFFICIENCY MIST / DRIFT ELIMINATORS (W/ ADDITIONAL LAYER); DISSOLVED SOLIDS LIMIT	0.0005	% CIRCULATI ON DRIFT
WI-0252	SPECIALTY MINERALS INC. - SUPERIOR	1/4/2012	P60 - COOLING TOWER	200	GAL/MIN	FPM2.5	HIGH EFFICIENCY MIST / DRIFT ELIMINATORS (W/ ADDITIONAL LAYER); DISSOLVED SOLIDS LIMIT	0.0005	% CIRCULATI ON DRIFT
WV-0023	MAIDSVILLE	2/3/2009	COOLING TOWER			PM	REDUNDANT BAFFLE AND MESH DEMISTER SYSTEM	0.9	LB/H
WV-0023	MAIDSVILLE	2/3/2009	COOLING TOWER			FPM10	REDUNDANT BAFFLE AND MESH DEMISTER SYSTEM	0.9	LB/H
WV-0024	WESTERN GREENBRIER CO-GENERATION, LLC	9/15/2006	COOLING TOWER	55000	GAL/MIN	PM	DRIFT ELIMINATORS @ 0.0005% DRIFT RATE	0.79	LB/H
WY-0064	DRY FORK STATION	4/20/2009	COOLING TOWERS			FPM10	MIST ELIMINATORS-0.005% DRIFT LOSS	0.005	%
*WY-0072	GRANGER FACILITY	6/13/2013	Cooling Tower	0		FPM	drift rate limited to 0.0005%	0	

Emergency Generators

ODEC Limit	CO	2.6	g/hp-hr
ODEC Limit	PM	0.15	g/hp-hr
ODEC Limit	NOx	4.8	g/hp-hr
ODEC Limit	VOC	0.29	g/hp-hr

Facility Name	State	Permit Date	Process Name	Throughput	Pollutant	Emission Limit	Averaging Period	Basis
IOWA FERTILIZER COMPANY	IA	10/26/2012	Emergency Generator	2000 KW	CO	3.5 G/KW-H		BACT-PSD
PYRAMAX CERAMICS, LLC	SC	2/8/2012	FIRE PUMP	500 HP	CO	3.5 GR/KW-H		BACT-PSD
PYRAMAX CERAMICS, LLC	SC	2/8/2012	EMERGENCY GENERATORS 1 THRU 8	757 HP	CO	3.5 GR/KW-H		BACT-PSD
ENI - HOLY CROSS DRILLING PROJECT	FL	10/27/2011	Emergency Fire Pump Engine	0	CO	0.005 TONS PER YEAR	12-MONTH ROLLING	BACT-PSD
ENI - HOLY CROSS DRILLING PROJECT	FL	10/27/2011	Emergency Engine	0	CO	0.09 TONS PER YEAR	12-MONTH ROLLING	BACT-PSD
ENI - HOLY CROSS DRILLING PROJECT	FL	10/27/2011	Main Propulsion Engines	0	CO	3.3 G/KW-H	24-HOUR ROLLING	BACT-PSD
NINEMILE POINT ELECTRIC GENERATING PLANT	LA	8/16/2011	EMERGENCY DIESEL GENERATOR	1250 HP	CO	2.6 G/HP-H	ANNUAL AVERAGE	BACT-PSD
NINEMILE POINT ELECTRIC GENERATING PLANT	LA	8/16/2011	EMERGENCY FIRE PUMP	350 HP	CO	2.6 G/HP-H	LB/MM BTU	BACT-PSD
FLOPAM INC. FACILITY	LA	4/26/2011	Large Generator Engines (17 units)	0	CO	0.03 LB/H	(591 HP UNITS)	BACT-PSD
FLOPAM INC. FACILITY	LA	4/26/2011	Small Generator Engine	193 hp	CO	0.16 LB/H		BACT-PSD
FLOPAM INC. FACILITY	LA	4/26/2011	Fire Pump Engines - 2 units	444 hp	CO	0.65 LB/H		BACT-PSD
SWEET SORGHUM-TO-ETHANOL ADVANCED BIOREFINERY	FL	12/23/2010	Emergency Diesel Fire Pump, One 600 HP	0	CO	2.6 G/HP-H		BACT-PSD
SWEET SORGHUM-TO-ETHANOL ADVANCED BIOREFINERY	FL	12/23/2010	Emergency Generators, Two 2682 HP EA	0	CO	3.5 G/KW-H		BACT-PSD
WARREN COUNTY POWER PLANT - DOMINION	VA	12/17/2010	Emergency Generator		CO	50 PPMVD		NSPS IIII
LANGLEY GULCH POWER PLANT	ID	6/25/2010	EMERGENCY GENERATOR ENGINE	750 KW	CO	3.5 G/KW-H		BACT-PSD
KARN WEADOCK GENERATING COMPLEX	MI	12/29/2009	FIRE PUMP	525 HP	CO	2.6 G/HP-H	TEST METHOD	BACT-PSD
KARN WEADOCK GENERATING COMPLEX	MI	12/29/2009	FLUE GAS DESULFURIZATION QUENCH PUMP	305 KW	CO	3.5 G/KW-H	TEST METHOD	BACT-PSD
KARN WEADOCK GENERATING COMPLEX	MI	12/29/2009	EMERGENCY GENERATOR	2000 KW	CO	3.5 G/KW-H	TEST METHOD	BACT-PSD
MGM MIRAGE	NV	11/30/2009	DIESEL EMERGENCY GENERATORS - UNITS CC009 THRU CC015 AT CITY CENTER	3622 HP	CO	0.0017 LB/HP-H		LAER
MGM MIRAGE	NV	11/30/2009	EMERGENCY GENERATORS - UNITS LX024 AND LX025 AT LUXOR	2206 HP	CO	0.0018 LB/HP-H		LAER
HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	LARGE INTERNAL COMBUSTION ENGINES (>600 HP) - UNIT HA13	1232 HP	CO	0.0055 LB/HP-H		Other Case-by-Case

Emergency Generators

ODEC Limit	CO	2.6	g/hp-hr
ODEC Limit	PM	0.15	g/hp-hr
ODEC Limit	NOx	4.8	g/hp-hr
ODEC Limit	VOC	0.29	g/hp-hr

Facility Name	State	Permit Date	Process Name	Throughput		Pollutant	Emission Limit		Averaging Period	Basis
LAKE CHARLES GASIFICATION FACILITY	LA	6/22/2009	FIRE WATER DIESEL PUMPS (3)	575	HP EACH	CO	0.37	LB/H	MAXIMUM (EACH)	BACT-PSD
LAKE CHARLES GASIFICATION FACILITY	LA	6/22/2009	EMERGENCY DIESEL POWER GENERATOR ENGINES (2)	1341	HP EACH	CO	0.62	LB/H	MAXIMUM (EACH)	BACT-PSD
ENDICOTT PRODUCTION FACILITY, LIBERTY DEVELOPMENT PROJECT	AK	6/15/2009	EU ID 58, CAMP ENGINE 3	1041	HP	CO	2.6	G/HP-H		BACT-PSD
PLAQUEMINE PVC PLANT	LA	2/27/2009	LARGE EMERGENCY ENGINES			CO	0.85	LB/MMBTU		BACT-PSD
PLAQUEMINE PVC PLANT	LA	2/27/2009	SMALL EMERGENCY ENGINES			CO	0.95	LB/MMBTU		BACT-PSD
GP CLARENDON LP	SC	2/10/2009	FIRE WATER DIESEL PUMP	525	HP	CO	1.27	LB/H		BACT-PSD
GP CLARENDON LP	SC	2/10/2009	DIESEL EMERGENCY GENERATOR	1400	HP	CO	3.03	LB/H		BACT-PSD
CHOUTEAU POWER PLANT	OK	1/23/2009	EMERGENCY FIRE PUMP (267-HP DIESEL)	267	HP	CO	2.6	G/HP-H	NSPS	BACT-PSD
CHOUTEAU POWER PLANT	OK	1/23/2009	EMERGENCY DIESEL GENERATOR (2200 HP)	2200	HP	CO	12.66	LB/H		BACT-PSD
GP ALLENDALE LP	SC	11/25/2008	FIRE WATER DIESEL PUMP	525	HP	CO	1.27	LB/H		BACT-PSD
GP ALLENDALE LP	SC	11/25/2008	DIESEL EMERGENCY GENERATOR	1400	HP	CO	3.03	LB/H		BACT-PSD
OHIO RIVER CLEAN FUELS, LLC	OH	11/20/2008	FIRE PUMP ENGINES (2)	300	HP	CO	1.72	LB/H	FOR EACH ENGINE	BACT-PSD
OHIO RIVER CLEAN FUELS, LLC	OH	11/20/2008	EMERGENCY GENERATOR	2922	HP	CO	15.18	LB/H		BACT-PSD
TATE & LYLE INGREDIENTS AMERICAS, INC.	IA	9/19/2008	EMERGENCY GENERATOR	700	KW	CO	3.5	G/KW-H	AVERAGE OF THREE STACK TEST RUNS	BACT-PSD
TATE & LYLE INGREDIENTS AMERICAS, INC.	IA	9/19/2008	FIRE PUMP ENGINE	575	HP	CO	3.5	G/KW-H	AVERAGE OF THREE STACK TEST RUNS	BACT-PSD
MID AMERICAN STEEL ROLLING MILL	OK	9/8/2008	Emergency Generator	1200	HP	CO	6.6	LB/H		BACT-PSD
NELLIS AIR FORCE BASE	NV	2/26/2008	LARGE INTERNAL COMBUSTION ENGINES (>500 HP)			CO	0.22	G/B-HP-H		Other Case-by-Case
NELLIS AIR FORCE BASE	NV	2/26/2008	SMALL INTERNAL COMBUSTION ENGINES (<= 500 HP)			CO	0.5	G/B-HP-H		OTHER CASE-BY-CASE
CREOLE TRAIL LNG IMPORT TERMINAL	LA	8/15/2007	FIREWATER PUMP DIESEL ENGINE	660	HP	CO	0.3	LB/H	HOURLY MAXIMUM	BACT-PSD
CREOLE TRAIL LNG IMPORT TERMINAL	LA	8/15/2007	FIREWATER PUMP DIESEL ENGINE	525	HP	CO	1.6	LB/H	HOURLY MAXIMUM	BACT-PSD
CREOLE TRAIL LNG IMPORT TERMINAL	LA	8/15/2007	DIESEL EMERGENCY GENERATOR NOS. 1 & 2	2168	HP EACH	CO	12.24	LB/H	HOURLY MAXIMUM	BACT-PSD

Emergency Generators

ODEC Limit	CO	2.6	g/hp-hr
ODEC Limit	PM	0.15	g/hp-hr
ODEC Limit	NOx	4.8	g/hp-hr
ODEC Limit	VOC	0.29	g/hp-hr

Facility Name	State	Permit Date	Process Name	Throughput		Pollutant	Emission Limit		Averaging Period	Basis
ADM CORN PROCESSING - CEDAR RAPIDS	IA	6/29/2007	EMERGENCY GENERATOR	1500	KW	CO	2.6	G/B-HP-H	AVERAGE OF 3 TEST RUNS	BACT-PSD
ADM CORN PROCESSING - CEDAR RAPIDS	IA	6/29/2007	FIRE PUMP	540	HP	CO	2.6	G/B-HP-H	AVERAGE OF 3 TEST RUNS	BACT-PSD
FAIRBAULT ENERGY PARK	MN	6/5/2007	EMERGENCY GENERATOR	1750	KW	CO	0.0055	LB/HP-H	3 HOUR AVERAGE	BACT-PSD
CHEVRON PRODUCTS COMPANY, PASCAGOULA REFINERY	MS	5/8/2007	TEMPORARY, PORTABLE CRUDE I GENERATOR			CO	2.16	LB/H	3-HR ROLLING AVERAGE	BACT-PSD
MERCK & CO. WESTPOINT	PA	2/23/2007	MOBILE EMERGENCY GENERATOR			CO	0.78	G/B-HP-H		OTHER CASE-BY-CASE
ADM POLYMERS	IA	11/30/2006	FIRE PUMP ENGINE	460	HP	CO	2.6	G/B-HP-H	AVERAGE OF THREE (3) TEST RUNS	BACT-PSD
LAMAR LIGHT & POWER POWER PLANT	CO	2/3/2006	DIESEL ENGINES FOR SWITCHING, LOCOMOTIVE & FIRE PUMP	1500	HP	CO	0.61	LB/MMBTU	DURATION OF TESTS	BACT-PSD
NEARMAN CREEK POWER STATION	KS	10/18/2005	EMERGENCY BLACK START GENERATOR	24.1	MMBTU/H	CO	7.01	LB/H	FULL LOAD OPERATIONS	BACT-PSD
ARIZONA CLEAN FUELS YUMA	AZ	4/14/2005	FIRE WATER PUMPS NOS 1 AND 2	5.46	MMBTU/H	CO	3.5	G/KW-H		BACT-PSD
ARIZONA CLEAN FUELS YUMA	AZ	4/14/2005	EMERGENCY GENERATOR	10.9	MMBTU/H	CO	3.5	G/KW-H		BACT-PSD

Emergency Generators

ODEC Limit	CO	2.6	g/hp-hr
ODEC Limit	PM	0.15	g/hp-hr
ODEC Limit	NOx	4.8	g/hp-hr
ODEC Limit	VOC	0.29	g/hp-hr

Facility Name	State	Permit Date	Process Name	Throughput		Pollutant	Emission Limit		Averaging Period	Basis
IOWA FERTILIZER COMPANY	IA	10/26/2012	Emergency Generator	2000	KW	PM	0.2	G/KW-H		BACT-PSD
WOODBRIIDGE ENERGY CENTER	NJ	7/25/2012	Emergency Generator			PM	0.13	LB/H		OTHER CASE-BY-CASE
FLOPAM INC. FACILITY	LA	4/26/2011	Large Generator Engines (17 units)	591	hp	PM	0.01	LB/H		BACT-PSD
FLOPAM INC. FACILITY	LA	4/26/2011	Small Generator Engine	193	hp	PM	0.01	LB/H		BACT-PSD
FLOPAM INC. FACILITY	LA	4/26/2011	Fire Pump Engines - 2 units	444	hp	PM	0.01	LB/H		BACT-PSD
SWEET SORGHUM-TO-ETHANOL ADVANCED BIOREFINERY	FL	12/23/2010	Emergency Generators, Two 2682 HP EA	0		PM	0.2	G/KW-H		BACT-PSD
WARREN COUNTY POWER PLANT - DOMINION	VA	12/17/2010	Emergency Generator			PM	0.4	G/KW-H		NSPS III x 2
LANGLEY GULCH POWER PLANT	ID	6/25/2010	EMERGENCY GENERATOR ENGINE	750	KW	PM	0.2	G/KW-H		BACT-PSD
LANGLEY GULCH POWER PLANT	ID	6/25/2010	FIRE PUMP ENGINE	235	KW	PM	0.2	G/KW-H		BACT-PSD
KARN WEADOCK GENERATING COMPLEX	MI	12/29/2009	EMERGENCY GENERATOR	2000	KW	PM	0.0573	LB/MMBTU	TEST METHOD	BACT-PSD
KARN WEADOCK GENERATING COMPLEX	MI	12/29/2009	FLUE GAS DESULFURIZATION QUENCH PUMP	305	KW	PM	0.2	G/KW-H	TEST METHOD	BACT-PSD
KARN WEADOCK GENERATING COMPLEX	MI	12/29/2009	EMERGENCY GENERATOR	2000	KW	PM	0.2	G/KW-H	TEST METHOD	BACT-PSD
KARN WEADOCK GENERATING COMPLEX	MI	12/29/2009	FLUE GAS DESULFURIZATION QUENCH PUMP	305	KW	PM	0.31	LB/MMBTU	TEST METHOD	BACT-PSD
KARN WEADOCK GENERATING COMPLEX	MI	12/29/2009	FIRE PUMP	525	HP	PM	0.31	LB/MMBTU	TEST METHOD	BACT-PSD
KARN WEADOCK GENERATING COMPLEX	MI	12/29/2009	FIRE BOOSTER PUMP	40	KW	PM	0.31	LB/MMBTU	TEST METHOD	BACT-PSD
MGM MIRAGE	NV	11/30/2009	DIESEL EMERGENCY GENERATORS - UNITS CC009 THRU CC015 AT CITY CENTER	3622	HP	PM	0.0001	LB/HP-H		Other Case-by-Case
MGM MIRAGE	NV	11/30/2009	EMERGENCY GENERATORS - UNITS LX024 AND LX025 AT LUXOR	2206	HP	PM	0.0001	LB/HP-H		Other Case-by-Case
MGM MIRAGE	NV	11/30/2009	SMALL INTERNAL COMBUSTION ENGINE - UNIT EX012 AT EXCALIBUR	350	HP	PM	0.0022	LB/HP-H		LAER
HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	SMALL INTERNAL COMBUSTION ENGINE (<600 HP) - UNIT FL12	536	HP	PM	0.0022	LB/HP-H		OTHER CASE-BY-CASE
LAKE CHARLES GASIFICATION FACILITY	LA	6/22/2009	EMERGENCY DIESEL POWER GENERATOR ENGINES (2)	1341	HP EACH	PM	0.06	LB/H	MAXIMUM (EACH)	BACT-PSD

Emergency Generators

ODEC Limit	CO	2.6	g/hp-hr
ODEC Limit	PM	0.15	g/hp-hr
ODEC Limit	NOx	4.8	g/hp-hr
ODEC Limit	VOC	0.29	g/hp-hr

Facility Name	State	Permit Date	Process Name	Throughput		Pollutant	Emission Limit		Averaging Period	Basis
LAKE CHARLES GASIFICATION FACILITY	LA	6/22/2009	FIRE WATER DIESEL PUMPS (3)	575	HP EACH	PM	0.08	LB/H	MAXIMUM (EACH)	BACT-PSD
PLAQUEMINE PVC PLANT	LA	2/27/2009	LARGE EMERGENCY ENGINES			PM	0.1	LB/MMBTU		BACT-PSD
PLAQUEMINE PVC PLANT	LA	2/27/2009	SMALL EMERGENCY ENGINES			PM	0.31	LB/MMBTU		BACT-PSD
GP CLARENDON LP	SC	2/10/2009	DIESEL EMERGENCY GENERATOR	1400	HP	PM	0.2	LB/H		BACT-PSD
GP CLARENDON LP	SC	2/10/2009	DIESEL EMERGENCY GENERATOR	1400	HP	PM	0.25	LB/H		BACT-PSD
GP CLARENDON LP	SC	2/10/2009	FIRE WATER DIESEL PUMP	525	HP	PM	0.41	LB/H		BACT-PSD
GP CLARENDON LP	SC	2/10/2009	FIRE WATER DIESEL PUMP	525	HP	PM	0.41	LB/H		BACT-PSD
CHOUTEAU POWER PLANT	OK	1/23/2009	EMERGENCY FIRE PUMP (267-HP DIESEL)	267	HP	PM	0.24	LB/H		BACT-PSD
CHOUTEAU POWER PLANT	OK	1/23/2009	EMERGENCY DIESEL GENERATOR (2200 HP)	2200	HP	PM	0.72	LB/H		BACT-PSD
GP ALLENDALE LP	SC	11/25/2008	DIESEL EMERGENCY GENERATOR	1400	HP	PM	0.2	LB/H		BACT-PSD
GP ALLENDALE LP	SC	11/25/2008	DIESEL EMERGENCY GENERATOR	1400	HP	PM	0.25	LB/H		BACT-PSD
GP ALLENDALE LP	SC	11/25/2008	FIRE WATER DIESEL PUMP	525	HP	PM	0.41	LB/H		BACT-PSD
GP ALLENDALE LP	SC	11/25/2008	FIRE WATER DIESEL PUMP	525	HP	PM	0.41	LB/H		BACT-PSD
OHIO RIVER CLEAN FUELS, LLC	OH	11/20/2008	FIRE PUMP ENGINES (2)	300	HP	PM	0.27	LB/H	FOR EACH ENGINE	BACT-PSD
OHIO RIVER CLEAN FUELS, LLC	OH	11/20/2008	EMERGENCY GENERATOR	2922	HP	PM	0.87	LB/H		BACT-PSD
TATE & LYLE INDGREDIENTS AMERICAS, INC.	IA	9/19/2008	EMERGENCY GENERATOR	700	KW	PM	0.2	G/KW-H	AVERAGE OF THREE STACK TEST RUNS	BACT-PSD
TATE & LYLE INDGREDIENTS AMERICAS, INC.	IA	9/19/2008	FIRE PUMP ENGINE	575	HP	PM	0.2	G/KW-H	AVERAGE OF THREE STACK TEST RUNS	BACT-PSD
TATE & LYLE INDGREDIENTS AMERICAS, INC.	IA	9/19/2008	EMERGENCY GENERATOR	700	KW	PM	0.2	G/KW-H	AVERAGE OF THREE STACK TEST RUNS	BACT-PSD
TATE & LYLE INDGREDIENTS AMERICAS, INC.	IA	9/19/2008	FIRE PUMP ENGINE	575	HP	PM	0.2	G/KW-H	AVERAGE OF THREE STACK TEST RUNS	BACT-PSD
MID AMERICAN STEEL ROLLING MILL	OK	9/8/2008	Emergency Generator	1200	HP	PM	0.84	LB/H		BACT-PSD
CORNELL COMBINED HEAT & POWER PROJECT	NY	3/12/2008	EMERGENCY DIESEL GENERATORS (2)	1000	KW	PM	0.19	LB/H	1 HOUR AVG	BACT-PSD
CORNELL COMBINED HEAT & POWER PROJECT	NY	3/12/2008	EMERGENCY DIESEL GENERATORS (2)	1000	KW	PM	0.19	LB/H	1 HOUR AVG	BACT-PSD
CORNELL COMBINED HEAT & POWER PROJECT	NY	3/12/2008	EMERGENCY DIESEL GENERATORS (2)	1000	KW	PM	0.19	LB/H	1 HOUR AVG	BACT-PSD

Emergency Generators

ODEC Limit	CO	2.6	g/hp-hr
ODEC Limit	PM	0.15	g/hp-hr
ODEC Limit	NOx	4.8	g/hp-hr
ODEC Limit	VOC	0.29	g/hp-hr

Facility Name	State	Permit Date	Process Name	Throughput		Pollutant	Emission Limit		Averaging Period	Basis
NELLIS AIR FORCE BASE	NV	2/26/2008	BOILERS/HEATERS - DIESEL OIL-FIRED			PM	0.019	LB/MMBTU		Other Case-by-Case
NELLIS AIR FORCE BASE	NV	2/26/2008	LARGE INTERNAL COMBUSTION ENGINES (>500 HP)			PM	0.084	G/B-HP-H		OTHER CASE-BY-CASE
NELLIS AIR FORCE BASE	NV	2/26/2008	SMALL INTERNAL COMBUSTION ENGINES (<= 500 HP)			PM	0.14	G/B-HP-H		OTHER CASE-BY-CASE
CREOLE TRAIL LNG IMPORT TERMINAL	LA	8/15/2007	FIREWATER PUMP DIESEL ENGINE	525	HP	PM	0.28	LB/H	HOURLY MAXIMUM	BACT-PSD
CREOLE TRAIL LNG IMPORT TERMINAL	LA	8/15/2007	FIREWATER PUMP DIESEL ENGINE	660	HP	PM	0.64	LB/H	HOURLY MAXIMUM	BACT-PSD
CREOLE TRAIL LNG IMPORT TERMINAL	LA	8/15/2007	DIESEL EMERGENCY GENERATOR NOS. 1 & 2	2168	HP EACH	PM	0.69	LB/H	HOURLY MAXIMUM	BACT-PSD
ADM CORN PROCESSING - CEDAR RAPIDS	IA	6/29/2007	EMERGENCY GENERATOR	1500	KW	PM	0.15	G/B-HP-H	AVERAGE OF 3 TEST RUNS	BACT-PSD
ADM CORN PROCESSING - CEDAR RAPIDS	IA	6/29/2007	EMERGENCY GENERATOR	1500	KW	PM	0.15	G/B-HP-H	AVERAGE OF 3 TEST RUNS	BACT-PSD
ADM CORN PROCESSING - CEDAR RAPIDS	IA	6/29/2007	FIRE PUMP	540	HP	PM	0.15	G/B-HP-H	AVERAGE OF 3 TEST RUNS	BACT-PSD
ADM CORN PROCESSING - CEDAR RAPIDS	IA	6/29/2007	FIRE PUMP	540	HP	PM	0.15	G/B-HP-H	AVERAGE OF 3 TEST RUNS	BACT-PSD
FAIRBAULT ENERGY PARK	MN	6/5/2007	EMERGENCY GENERATOR	1750	KW	PM	0.0004	LB/HP-H	3 HOUR	BACT-PSD
GARYVILLE REFINERY	LA	12/27/2006	EMERGENCY GENERATORS (DOCK & TANK FARM) (21-08 & 22-08)			PM	0.0022	LB/HP-H	ANNUAL AVERAGE	BACT-PSD
LAMAR LIGHT & POWER POWER PLANT	CO	2/3/2006	DIESEL ENGINES FOR SWITCHING, LOCOMOTIVE & FIRE PUMP	1500	HP	PM	0.016	LB/MMBTU	DURATION OF TESTS	BACT-PSD
ARIZONA CLEAN FUELS YUMA	AZ	4/14/2005	EMERGENCY GENERATOR	10.9	MMBTU/H	PM	0.02	G/KW-H		BACT-PSD
ARIZONA CLEAN FUELS YUMA	AZ	4/14/2005	FIRE WATER PUMPS NOS 1 AND 2	5.46	MMBTU/H	PM	0.2	G/KW-H		BACT-PSD
IOWA FERTILIZER COMPANY	IA	10/26/2012	Emergency Generator	2000	KW	NOx	6	G/KW-H		BACT-PSD
WARREN TECHNICAL CENTER	MI	7/13/2012	Nine (9) DRUPS Emergency Generators	3010	KW	NOx	5.98	G/KW-H		
PYRAMAX CERAMICS, LLC	SC	2/8/2012	FIRE PUMP	500	HP	NOx	4	GR/KW-H		BACT-PSD
PYRAMAX CERAMICS, LLC	SC	2/8/2012	EMERGENCY GENERATORS 1 THRU 8	757	HP	NOx	4	GR/KW-H		BACT-PSD
ENI - HOLY CROSS DRILLING PROJECT	FL	10/27/2011	Emergency Fire Pump Engine	0		NOx	0.02	TONS PER YEAR	12-MONTH ROLLING	BACT-PSD
ENI - HOLY CROSS DRILLING PROJECT	FL	10/27/2011	Emergency Engine	0		NOx	0.4	TONS PER YEAR	12-MONTH ROLLING	BACT-PSD

Emergency Generators

ODEC Limit	CO	2.6	g/hp-hr
ODEC Limit	PM	0.15	g/hp-hr
ODEC Limit	NOx	4.8	g/hp-hr
ODEC Limit	VOC	0.29	g/hp-hr

Facility Name	State	Permit Date	Process Name	Throughput		Pollutant	Emission Limit		Averaging Period	Basis
NINEMILE POINT ELECTRIC GENERATING PLANT	LA	8/16/2011	EMERGENCY DIESEL GENERATOR	1250	HP	NOx	0.0014	LB/MMBTU		BACT-PSD
NINEMILE POINT ELECTRIC GENERATING PLANT	LA	8/16/2011	EMERGENCY FIRE PUMP	350	HP	NOx	0.0014	LB/MMBTU		BACT-PSD
FLOPAM INC. FACILITY	LA	4/26/2011	Small Generator Engine	193	hp	NOx	1.28	LB/H		BACT-PSD
FLOPAM INC. FACILITY	LA	4/26/2011	Fire Pump Engines - 2 units	444	hp	NOx	5.82	LB/H		BACT-PSD
FLOPAM INC. FACILITY	LA	4/26/2011	Large Generator Engines (17 units)	0		NOx	6.32	LB/H		LAER
WARREN COUNTY POWER PLANT - DOMINION	VA	12/17/2010	Emergency Generator			NOx	6.4	G/KW-H		NSPS IIII
LANGLEY GULCH POWER PLANT	ID	6/25/2010	FIRE PUMP ENGINE	235	KW	NOx	4	G/KW-H		BACT-PSD
MGM MIRAGE	NV	11/30/2009	DIESEL EMERGENCY GENERATORS - UNITS CC009 THRU CC015 AT CITY CENTER	3622	HP	NOx	0.01	LB/HP-H		Other Case-by-Case
LAKE CHARLES GASIFICATION FACILITY	LA	6/22/2009	FIRE WATER DIESEL PUMPS (3)	575	HP EACH	NOx	6.02	LB/H	MAXIMUM (EACH)	BACT-PSD
LAKE CHARLES GASIFICATION FACILITY	LA	6/22/2009	EMERGENCY DIESEL POWER GENERATOR ENGINES (2)	1341	HP EACH	NOx	17.09	LB/H	MAXIMUM (EACH)	BACT-PSD
ENDICOTT PRODUCTION FACILITY, LIBERTY DEVELOPMENT PROJECT	AK	6/15/2009	EU IDS 49 - 56, DRILLING MAIN ENGINES	2889	BHP	NOx	1	G/HP-H		BACT-PSD
CONCORD STEAM CORPORATION	NH	2/27/2009	EMRGENCY GENERATOR 1	5.6	MMBTU/H	NOx	1.98	LB/MMBTU	AVERAGE OF 3 1-HOUR TEST RUNS	LAER
CONCORD STEAM CORPORATION	NH	2/27/2009	EMERGENCY GENERATOR 2	11.6	MMBTU/H	NOx	1.98	LB/MMBTU	AVERAGE OF 3 1-HOUR TEST RUNS	LAER
GP CLARENDON LP	SC	2/10/2009	FIRE WATER DIESEL PUMP	525	HP	NOx	5.9	LB/H		BACT-PSD
GP CLARENDON LP	SC	2/10/2009	DIESEL EMERGENCY GENERATOR	1400	HP	NOx	11.41	LB/H		BACT-PSD
CHOUTEAU POWER PLANT	OK	1/23/2009	EMERGENCY FIRE PUMP (267-HP DIESEL)	267	HP	NOx	4.59	LB/H		BACT-PSD
CHOUTEAU POWER PLANT	OK	1/23/2009	EMERGENCY DIESEL GENERATOR (2200 HP)	2200	HP	NOx	23.15	LB/H		BACT-PSD
GP ALLENDALE LP	SC	11/25/2008	FIRE WATER DIESEL PUMP	525	HP	NOx	5.9	LB/H		BACT-PSD
GP ALLENDALE LP	SC	11/25/2008	DIESEL EMERGENCY GENERATOR	1400	HP	NOx	11.41	LB/H		BACT-PSD
OHIO RIVER CLEAN FUELS, LLC	OH	11/20/2008	FIRE PUMP ENGINES (2)	300	HP	NOx	4.89	LB/H	FOR EACH ENGINE	BACT-PSD
OHIO RIVER CLEAN FUELS, LLC	OH	11/20/2008	EMERGENCY GENERATOR	2922	HP	NOx	26.47	LB/H		BACT-PSD

Emergency Generators

ODEC Limit	CO	2.6	g/hp-hr
ODEC Limit	PM	0.15	g/hp-hr
ODEC Limit	NOx	4.8	g/hp-hr
ODEC Limit	VOC	0.29	g/hp-hr

Facility Name	State	Permit Date	Process Name	Throughput		Pollutant	Emission Limit		Averaging Period	Basis
TATE & LYLE INGREDIENTS AMERICAS, INC.	IA	9/19/2008	FIRE PUMP ENGINE	575	HP	NOx	3.9	G/KW-H	AVERAGE OF THREE STACK TEST RUNS	BACT-PSD
MID AMERICAN STEEL ROLLING MILL	OK	9/8/2008	Emergency Generator	1200	HP	NOx	15.6	LB/H		BACT-PSD
NELLIS AIR FORCE BASE	NV	2/26/2008	SMALL INTERNAL COMBUSTION ENGINES (<= 500 HP)			NOx	3.88	G/B-HP-H		BACT-PSD
MEDIMMUNE FREDERICK CAMPUS	MD	1/28/2008	TWO (2) DIESEL (NO. 2 FUEL OIL) FIRED, NON-EMERGENCY GENERATORS EACH RATED AT 2500 KILOWATTS (3604 BRAKE HORSEPOWER)	2500	KW	NOx	0.61	G/HP-H	EXCEPT START-UP NOT TO EXCEED 9 MINUTES	LAER
CREOLE TRAIL LNG IMPORT TERMINAL	LA	8/15/2007	FIREWATER PUMP DIESEL ENGINE	525	HP	NOx	6.74	LB/H	HOURLY MAXIMUM	BACT-PSD
CREOLE TRAIL LNG IMPORT TERMINAL	LA	8/15/2007	FIREWATER PUMP DIESEL ENGINE	660	HP	NOx	10.07	LB/H	HOURLY MAXIMUM	BACT-PSD
ADM CORN PROCESSING - CEDAR RAPIDS	IA	6/29/2007	FIRE PUMP	540	HP	NOx	2.8	G/B-HP-H	AVERAGE OF 3 TEST RUNS	BACT-PSD
CHEVRON PRODUCTS COMPANY, PASCAGOULA REFINERY	MS	5/8/2007	TEMPORARY, PORTABLE CRUDE I GENERATOR			NOx	1.3	LB/H	3-HR ROLLING AVERAGE	BACT-PSD
DUTCH HARBOR POWER PLANT	AK	1/31/2007	I.C.	5000	KW	NOx	1.36	G/KW-H	3 HOURS	BACT-PSD
ARIZONA CLEAN FUELS YUMA	AZ	4/14/2005	FIRE WATER PUMPS NOS 1 AND 2	5.46	MMBTU/H	NOx	4	G/KW-H		BACT-PSD
JOHN DEERE PRODUCT ENGINEERING CENTER	IA	3/23/2005	TEST CELL	24.5	GAL/H	NOx	1.52	LB/MMBTU	AVERAGE OF 3-1 HR TEST RUNS	BACT-PSD
IOWA FERTILIZER COMPANY	IA	10/26/2012	Emergency Generator	2000	KW	VOC	0.4	G/KW-H		BACT-PSD
ENI - HOLY CROSS DRILLING PROJECT	FL	10/27/2011	Emergency Fire Pump Engine	0		VOC	0.002	TONS PER YEAR	12-MONTH ROL	BACT-PSD
ENI - HOLY CROSS DRILLING PROJECT	FL	10/27/2011	Emergency Engine	0		VOC	0.03	TONS PER YEAR	12-MONTH ROL	BACT-PSD
ENI - HOLY CROSS DRILLING PROJECT	FL	10/27/2011	Main Propulsion Engines	0		VOC	0.39	G/KW-H	24-HOUR ROLL	BACT-PSD
NINEMILE POINT ELECTRIC GENERATING PLANT	LA	9/14/2011	EMERGENCY DIESEL GENERATOR	1250	HP	VOC	1	G/HP-H		
WARREN COUNTY POWER PLANT - DOMINION	VA	12/17/2010	Emergency Generator			VOC	0.0254	LB/HR		NSPS IIII
MGM MIRAGE	NV	11/30/2009	DIESEL EMERGENCY GENERATORS - UNITS CC009 THRU CC015 AT CITY CENTER	3622	HP	VOC	0.0003	LB/HP-H		Other Case-by-Case

Emergency Generators

ODEC Limit	CO	2.6	g/hp-hr
ODEC Limit	PM	0.15	g/hp-hr
ODEC Limit	NOx	4.8	g/hp-hr
ODEC Limit	VOC	0.29	g/hp-hr

Facility Name	State	Permit Date	Process Name	Throughput		Pollutant	Emission Limit		Averaging Period	Basis
MGM MIRAGE	NV	11/30/2009	EMERGENCY GENERATORS - UNITS LX024 AND LX025 AT LUXOR	2206	HP	VOC	0.0003	LB/HP-H		Other Case-by-Case
HARRAH'S OPERATING COMPANY, INC.	NV	8/20/2009	LARGE INTERNAL COMBUSTION ENGINES (>600 HP) - UNIT HA13	1232	HP	VOC	0.0007	LB/HP-H		Other Case-by-Case
GP CLARENDON LP	SC	2/10/2009	DIESEL EMERGENCY GENERATOR	1400	HP	VOC	0.32	LB/H		BACT-PSD
GP CLARENDON LP	SC	2/10/2009	FIRE WATER DIESEL PUMP	525	HP	VOC	0.47	LB/H		BACT-PSD
CHOUTEAU POWER PLANT	OK	1/23/2009	EMERGENCY FIRE PUMP (267-HP DIESEL)	267	HP	VOC	0.66	LB/H		BACT-PSD
CHOUTEAU POWER PLANT	OK	1/23/2009	EMERGENCY DIESEL GENERATOR (2200 HP)	2200	HP	VOC	1.55	LB/H		BACT-PSD
GP ALLENDALE LP	SC	11/25/2008	DIESEL EMERGENCY GENERATOR	1400	HP	VOC	0.32	LB/H		BACT-PSD
GP ALLENDALE LP	SC	11/25/2008	FIRE WATER DIESEL PUMP	525	HP	VOC	0.47	LB/H		BACT-PSD
OHIO RIVER CLEAN FUELS, LLC	OH	11/20/2008	FIRE PUMP ENGINES (2)	300	HP	VOC	0.26	LB/H	FOR EACH ENG	BACT-PSD
OHIO RIVER CLEAN FUELS, LLC	OH	11/20/2008	EMERGENCY GENERATOR	2922	HP	VOC	1.39	LB/H		BACT-PSD
TATE & LYLE INDGREDIENTS AMERICAS, INC.	IA	9/19/2008	FIRE PUMP ENGINE	575	HP	VOC	0.1	G/KW-H	AVERAGE OF TH	BACT-PSD
TATE & LYLE INDGREDIENTS AMERICAS, INC.	IA	9/19/2008	EMERGENCY GENERATOR	700	KW	VOC	0.2	G/KW-H	AVERAGE OF TH	BACT-PSD
MID AMERICAN STEEL ROLLING MILL	OK	9/8/2008	Emergency Generator	1200	HP	VOC	0.77	LB/H		BACT-PSD
NELLIS AIR FORCE BASE	NV	2/26/2008	SMALL INTERNAL COMBUSTION ENGINES (<= 500 HP)			VOC	0.14	G/B-HP-H		OTHER CASE-BY-CASE
NELLIS AIR FORCE BASE	NV	2/26/2008	LARGE INTERNAL COMBUSTION ENGINES (>500 HP)			VOC	0.2	G/B-HP-H		Other Case-by-Case
CREOLE TRAIL LNG IMPORT TERMINAL	LA	8/15/2007	FIREWATER PUMP DIESEL ENGINE	660	HP	VOC	0.04	LB/H	HOURLY MAXIM	BACT-PSD
CREOLE TRAIL LNG IMPORT TERMINAL	LA	8/15/2007	FIREWATER PUMP DIESEL ENGINE	525	HP	VOC	0.09	LB/H	HOURLY MAXIM	BACT-PSD
CREOLE TRAIL LNG IMPORT TERMINAL	LA	8/15/2007	DIESEL EMERGENCY GENERATOR NOS. 1 & 2	2168	HP EACH	VOC	1.67	LB/H	HOURLY MAXIM	BACT-PSD
ADM CORN PROCESSING - CEDAR RAPIDS	IA	6/29/2007	FIRE PUMP	540	HP	VOC	0.2	G/B-HP-H	AVERAGE OF 3	BACT-PSD
ADM CORN PROCESSING - CEDAR RAPIDS	IA	6/29/2007	EMERGENCY GENERATOR	1500	KW	VOC	0.3	G/B-HP-H	AVERAGE OF 3	BACT-PSD
FAIRBAULT ENERGY PARK	MN	6/5/2007	EMERGENCY GENERATOR	1750	KW	VOC	0.0007	LB/HP-H	3 HOUR AVERAG	BACT-PSD

Emergency Generators

ODEC Limit	CO	2.6	g/hp-hr
ODEC Limit	PM	0.15	g/hp-hr
ODEC Limit	NOx	4.8	g/hp-hr
ODEC Limit	VOC	0.29	g/hp-hr

Facility Name	State	Permit Date	Process Name	Throughput		Pollutant	Emission Limit		Averaging Period	Basis
MERCK & CO, WESTPOINT	PA	2/23/2007	MOBILE EMERGENCY GENERATOR			VOC	0.32	G/B-HP-H		OTHER CASE-BY-CASE

Fire water Pump Engines

ODEC Limit	CO	2.6	g/hp-hr
ODEC Limit	PM	0.15	g/hp-hr
ODEC Limit	NOx	2.98	g/hp-hr
ODEC Limit	VOC	1.12	g/hp-hr

Facility Name	State	Permit Date	Process Name	Throughput	Pollutant	Emission Limit	Averaging Period	Basis
MOXIE ENERGY LLC/PATRIOT GENERATION PLT	PA	1/31/2013	Fire Pump Engine - 460 BHP	460 HP	CO	0.5 G/HP-HR	AVERAGE OF 3 STACK TEST RUNS	BACT-PSD
IOWA FERTILIZER COMPANY	IA	10/26/2012	Fire Pump	235 KW	CO	3.5 G/KW-H		OTHER CASE-BY-CASE
PYRAMAX CERAMICS, LLC	SC	2/8/2012	FIRE PUMP	500 HP	CO	3.5 GR/KW-H		BACT-PSD
PYRAMAX CERAMICS, LLC	SC	2/8/2012	EMERGENCY GENERATORS 1 THRU 8	757 HP	CO	3.5 GR/KW-H		BACT-PSD
NINEMILE POINT ELECTRIC GENERATING PLANT	LA	8/16/2011	EMERGENCY DIESEL GENERATOR	1250 HP	CO	2.6 G/HP-H	ANNUAL AVERAGE	BACT-PSD
NINEMILE POINT ELECTRIC GENERATING PLANT	LA	8/16/2011	EMERGENCY FIRE PUMP	350 HP	CO	2.6 G/HP-H	LB/MM BTU	BACT-PSD
FLOPAM INC. FACILITY	LA	4/26/2011	Large Generator Engines (17 units)	0	CO	0.03 LB/H	(591 HP UNITS)	BACT-PSD
FLOPAM INC. FACILITY	LA	4/26/2011	Small Generator Engine	193 hp	CO	0.16 LB/H		BACT-PSD
FLOPAM INC. FACILITY	LA	4/26/2011	Fire Pump Engines - 2 units	444 hp	CO	0.65 LB/H		BACT-PSD
SWEET SORGHUM-TO-ETHANOL ADVANCED BIOREFINERY	FL	12/23/2010	Emergency Diesel Fire Pump, One 600 HP	0	CO	2.6 G/HP-H		BACT-PSD
PALM BEACH RENEWABLE ENERGY PARK	FL	12/23/2010	Two emergency diesel firewater pump engines	250 HP	CO	2.6 G/HP-H		BACT-PSD
SWEET SORGHUM-TO-ETHANOL ADVANCED BIOREFINERY	FL	12/23/2010	Emergency Generators, Two 2682 HP EA	0	CO	3.5 G/KW-H		BACT-PSD
PALM BEACH RENEWABLE ENERGY PARK	FL	12/23/2010	250 Kw Emergency Generator	0	CO	3.5 G/KW-H		BACT-PSD
WARREN COUNTY POWER PLANT - DOMINION	VA	12/17/2010	Fire Water Pump		CO	3.5 G/KW-H		NSPS IIII
LANGLEY GULCH POWER PLANT	ID	6/25/2010	EMERGENCY GENERATOR ENGINE	750 KW	CO	3.5 G/KW-H		BACT-PSD
KARN WEADOCK GENERATING COMPLEX	MI	12/29/2009	FIRE PUMP	525 HP	CO	2.6 G/HP-H	TEST METHOD	BACT-PSD
KARN WEADOCK GENERATING COMPLEX	MI	12/29/2009	FLUE GAS DESULFURIZATION QUENCH PUMP	305 KW	CO	3.5 G/KW-H	TEST METHOD	BACT-PSD
KARN WEADOCK GENERATING COMPLEX	MI	12/29/2009	EMERGENCY GENERATOR	2000 KW	CO	3.5 G/KW-H	TEST METHOD	BACT-PSD
MINNESOTA POWER, INC. - BOSWELL ENERGY CTR.	MN	8/13/2009	EMERGENCY GEN. UNIT 3 - 300Kw - CU	300 KW	CO	3 G/KW-H		BACT-PSD
PLAQUEMINE PVC PLANT	LA	2/27/2009	LARGE EMERGENCY ENGINES		CO	0.85 LB/MMBTU		BACT-PSD
PLAQUEMINE PVC PLANT	LA	2/27/2009	SMALL EMERGENCY ENGINES		CO	0.95 LB/MMBTU		BACT-PSD
CHOUTEAU POWER PLANT	OK	1/23/2009	EMERGENCY FIRE PUMP (267-HP DIESEL)	267 HP	CO	2.6 G/HP-H	NSPS	BACT-PSD
OHIO RIVER CLEAN FUELS, LLC	OH	11/20/2008	FIRE PUMP ENGINES (2)	300 HP	CO	1.72 LB/H	FOR EACH ENGINE	BACT-PSD
CPV ST CHARLES	MD	11/12/2008	INTERNAL COMBUSTION ENGINE - EMERGENCY FIRE WATER PUMP	300 HP	CO	2.6 G/HP-H		BACT-PSD
CPV ST CHARLES	MD	11/12/2008	INTERNAL COMBUSTION ENGINE - EMERGENCY GENERATOR		CO	2.6 G/HP-H		BACT-PSD
NELLIS AIR FORCE BASE	NV	2/26/2008	LARGE INTERNAL COMBUSTION ENGINES (>500 HP)		CO	0.22 G/B-HP-H		Other Case-by-Case
NELLIS AIR FORCE BASE	NV	2/26/2008	SMALL INTERNAL COMBUSTION ENGINES (<= 500 HP)		CO	0.5 G/B-HP-H		OTHER CASE-BY-CASE
BLYTHE ENERGY PROJECT II	CA	4/25/2007	FIRE PUMP	303 HP	CO	0.7 LB/H		BACT-PSD
ADM POLYMERS	IA	11/30/2006	FIRE PUMP ENGINE	460 HP	CO	2.6 G/B-HP-H	AVERAGE OF THREE (3) TEST RUNS	BACT-PSD
DRAKE	AZ	4/12/2006	EMERGENCY GENERATOR	210 KW	CO	3.5 G/KW-H	3-HOUR	BACT-PSD
MOXIE ENERGY LLC/PATRIOT GENERATION PLT	PA	1/31/2013	Fire Pump Engine - 460 BHP	460 HP	PM	0.09 G/HP-HR		OTHER CASE-BY-CASE
GATEWAY COGENERATION 1, LLC - SMART WATER PROJECT	VA	8/27/2012	FIRE WATER PUMP	1.86 MMBTU/H	PM	0.15 G/HP-H		BACT-PSD

Fire water Pump Engines

ODEC Limit	CO	2.6	g/hp-hr
ODEC Limit	PM	0.15	g/hp-hr
ODEC Limit	NOx	2.98	g/hp-hr
ODEC Limit	VOC	1.12	g/hp-hr

Facility Name	State	Permit Date	Process Name	Throughput		Pollutant	Emission Limit		Averaging Period	Basis
NINEMILE POINT ELECTRIC GENERATING PLANT	LA	8/16/2011	EMERGENCY DIESEL GENERATOR	1250	HP	PM	0.15	G/HP-H	ANNUAL AVERAGE	BACT-PSD
NINEMILE POINT ELECTRIC GENERATING PLANT	LA	8/16/2011	EMERGENCY DIESEL GENERATOR	1250	HP	PM	0.15	G/HP-H	ANNUAL AVERAGE	BACT-PSD
NINEMILE POINT ELECTRIC GENERATING PLANT	LA	8/16/2011	EMERGENCY FIRE PUMP	350	HP	PM	0.15	G/HP-H	ANNUAL AVERAGE	BACT-PSD
NINEMILE POINT ELECTRIC GENERATING PLANT	LA	8/16/2011	EMERGENCY FIRE PUMP	350	HP	PM	0.15	G/HP-H	ANNUAL AVERAGE	BACT-PSD
FLOPAM INC. FACILITY	LA	4/26/2011	Large Generator Engines (17 units)	0		PM	0.01	LB/H		BACT-PSD
FLOPAM INC. FACILITY	LA	4/26/2011	Small Generator Engine	193	hp	PM	0.01	LB/H		BACT-PSD
FLOPAM INC. FACILITY	LA	4/26/2011	Fire Pump Engines - 2 units	444	hp	PM	0.01	LB/H		BACT-PSD
SWEET SORGHUM-TO-ETHANOL ADVANCED BIOREFINERY	FL	12/23/2010	Emergency Diesel Fire Pump, One 600 HP	0		PM	0.15	G/HP-H		BACT-PSD
PALM BEACH RENEWABLE ENERGY PARK	FL	12/23/2010	Two emergency diesel firewater pump engines	250	HP	PM	0.15	G/HP-H		BACT-PSD
SWEET SORGHUM-TO-ETHANOL ADVANCED BIOREFINERY	FL	12/23/2010	Emergency Generators, Two 2682 HP EA	2682	HP	PM	0.2	G/KW-H		BACT-PSD
PALM BEACH RENEWABLE ENERGY PARK	FL	12/23/2010	250 Kw Emergency Generator	250	KW	PM	0.2	G/KW-H		BACT-PSD
WARREN COUNTY POWER PLANT - DOMINION	VA	12/17/2010	Fire Water Pump			PM	0.4	G/KW-H		NSPS IIII
LANGLEY GULCH POWER PLANT	ID	6/25/2010	EMERGENCY GENERATOR ENGINE	750	KW	PM	0.2	G/KW-H		BACT-PSD
LANGLEY GULCH POWER PLANT	ID	6/25/2010	FIRE PUMP ENGINE	235	KW	PM	0.2	G/KW-H		BACT-PSD
KARN WEADOCK GENERATING COMPLEX	MI	12/29/2009	EMERGENCY GENERATOR	2000	KW	PM	0.0573	LB/MMBTU	TEST METHOD	BACT-PSD
KARN WEADOCK GENERATING COMPLEX	MI	12/29/2009	FIRE PUMP	525	HP	PM	0.15	G/HP-H	TEST METHOD	BACT-PSD
KARN WEADOCK GENERATING COMPLEX	MI	12/29/2009	FLUE GAS DESULFURIZATION QUENCH PUMP	305	KW	PM	0.2	G/KW-H	TEST METHOD	BACT-PSD
KARN WEADOCK GENERATING COMPLEX	MI	12/29/2009	EMERGENCY GENERATOR	2000	KW	PM	0.2	G/KW-H	TEST METHOD	BACT-PSD
KARN WEADOCK GENERATING COMPLEX	MI	12/29/2009	FIRE BOOSTER PUMP	40	KW	PM	0.4	G/KW-H	TEST METHOD	BACT-PSD
PLAQUEMINE PVC PLANT	LA	2/27/2009	LARGE EMERGENCY ENGINES			PM	0.1	LB/MMBTU		BACT-PSD
CHOUTEAU POWER PLANT	OK	1/23/2009	EMERGENCY FIRE PUMP (267-HP DIESEL)	267	HP	PM	0.24	LB/H		BACT-PSD
OHIO RIVER CLEAN FUELS, LLC	OH	11/20/2008	FIRE PUMP ENGINES (2)	300	HP	PM	0.27	LB/H	FOR EACH ENGINE	BACT-PSD
CPV ST CHARLES	MD	11/12/2008	INTERNAL COMBUSTION ENGINE - EMERGENCY FIRE WATER PUMP	300	HP	PM	0.15	G/HP-H		BACT-PSD
CPV ST CHARLES	MD	11/12/2008	INTERNAL COMBUSTION ENGINE - EMERGENCY FIRE WATER PUMP	300	HP	PM	0.15	G/HP-H		LAER
CPV ST CHARLES	MD	11/12/2008	INTERNAL COMBUSTION ENGINE - EMERGENCY GENERATOR			PM	0.15	G/HP-H		BACT-PSD
CPV ST CHARLES	MD	11/12/2008	INTERNAL COMBUSTION ENGINE - EMERGENCY GENERATOR			PM	0.15	G/HP-H		BACT-PSD
CPV ST CHARLES	MD	11/12/2008	INTERNAL COMBUSTION ENGINE - EMERGENCY GENERATOR			PM	0.15	G/HP-H		LAER
NELLIS AIR FORCE BASE	NV	2/26/2008	LARGE INTERNAL COMBUSTION ENGINES (>500 HP)			PM	0.084	G/B-HP-H		OTHER CASE-BY-CASE
NELLIS AIR FORCE BASE	NV	2/26/2008	SMALL INTERNAL COMBUSTION ENGINES (<= 500 HP)			PM	0.14	G/B-HP-H		OTHER CASE-BY-CASE
NELLIS AIR FORCE BASE	NV	2/26/2008	AIRCRAFT ARRESTORS			PM	0.35	G/B-HP-H		OTHER CASE-BY-CASE
BLYTHE ENERGY PROJECT II	CA	4/25/2007	FIRE PUMP	303	HP	PM	0.1	LB/H		BACT-PSD
DRAKE	AZ	4/12/2006	EMERGENCY GENERATOR	210	KW	PM	0.2	G/KW-H	3-HOUR	BACT-PSD

Fire water Pump Engines

ODEC Limit	CO	2.6	g/hp-hr
ODEC Limit	PM	0.15	g/hp-hr
ODEC Limit	NOx	2.98	g/hp-hr
ODEC Limit	VOC	1.12	g/hp-hr

Facility Name	State	Permit Date	Process Name	Throughput	Pollutant	Emission Limit	Averaging Period	Basis
CRESCENT CITY POWER	LA	6/6/2005	DIESEL FIRED WATER PUMP		PM	0.14 LB/H	HOURLY MAXIMUM	BACT-PSD
MOXIE ENERGY LLC/PATRIOT GENERATION PLT	PA	1/31/2013	Fire Pump Engine - 460 BHP	460 HP	NOx	2.6 G/HP-HR		BACT-PSD
IOWA FERTILIZER COMPANY	IA	10/26/2012	Fire Pump	235 KW	NOx	3.75 G/KW-H	AVERAGE OF 3 STACK TEST RUNS	BACT-PSD
PYRAMAX CERAMICS, LLC	SC	2/8/2012	FIRE PUMP	500 HP	NOx	4 GR/KW-H	EXPRESSED AS NO2	OTHER CASE-BY-CASE
PYRAMAX CERAMICS, LLC	SC	2/8/2012	EMERGENCY GENERATORS 1 THRU 8	757 HP	NOx	4 GR/KW-H		BACT-PSD
PYRAMAX CERAMICS, LLC	SC	2/8/2012	EMERGENCY ENGINE 1 THRU 8	29 HP	NOx	7.5 GR/KW-H		BACT-PSD
FLOPAM INC. FACILITY	LA	4/26/2011	Small Generator Engine	193 hp	NOx	1.28 LB/H		BACT-PSD
PALM BEACH RENEWABLE ENERGY PARK	FL	12/23/2010	Two emergency diesel firewater pump engines	250 HP	NOx	3 G/HP-H		BACT-PSD
PALM BEACH RENEWABLE ENERGY PARK	FL	12/23/2010	250 Kw Emergency Generator	0	NOx	4 G/KW-H		BACT-PSD
SWEET SORGHUM-TO-ETHANOL ADVANCED BIOREFINERY	FL	12/23/2010	Emergency Generators, Two 2682 HP EA	0	NOx	6.4 G/KW-H		BACT-PSD
WARREN COUNTY POWER PLANT - DOMINION	VA	12/17/2010	Fire Water Pump		NOx	4 G/KW-H		NSPS IIII
LANGLEY GULCH POWER PLANT	ID	6/25/2010	FIRE PUMP ENGINE	235 KW	NOx	4 G/KW-H		BACT-PSD
LANGLEY GULCH POWER PLANT	ID	6/25/2010	EMERGENCY GENERATOR ENGINE	750 KW	NOx	6.4 G/KW-H	NOX+NMHC	BACT-PSD
VICTORVILLE 2 HYBRID POWER PROJECT	CA	3/11/2010	EMERGENCY FIREWATER PUMP ENGINE	135 KW	NOx	3.8 G/KW-H	NOX+NMHC	BACT-PSD
PLAQUEMINE PVC PLANT	LA	2/27/2009	LARGE EMERGENCY ENGINES		NOx	3.2 LB/MMBTU		BACT-PSD
CHOUTEAU POWER PLANT	OK	1/23/2009	EMERGENCY FIRE PUMP (267-HP DIESEL)	267 HP	NOx	4.59 LB/H		BACT-PSD
CPV ST CHARLES	MD	11/12/2008	INTERNAL COMBUSTION ENGINE - EMERGENCY FIRE WATER PUMP	300 HP	NOx	3 G/HP-H		BACT-PSD
CPV ST CHARLES	MD	11/12/2008	INTERNAL COMBUSTION ENGINE - EMERGENCY GENERATOR		NOx	4.8 G/HP-H		BACT-PSD
NELLIS AIR FORCE BASE	NV	2/26/2008	SMALL INTERNAL COMBUSTION ENGINES (<= 500 HP)		NOx	3.88 G/B-HP-H		BACT-PSD
NELLIS AIR FORCE BASE	NV	2/26/2008	AIRCRAFT ARRESTORS		NOx	5.02 G/B-HP-H		BACT-PSD
DRAKE	AZ	4/12/2006	EMERGENCY GENERATOR	210 KW	NOx	4 G/KW-H	3-HOUR	BACT-PSD
MOXIE ENERGY LLC/PATRIOT GENERATION PLT	PA	1/31/2013	Fire Pump Engine - 460 BHP	460 HP	VOC	0.1 G/HP-HR	AVERAGE OF 3 STACK TEST RUNS	BACT-PSD
IOWA FERTILIZER COMPANY	IA	10/26/2012	Fire Pump	235 KW	VOC	0.25 G/KW-H		OTHER CASE-BY-CASE
NINEMILE POINT ELECTRIC GENERATING PLANT	LA	8/16/2011	EMERGENCY DIESEL GENERATOR	1250 HP	VOC	1 G/HP-H	ANNUAL AVERAGE	BACT-PSD
NINEMILE POINT ELECTRIC GENERATING PLANT	LA	8/16/2011	EMERGENCY FIRE PUMP	350 HP	VOC	1 G/HP-H	ANNUAL AVERAGE	BACT-PSD
CHOUTEAU POWER PLANT	OK	1/23/2009	EMERGENCY FIRE PUMP (267-HP DIESEL)	267 HP	VOC	0.66 LB/H		BACT-PSD
OHIO RIVER CLEAN FUELS, LLC	OH	11/20/2008	FIRE PUMP ENGINES (2)	300 HP	VOC	0.26 LB/H	FOR EACH ENGINE	BACT-PSD
NELLIS AIR FORCE BASE	NV	2/26/2008	SMALL INTERNAL COMBUSTION ENGINES (<= 500 HP)		VOC	0.14 G/B-HP-H		OTHER CASE-BY-CASE
NELLIS AIR FORCE BASE	NV	2/26/2008	LARGE INTERNAL COMBUSTION ENGINES (>500 HP)		VOC	0.2 G/B-HP-H		Other Case-by-Case

Appendix D
Detailed Review of Modeling
Analysis

Memorandum

Environmental Resources Management

To: Susan Gray

Company: Maryland Power Plant Research Program (PPRP)

From: Mark Garrison/ Surya Ramaswamy

Date: 19 December 2013

Subject: ODEC Wildcat Point Initial Modeling Review

75 Valley Stream Parkway
Suite 200
Malvern, PA 19355
(484)-913-0300
(484)-913-0301 (fax)



Introduction and Summary

ODEC is proposing to install new combined cycle combustion turbines adjacent to the existing Rock Springs Generating Station (Rock Springs). The new source associated with this project is referred to as the Wildcat Point Generation Station (Wildcat Point Project, Wildcat Point or Project), a major modification of the existing facility. The facility is located in Cecil County, MD, which is attainment for all regulated criteria pollutants, with the exception of ozone. Cecil County is classified as a marginal ozone nonattainment area. The Project will result in significant emissions increases of nitrogen oxides (NO_x), sulfur dioxide (SO₂), carbon monoxide (CO), particulate matter (PM, PM₁₀, and PM_{2.5}), and sulfuric acid mist (SAM). Modeling is required to demonstrate compliance with applicable national ambient air quality standards (NAAQS), and prevention of significant deterioration (PSD) increments.

The purpose of this memo is to provide a detailed review of the overall modeling analysis conducted by ODEC and its consultants and to determine the status of the air quality impacts relative to approvability of the CPCN. In particular, this memo contains a review of the following topics:

- Different operational modes and generation load scenarios proposed for the new equipment at the Wildcat Point Project;
- Choice of meteorological data and receptor grid;
- Choice of background ambient monitoring data;
- Treatment of NO₂ in the model;
- Review of modeling results for the Project only sources;
- Multi-Source Inventory Development and Source Selection;
- NAAQS and PSD Increment Modeling Results;
- TAPs Analysis;
- Class-I Analysis; and
- PM_{2.5} Impacts in Pennsylvania nonattainment areas.

Based on our review, air quality impacts of this project are within all applicable limits. In addition to verifying this conclusion, and as described in further detail below, the

following key issues – that involve relatively recent guidance and policies - were considered in our review:

- Ensure that recent requirements, stemming from a January 2013 D.C. Circuit Court decision, with respect to PM_{2.5} significant impact levels (SILs) and significant monitoring concentrations (SMCs) are adequately addressed;
- Ensure that secondary formation of PM_{2.5} from NO_x and SO₂ is addressed in compliance with recent EPA guidance;
- Ensure that the application of OLM (Ozone Limiting Method) for determining NO₂ impacts has been done correctly and receives EPA Region III approval; and
- Ensure that the project's impacts in the adjacent PM_{2.5} nonattainment area (in Pennsylvania) are adequately addressed.

Source Characterization, Load Analyses and Intermittent Sources

The emissions increases associated with the Wildcat Point Project are summarized in the following table:

Table 1: Wildcat Point Project Emissions

<i>Pollutant</i>	<i>Emissions Increase (tpy)</i>	<i>PSD Significant Emission Rate (tpy)</i>	<i>PSD Applicability Triggered (Y/N?)</i>	<i>Modeling Required (Y/N?)</i>
<i>NO_x</i>	<i>231.7</i>	<i>40</i>	<i>Y</i>	<i>Y</i>
<i>CO</i>	<i>510.6</i>	<i>100</i>	<i>Y</i>	<i>Y</i>
<i>SO₂</i>	<i>62.8</i>	<i>40</i>	<i>Y</i>	<i>Y</i>
<i>PM</i>	<i>176.8</i>	<i>25</i>	<i>Y</i>	<i>N</i>
<i>PM₁₀</i>	<i>278.2</i>	<i>15</i>	<i>Y</i>	<i>Y</i>
<i>PM_{2.5}</i>	<i>272.1</i>	<i>10</i>	<i>Y</i>	<i>Y</i>
<i>H₂SO₄</i>	<i>96.2</i>	<i>7.0</i>	<i>Y</i>	<i>N</i>
<i>Lead</i>	<i>0.004</i>	<i>0.6</i>	<i>N</i>	<i>N</i>

ODEC conducted a comprehensive load analysis for the new turbines and new auxiliary units. The results of these analyses are presented in Attachment D of ODEC's air quality

modeling report that was included in the CPCN application. The particular load that caused the worst case dispersion was used in the PSD increment and NAAQS modeling analyses for each pollutant and averaging period combination.

ODEC also classified the emergency diesel generator and emergency diesel fire pump as intermittent sources as they will operate no more than 100 hours annually, and therefore based on EPA guidance regarding intermittent sources, these sources were not included in the 1-hour modeling analyses except for CO.

In addition to the various load analyses, ODEC also conducted analyses of startup and shutdown of the turbines. ODEC has indicated that there will be 250 startups (cold, warm and hot) and shutdowns for both turbines combined per year. PPRP and MDE-ARMA have evaluated and agree with ODEC's approach of prorating the lbs/event emissions over the duration of the event rather than annualizing the total startup and shutdown emissions. Since emissions during startup are higher than emissions during normal operations, most of the maximum short-term modeling results reported in the application and replicated by PPRP and MDE-ARMA are due to these non-continuous events. The reported results, therefore, represent a conservative upper-bound since the model assumes continuous operation for every hour of the year.

Model Selection

ODEC utilized the latest version of the AERMOD (version 12345) dispersion model for all analyses conducted in the CPCN application, with the exception of the visibility analysis which was conducted with the VISCSCREEN visibility screening model. ODEC utilized all the latest versions of the supporting processing programs for AERMOD, including AERMET version 12345, AERSURFACE version 13016, AERMINUTE version 11325 (for meteorological data processing), and AERMAP version 11103 (for receptor elevations and hill scales). PPRP and MDE-ARMA approve of the use of the selected models and supporting processing programs, and agree that the use of these models represents a best practice approach for determining the impacts of the proposed Project on air quality.

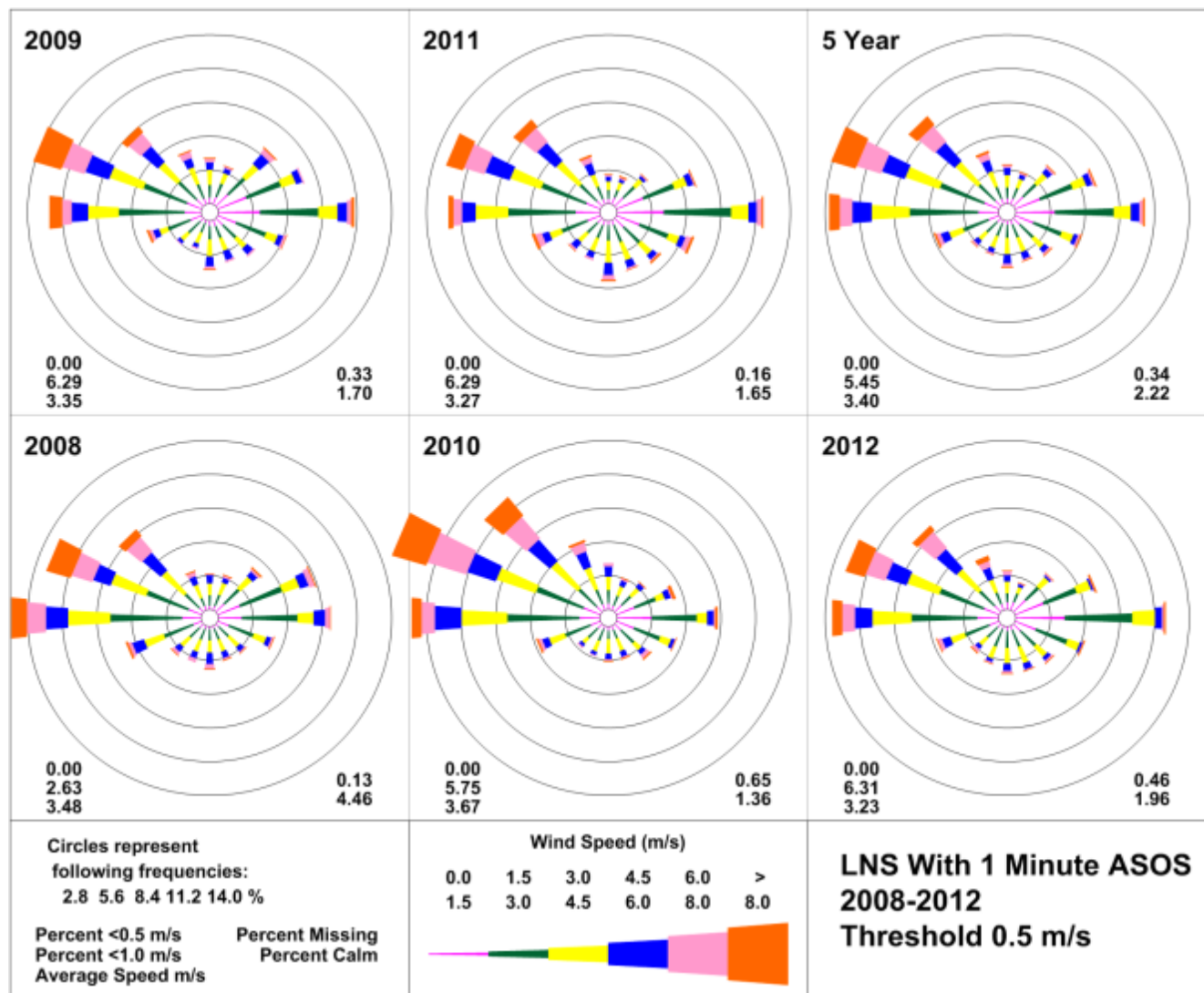
Meteorological Data

PPRP and MDE-ARMA proposed the use of five years (2008-2012) of National Weather Service (NWS) surface meteorological data from the Lancaster County Airport (LNS) for use in this air quality modeling analysis and also provided the AERMOD ready meteorological data to ODEC. PPRP and MDE-ARMA recommended the use of meteorological data from this station for AERMOD applications, based on the proximity of the Project site and similar land use characteristics surrounding the station and the Project site. PPRP and MDE-ARMA used the most recent version of the AERMOD meteorological processor, AERMET (version 12345), to process the surface meteorological data with upper air data from Sterling, Virginia.

PPRP and MDE-ARMA made use of AERSURFACE to develop the appropriate surface characteristics needed by AERMET. PPRP and MDE-ARMA assigned the values of surface roughness, Bowen ratio, and albedo on a wind direction specific basis, using twelve wind direction sectors. The values for these parameters were also chosen based on season. PPRP and MDE-ARMA also processed 1-minute wind data from LNS using the NCDC 1-minute Automated Surface Observation System (ASOS) data archive. Finally, PPRP and MDE-ARMA used upper air data from Sterling, VA as the source of morning sounding data to establish the profile of potential temperature used by AERMOD. Model-ready input files were provided to ODEC for use in the modeling.

A wind rose of the meteorological data from Lancaster County Airport is shown in the following figure.

Figure 1: Wind Rose for Surface Meteorological Data from LNS



Receptor Grid

ODEC utilized the AERMAP terrain processor to develop elevation and critical hill elevations for each receptor used in the air quality modeling analyses. ODEC utilized National Elevation Dataset (NED) data as the source of input elevation data. The receptor grid developed by ODEC is as follows:

- 25-meter spacing around the facility fence line;
- 100-meter spacing from the fence line out to 2-km from the facility;
- 500-meter spacing from 2-km to 5 km from the facility; and
- 1000-meter spacing from 5-km to 25-km from the facility.

The receptor grid utilized by ODEC is sufficient to determine maximum predicted impacts from AERMOD. PPRP and MDE-ARMA have compiled a separate receptor grid to use in verification runs for the ODEC project. This receptor grid was constructed as follows:

- 50-meter spacing around the facility fence line;
- 50-meter spacing from the fence line out to 1-km from the facility;
- 100-meter spacing from 1-km to 2.5 km from the facility;
- 250-meter spacing from 2.5-km to 6-km from the facility;
- 500-meter spacing from 6-km to 10-km from the facility;
- 1000-meter spacing from 10-km to 25-km from the facility; and
- 2500-meter spacing from 25-km to 50-km of the facility.

PPRP and MDE-ARMA utilized this relatively finely spaced receptors closer to the facility and coarsely spaced receptors further away from the facility to aid in the verification of select modeling analyses during the review of the CPCN application. PPRP and MDE-ARMA also used AERMAP, and used National Elevation Database (NED) data as the source of elevations in this analysis.

Significance Analysis

The first step of a PSD air quality modeling analysis is to establish which pollutants that have triggered PSD review have modeled concentrations in excess of established Significant Impact Levels (SILs). The results of the ODEC SIL analyses are presented in Table 2. Based on the results presented in this table, a NAAQS analysis is required for NO₂ and SO₂ 1-hour, PM₁₀ 24-hour, PM_{2.5} 24-hour and annual, and CO 1-hour and 8-hour standards. Additionally a PSD increment analysis is required for PM₁₀ 24-hour, and for the PM_{2.5} 24-hour and annual averaging periods. The NO₂ results shown in Table 2 are conservatively based on the assumption that all NO_x emitted converts to NO₂. Application of 75 and 80 percent conversion factors (NO_x to NO₂) for the annual and 1-hour averaging periods, respectively, was not used for this analysis.

Table 2: ODEC Wildcat Point Project SIL Analyses

Pollutant	Averaging Period	Class II SIL	Modeled Concentration	Significant Impact Distance	Basis of Modeled Concentration
		$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	km	
PM ₁₀	24-hour	5	6.05	0.5	Highest 24-hr modeled concentration overall over 5 years
	Annual	1	0.55	-	Highest annual modeled concentration overall over 5 years
PM _{2.5}	24-hour	1.2	5.61		Highest 24-hr modeled concentration averaged over 5 years
	Annual	0.3	1.22		Highest annual modeled concentration averaged over 5 years
NO ₂	1-hour	7.5	58.97	>50	Highest 1-hr modeled concentration averaged over 5 years
	Annual	1	0.94	-	Highest annual modeled concentration averaged over 5 years
CO	1-hour	2,000	2,131.53	0.44	Highest 1-hr modeled concentration overall over 5 years
	8-hour	500	883.29	1.01	Highest 8-hr modeled concentration overall over 5 years
SO ₂	1-hour	7.8	13.15	0.5	Highest 1-hr modeled concentration overall over 5 years
	3-hour	25	10.52	-	Highest 3-hr modeled concentration overall over 5 years
	24-hour	5	2.79	-	Highest 24-hr modeled concentration overall over 5 years
	Annual	1	0.59	-	Highest 1-hr modeled concentration overall over 5 years

Note: Exceedances are shown in bold.

PPRP and MDE-ARMA note that some significant impacts are predicted for the NO₂ 1-hour averaging period, that extend beyond 40 kilometers from Wildcat Point. Close examination of these impacts reveal that they are associated with the following factors:

- Both CTs starting simultaneously;
- The receptors in question are at an elevation of 250-350 meters, in gently sloping terrain (rising approximately 10 meters in 1 km), which is approximately 100-150 meters above the base elevation of Wildcat Point; and
- These impacts occur under stable conditions with low wind speeds (<1.0 m/s) and low mixing heights (10-20 meters). These wind speeds imply a plume travel time of greater than 12 hours.

Considering the infrequent nature of startup conditions (projected to be at most approximately 521 hours per year) and the likelihood that the atmospheric conditions would not persist for more than 12 hours, PPRP and MDE-ARMA have not considered adding sources to evaluate NAAQS at these receptors – however, these receptors have been included in our confirmation model runs.

A recent court ruling (January 2013) remanded the SILs for PM_{2.5} to EPA for reconsideration. During the reconsideration process, EPA recommends that the SILs can continue to be used if representative monitoring data demonstrate that there is “room” for the SIL, i.e. the monitored data plus the numerical value of the SIL is less than the NAAQS. Based on the measurement data used for this analysis, PPRP and MDE-ARMA conclude that this criterion is met and that the SILs can be used to determine impacts. Although the court ruling does not affect other pollutants, it is worth noting that the criterion for using the SILs is also met for all other pollutants and averaging times modeled.

The same court ruling vacated the significant monitoring concentration (SMC) for PM_{2.5}. This means that sources cannot rely on the SMC to avoid the need for a pre-construction analysis of air quality based on measured data. This analysis can be based on monitoring that is conducted by the PSD source or on representative measurement data that adequately characterizes pre-project air quality. ODEC did not conduct pre-construction monitoring but instead relied on existing monitor data to characterize pre-project air quality. PPRP and MDE-ARMA agree that the data sets identified by ODEC for the pollutants existing SILs adequately characterize existing air quality for the area. As with the SILs, the court ruling does not affect other pollutants. It is again worth noting that the measured data sets for other pollutants also adequately characterize existing air quality for the area.

NAAQS and PSD Increment Analyses

The pollutants and averaging times that exceed the level of their respective SILs are SO₂ (1-hr average), NO₂ (1-hr average), CO (1-hr and 8-hr averages), PM₁₀ (24-hr average) and PM_{2.5} (24-hr and annual averages). For these pollutants and averaging times, analyses to demonstrate compliance with the NAAQS and PSD increments are required, as applicable. An important step in this process is to develop emissions inventories for the NAAQS and PSD analyses. For the NAAQS analysis, measured background concentrations must be developed as well. Development of background concentrations and multi-source inventories are described in the following sections.

Background Concentration

ODEC developed background concentrations for the pollutants triggering NAAQS analyses, to establish existing (conservative) air quality in the vicinity of the Wildcat

Point Project. ODEC used ambient monitor data from 2009-2011 to establish representative background concentrations. Measurement stations were selected based on proximity to the Project site and similarity of the surrounding land use and sources to the Project site. PPRP and MDE-ARMA reviewed the choice of monitors used to develop background concentrations and support ODEC's assertion that these monitors provide a conservative representation of background values in the area of the ODEC Wildcat Point Project. A list of monitors and the respective background values that were identified by ODEC are shown below:

Table 3: Background Concentrations

Pollutant	Averaging Period	Concentration (ug/m3)	Monitor ID	Monitor Location
NO2	1-hour	80.2 ^A	42-071-0007	(Lancaster, PA)
CO	1-hour	1600 ^B	10-003-1008	(Delaware City, DE)
	8-hour	1333 ^B		
PM10	24-hour	44 ^C	42-071-0007	(Lancaster, PA)
PM2.5	24-hour	29.2 ^D	24-015-0003	(Fair Hill Natural Resource Management Area, MD)
	Annual	11.1 ^D		
SO2	1-hour	48.5 ^E	10-003-1008	(Delaware City, DE)
Note:				
^A Average of the 98th percentile of the years 2009-2011.				
^B Maximum second highest 1-hour and 8-hour averages measured over the years 2009-2011.				
^C Maximum second highest high 24-hour average concentration measured over the years 2009-2011				
^D 24-hour background concentration is the 98th percentile annual 24-hour block average, averaged over the years 2009-2011.				
^E 1-hour background concentration is the 99th percentile averaged over years 2009-2011.				

Multi-Source Inventory Development and Source Selection

As noted above, the modeled concentrations of the Project source-only analysis are greater than the SILs for some pollutants. Subsequently, a cumulative air quality modeling analysis is required to be performed for the NAAQS and PSD increment evaluation. For the purpose of NAAQS and PSD increment evaluation, ODEC acquired a background modeling inventory, including source specific emissions and stack parameters from:

- MDE (Maryland Department of the Environment),
- PADEP (Pennsylvania Department of Environmental Protection),
- NJDEP (New Jersey Department of Environmental Protection), and
- DNREC (Delaware Department of Natural Resources and Environmental Control)

The files provided by each of these state agency contained information on stack emissions and parameters for sources located at the respective state. PPRP and MDE-ARMA have reviewed the selections made by ODEC and conclude that the facilities selected for modeling, in addition to the existing Rock Spring facility, are appropriate for determining attainment of the NAAQS and PSD increments in the significant impact area (SIA) defined for the ODEC Wildcat Point Project. PPRP and MDE-ARMA also reviewed the effort made by ODEC in calculating the potential emissions in order to include them in the NAAQS evaluation. PPRP and MDE-ARMA developed its own multi-source inventory that included some additional sources, using the same background modeling inventory that ODEC received from each state agency.

The first step in developing a multi-source inventory is to identify candidate sources, usually within 50 kilometers of the PSD source. Relevant EPA guidance recommends that if a background source causes a “significant concentration gradient” in the vicinity of the source being analyzed, then the source should be explicitly modeled. The term “significant concentration gradient” is not explicitly defined and is often left to professional judgment to determine. EPA guidance also recommends that for 1-hour NAAQS analyses for NO₂ and SO₂, a source area extending to 10 kilometers from the PSD source should be adequate in most cases. ODEC extended the source area to 20 km for the 1-hour NAAQS analyses for NO₂ and SO₂ and included all sources within this distance. PPRP and MDE-ARMA added a few additional sources to the NO₂ NAAQS modeling based on source proximity and judgments regarding the potential for creating a significant concentration gradient. The locations of all sources included in PPRP and MDE-ARMA’s analyses for the NO₂ 1-hour NAAQS are displayed in Figure 2.

For the CO and PM₁₀/PM_{2.5} inventories, ODEC included all sources within 10 kilometers of Wildcat Point and used a combination of an emissions/distance factor and professional judgment, including the possible clustering of smaller sources, for sources located beyond 10 kilometers. PPRP and MDE-ARMA agree with ODEC’s choices for PM₁₀ and PM_{2.5}, but did add some sources for the CO analysis based again on source proximity and judgments regarding the potential for creating a significant concentration gradient. The locations of all sources included in PPRP and MDE-ARMA’s analyses for the CO 1-hour NAAQS are displayed in Figure 3.

Treatment of NO₂ in the Model

ODEC used the Ozone Limiting Method (OLM) Tier 3 technique in AERMOD to model the conversion of NO to NO₂ in the atmosphere. After consultation with EPA Region III, PPRP and MDE-ARMA approved the use of the OLM approach as proposed by ODEC. A formal request to approve the use of OLM for ODEC has been submitted to EPA Region III; based on experience with the application of Tier 3 techniques in other CPCN cases, approval of this request is anticipated. OLM uses background ozone concentrations to simulate the formation of NO₂ from the emissions sources to NO_x in

the ambient air. ODEC chose background ozone data from the Fair Hill Natural Resources Management Area monitoring station located in Cecil County, Maryland and background NO₂ data from Lancaster monitoring station located in Lancaster County, PA. OLM also requires in-stack ratios of NO₂ to NO_x for each modeled NO_x source. ODEC used a value of 0.20 (i.e., assuming that the NO_x source is emitting 80% NO and 20% NO₂) for turbines; ODEC also used 0.1 and 0.05 for the dew point heater and auxiliary boiler, respectively. Though the value of 0.50 has been suggested by EPA as a default conservative value, ODEC has provided sufficient justification to use non-default in-stack ratios for these emission units. Actual ratios of NO₂ to NO_x are typically much less for combustion sources. ODEC also used the default internal ambient equilibrium value within OLM of 90% NO₂/NO_x. PPRP and MDE-ARMA conclude that ODEC has taken an overall conservative approach to the use of OLM, which will result in accurate yet still conservative modeled concentrations of NO₂ for both the 1-hr and annual averages.

Figure 2: Sources Included in NOx 1-hr Cumulative Modeling

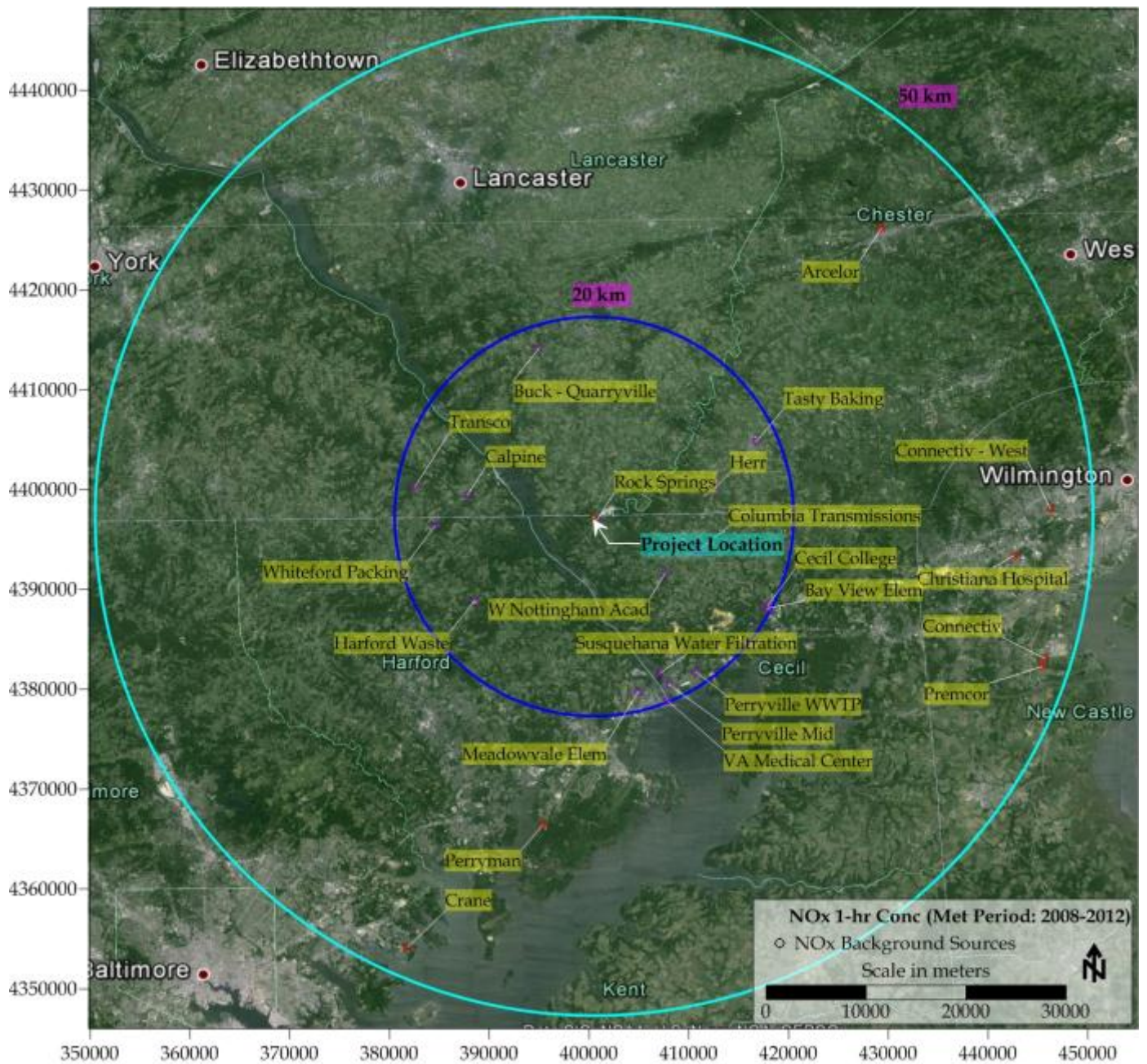
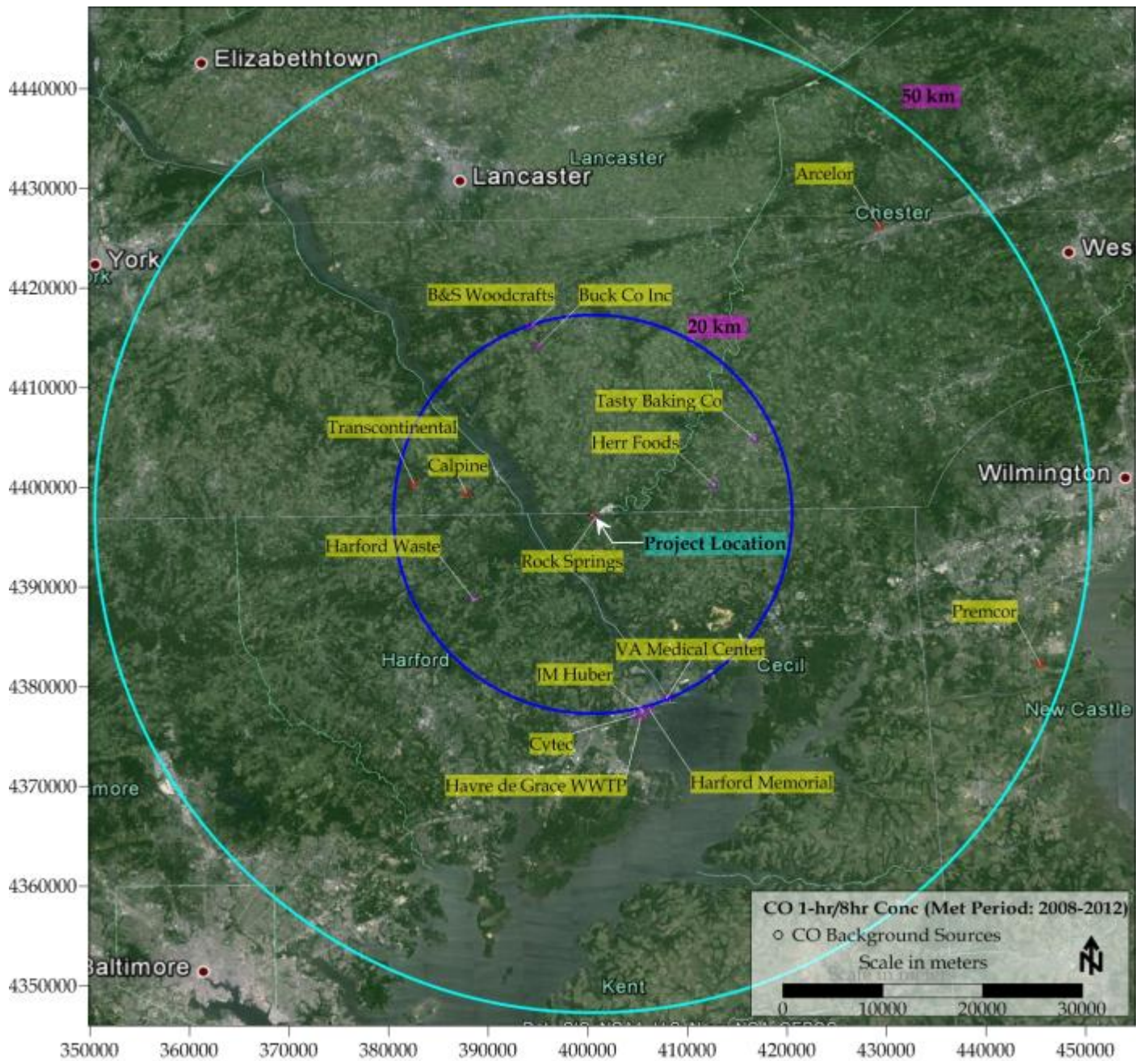


Figure 3: Sources Included in CO 1-hr/8-hr Cumulative Modeling



NAAQS and PSD Increment Modeling Results

To demonstrate compliance with the PSD increments and the NAAQS, an air quality modeling analysis was conducted using the same methodology as with the Project source-only analysis. For the increment and NAAQS analyses, model runs were conducted using five years of meteorology. The maximum concentration for each scenario was modeled, along with the appropriate multi-source inventories. PPRP and MDE-ARMA reviewed the background concentrations identified by ODEC and concluded that the background concentrations are appropriate for determining attainment of the NAAQS and PSD increments for inclusion in the NAAQS analysis. The three year period (2009-2011) was used to develop the background concentrations which were added to the cumulative modeling concentration.

ODEC results are presented in Table 3. PPRP and MDE-ARMA conducted verification NAAQS modeling runs (including some additional sources for NO₂ and CO); these results are shown in Table 4. These multi-source modeling results demonstrate compliance with the NAAQS and PSD increments for all pollutants and averaging times that exceed the level of their respective SILs except for NO₂ 1-hr averaging period. Although the modeled concentration for NO₂ 1-hr averaging period exceeded the NAAQS, modeled results provided by ODEC and verified by PPRP and MDE-ARMA demonstrated that Wildcat Point sources did not have a significant contribution to any NAAQS violation.

Table 3: ODEC Wildcat Point Project NAAQS Modeling Results Summary

Pollutant	Averaging Period	Maximum Predicted Concentration	Background Concentration	Total Concentration	NAAQS
		µg/m ³	µg/m ³	µg/m ³	µg/m ³
NO2	1-hour	389.9	80.2	470.1	188
CO	8-hour	1,934.80	1,333	3,267.80	10,000
	1-hour	4,633.70	1,600	6,233.70	40,000
PM10	24-hour	5.4	44	49.4	150
PM2.5	Annual	0.8	11.1	11.9	15
	24-hour	5.67	29.2	34.87	35
SO2	1-hour	27	48.5	75.5	195

Table 4: PPRP and MDE-ARMA Wildcat Point Project NAAQS Modeling Results Summary

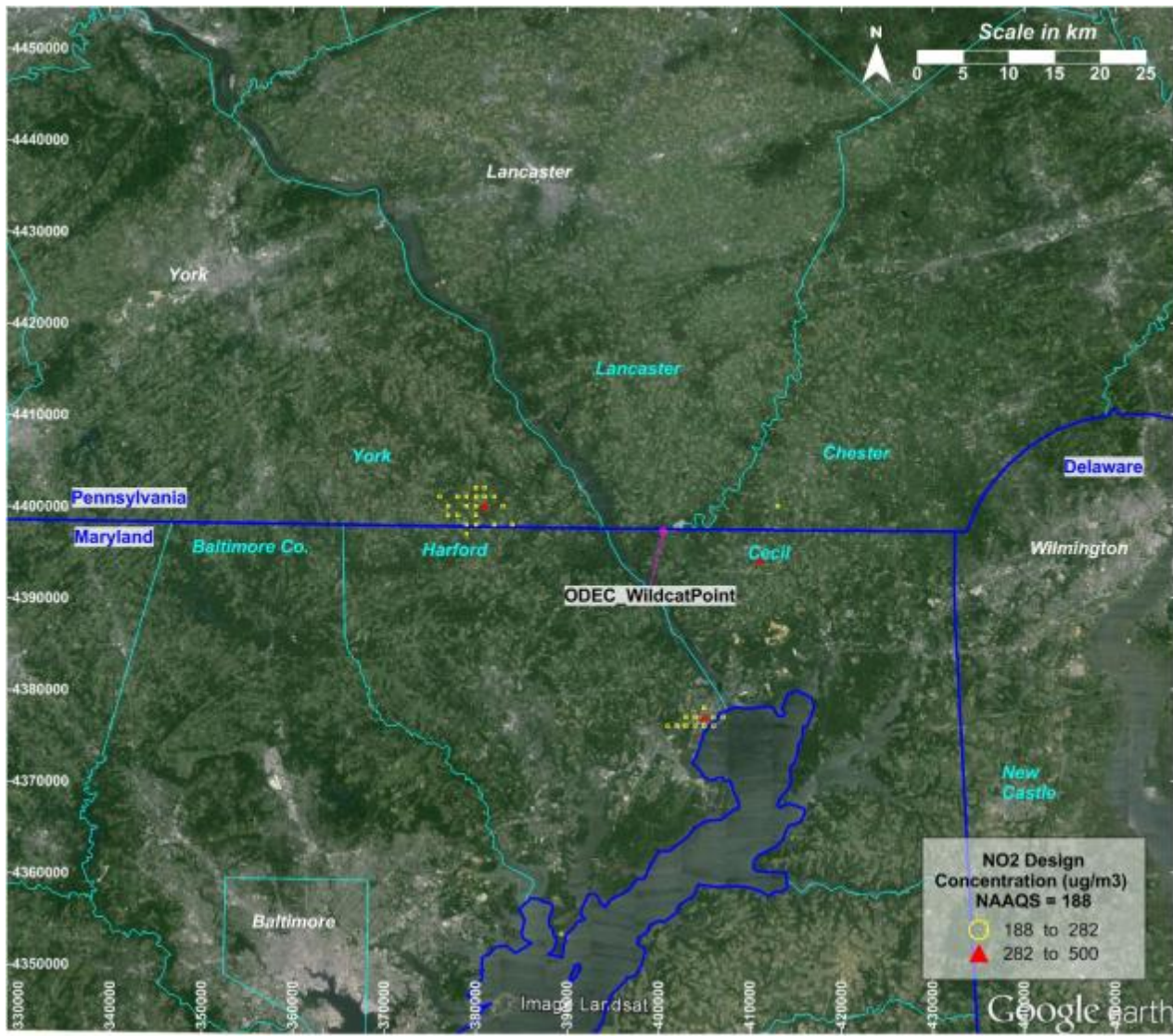
Pollutant	Averaging Period	Modeled Concentration	Background Concentration	Total Concentration	NAAQS	Basis of Modeled Concentration
		$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	
PM ₁₀	24-hour	5.82	44.0	49.82	150	Highest 24-hr modeled concentration overall over 5 years
PM _{2.5}	24-hour	5.67	29.2	34.87	35	Highest 24-hr modeled concentration averaged over 5 years
	Annual	0.79	11.1	11.89	15	Highest annual modeled concentration averaged over 5 years
NO ₂	1-hour	389.90	80.2	470.10	188	Highest 1-hr modeled concentration averaged over 5 years
CO	1-hour	5,751.47	1,600.00	7,351.47	40,000.00	Highest 1-hr modeled concentration overall over 5 years
	8-hour	2,380.35	1,333.00	3,713.35	10,000.00	Highest 8-hr modeled concentration overall over 5 years
SO ₂	1-hour	26.35	48.5	74.85	195	Highest 1-hr modeled concentration overall over 5 years

PPRP and MDE-ARMA conducted further modeling for receptors where predicted concentrations of NO₂ exceed that 1-hour NAAQS. For these runs, a “refined” approach to determining background was taken in accordance with EPA guidance, which involved creating a matrix of measured NO₂ concentrations by season and hour of day. The matrix was then used directly in AERMOD to account for background concentrations. The overall maximum value decreased from 470.1 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) to 437.9 $\mu\text{g}/\text{m}^3$. The locations of receptors with predicted concentrations greater than the NAAQS are shown in Figure 4. The conservative nature of the modeling analysis suggests that predicted concentrations at these receptors are over-stated. ODEC’s analysis, verified by PPRP and MDE-ARMA, demonstrated that the predicted NO₂ exceedances were caused entirely by background inventory sources and that the Wildcat Point project contribution to any NO₂ exceedance was substantially below the SIL.

In addition to the NAAQS analyses, ODEC is also required to demonstrate compliance with the PSD increments for PM_{2.5} and PM₁₀. The ODEC application is one of the first to be submitted following the PM_{2.5} major source baseline date of October 20, 2010 and the PM_{2.5} trigger date of October 20, 2011. ODEC is therefore the only source that needs to be considered in the PM_{2.5} increment analysis. ODEC conservatively included all of the PM₁₀ and PM_{2.5} NAAQS sources in the increment modeling, and demonstrated that maximum impacts were 20%, 23%, and 67% of the PM₁₀ 24-hour, PM_{2.5} annual, and PM_{2.5} 24-hour increment, respectively. PPRP and MDE-ARMA verified these results.

PPRP and MDE-ARMA have verified the analyses presented by ODEC, and conclude that the proposed project will not cause or contribute to any exceedance of applicable NAAQS or PSD increments.

Figure 4: Receptors with Predicted Concentrations >1-hour NAAQS for NO₂



Class I Analysis

The ODEC Wildcat Point Project is located within 300 km of four Federally protected Class I areas. These areas are listed below, with the distance from ODEC noted:

- Brigantine Wilderness Area – 148 km
- Shenandoah National Park – 196 km
- Dolly Sods Wilderness Area – 283 km
- Otter Creek Wilderness Area – 305 km

The federal land managers (FLMs) have adopted a threshold for new sources of air pollution to use to assist in the determination of whether an analysis of air quality related

values (AQRVs) such as deposition and visibility impacts should be required for Class I areas. This threshold is referred to as the Q/D ratio, where Q is the total emissions of NO_x, SO₂, PM, and Sulfuric Acid due to the Project in tons, and D is the distance to the Class I area of concern in km. A Q/D ratio of less than 10 generally indicates that a project is unlikely to adversely affect AQRVs in the Class I area. The highest Q/D ratio for Wildcat Point was 4.9.

Although an AQRV analysis is not required for the proposed Project, ODEC has completed a screening analysis to demonstrate that the proposed Project emissions will have a minimal impact in relation to Class I PSD increments by demonstrating impacts less than the Class I SILs for NO₂, PM₁₀ and PM_{2.5}. The screening approach made use of AERMOD and receptors placed at exactly 50 km from the ODEC Wildcat Point Project (50 km is the limit of AERMOD's capabilities per EPA guidance). The receptors were placed at locations along a circle defining a distance of 50 km from ODEC at directions that coincided with the actual direction of each Class I area. ODEC conducted this analysis using the meteorological data collected at Millville Municipal Airport, New Jersey, from year 2007 to 2012. However, due to the uncertainty of using met data from Millville Municipal Airport, PPRP and MDE-ARMA performed air quality modeling of NO_x, PM₁₀, and SO₂ emissions using the CALPUFF model to estimate concentration impacts in the above mentioned Class I areas.

PPRP and MDE-ARMA used the meteorological data prepared by the Visibility Improvement State and Tribal Association of the Southeast (VISTAS) for the years 2001-2003. These meteorological data were originally provided by VISTAS for use in visibility analyses as part of the Best Available Retrofit Technology (BART) exemption process. VISTAS used the most recent EPA-approved version of CALMET (Version 5.8) to conduct these simulations. VISTAS developed several different CALMET domains covering the southeastern US. PPRP and MDE-ARMA used the VISTAS domain 5 which covers all the above mentioned Class I areas for this analysis.

The maximum results of the CALPUFF analyses for NO₂, PM₁₀ and PM_{2.5} for receptors placed at the Class-I areas are provided in Table 5.

Table 5: Class-I Modeling Results

Pollutant	Averaging Period	EPA Proposed Sig. Levels	CALPUFF Model Results (µg/m ³)				CALPUFF Model Results (% of SIL)			
			Shenandoah	Dolly Sods	Otter Creek	Brigantine	Shenandoah	Dolly Sods	Otter	Brigantine
NO ₂	Annual	0.1	0.00032	0.00006	0.00004	0.00092	0.32%	0.06%	0.04%	0.92%
SO ₂	Annual	0.08	0.00014	0.00003	0.00002	0.00038	0.17%	0.04%	0.03%	0.47%
	24-hr	0.2	0.00411	0.00166	0.00122	0.00510	2.05%	0.83%	0.61%	2.55%
	3-hr	1	0.01957	0.00502	0.00407	0.02230	1.96%	0.50%	0.41%	2.23%
PM _{2.5}	Annual	0.06	0.00087	0.00022	0.00017	0.00231	1.46%	0.37%	0.29%	3.85%
	24-hr	0.07	0.02837	0.01189	0.00953	0.03679	40.53%	16.98%	13.61%	52.56%
PM ₁₀	Annual	0.16	0.00087	0.00022	0.00017	0.00231	0.55%	0.14%	0.11%	1.44%
	24-hr	0.32	0.02837	0.01189	0.00953	0.03679	8.87%	3.71%	2.98%	11.50%

The modeled concentrations demonstrate that the proposed Wildcat Point Project will have a minimal impact on the Class I increment consumption in all Class I areas within 300 km of the proposed project site.

TAPs Analysis

As a part of the CPCN application, ODEC did not conduct a review of Toxic Air Pollutants (TAPs) and perform a screening level analysis of TAPs. The only sources associated with the proposed project that may be subject to the Maryland TAP regulations are the cooling towers. As a part of response to Data Request (DR#2), ODEC performed a screening level TAPs analysis for the cooling tower and responded that the predicted impacts from the cooling tower are less than the applicable TAP thresholds of 0.5 lb/hr and 350 lb/yr.

However, based on the PPRP and MDE-ARMA's TAPs evaluation, the projected TAP emissions from the cooling tower are higher than the applicable emission rates in COMAR 26.11.16.02 for Cadmium and Arsenic. PPRP and MDE-ARMA performed modeling runs for toxic air pollutants (TAPs) using the latest version of AERMOD to demonstrate that TAPs impacts are less than applicable screening levels. Toxic pollutants including Cadmium and Arsenic that would be emitted by the cooling tower were modeled and results were compared to the thresholds listed in the COMAR 26.11.15 and .16. Table 6 presents the results of the modeling analyses, which shows that the predicted impacts from the cooling tower emissions are below the applicable standard for each modeled toxic. This table also presents the ratio of predicted maximum concentrations to the relevant screening level.

Table 6 Maximum Predicted Concentrations– Toxics

Pollutant	Emission Rate	Screening Levels	Modeled Maximum Conc	Ratio
	g/s	µg/m ³	µg/m ³	
Cadmium	7.06E-05	2.00E-02	9.80E-04	5 %
Arsenic	1.40E-04	1.00E-01	1.94E-03	2 %

Impacts of the Wildcat Point Project on the Pennsylvania PM_{2.5} Nonattainment Areas

In the CPCN application (Section 8.14), ODEC included a discussion of the potential impacts of the Project on PM_{2.5} nonattainment areas located in York and Lancaster Counties, Pennsylvania. In the CPCN application, ODEC indicated that the monitors within these Counties are located more than 40 kilometers from the project site. ODEC also indicated that recent trends in the measured PM_{2.5} concentrations show a significant decrease and that the monitors are located in urbanized areas. In a subsequent submittal, ODEC expanded on the information contained in the application and provided backup information to further support these points:

- Local sources close to the monitors in York and Lancaster counties are likely to contribute significantly to the monitored values; a distant source such as Wildcat Point would not be expected to contribute significantly;
- Analyses done by EPA to support the Cross State Air Pollution Rule (CSAPR) shows that concentrations at these monitors will continue to decrease, possibly leading to attainment of the NAAQS for PM_{2.5}.

PPRP and MDE-ARMA have conducted further analyses to evaluate the possible impacts of the Wildcat Point Project on PM_{2.5} nonattainment in York and Lancaster. These analyses included further investigation of measured concentrations at the York and Lancaster nonattainment monitors, analysis of emissions of PM_{2.5} from different source sectors, and the use of the CALPUFF model to estimate potential impacts at the monitors.

Table 7 displays trends in PM_{2.5} concentrations at the York and Lancaster monitors, for total PM_{2.5} and speciated values (sulfates and nitrates). Sulfates and nitrates refer to the particulate matter formed from emissions of SO₂ and NO_x, following conversion in the atmosphere and reaction with ammonia to form ammonium sulfate and ammonium nitrate. Sulfate concentrations tend to increase in the summer when the conversion from SO₂ to sulfate is highest due to higher temperatures, while nitrate concentrations tend to decrease in the summer due the volatility of nitrate species.

Table 7: PM2.5 Total and Speciated Concentration Trends: York and Lancaster, PA

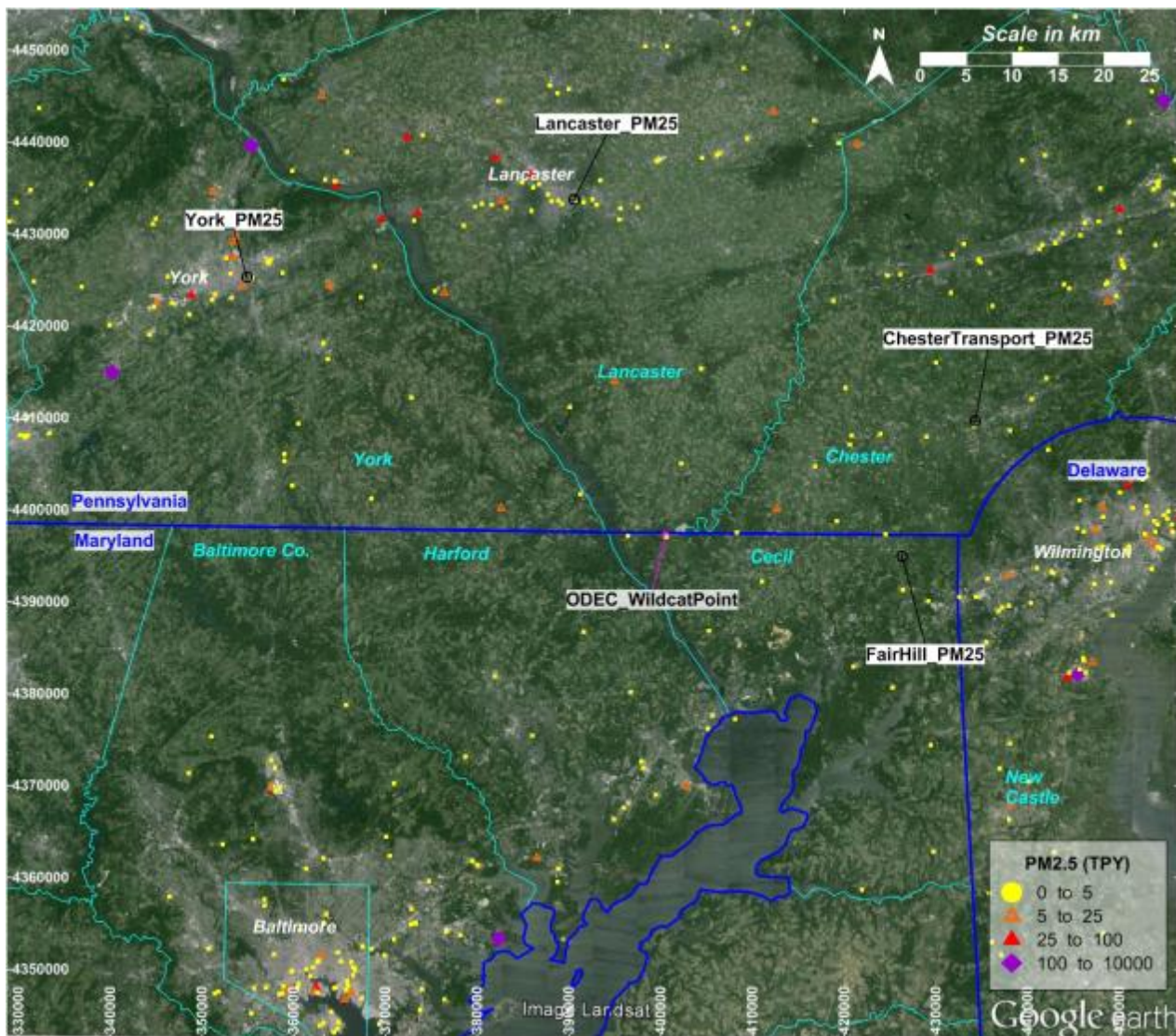
Monitor	Monitor i.d.	Year	Concentration (ug/m3)	Design Concentration (3-year Average)	Concentration (ug/m3)	3-year Average	Concentration (ug/m3)	3-year Average
			Total PM2.5		Sulfates		Nitrates	
Lancaster	42 071 0007	2008	16.15		4.04		2.87	
		2009	14.80		3.34		2.54	
		2010	15.28	15.41	2.62	3.34	2.34	2.58
		2011	14.35	14.81	2.38	2.78	1.89	2.26
		2012	12.73	14.12	2.15	2.38	2.38	2.20
		2013	10.58	12.56	2.20	2.24	2.59	2.28
York	42 133 0008	2008	14.82		3.82		2.06	
		2009	16.14		3.36		1.91	
		2010	16.09	15.68	2.64	3.27	1.84	1.94
		2011	14.40	15.54	2.38	2.80	1.52	1.76
		2012	8.91	13.13	2.21	2.41	1.98	1.78
		2013	7.29	10.20	2.18	2.26	2.08	1.86
Notes								
All concentrations are displayed in micrograms per cubic meter								
Values presented for 2013 include measured data through June								

The original nonattainment designations for these two counties were based on annual design values (annual concentrations, averaged over 3 years) compared to the 1997 annual NAAQS of 15 ug/m³. Although the most recent data indicate attainment of the 1997 NAAQS, the designation remains nonattainment for both counties. Final designations for the 2012 annual NAAQS of 12 ug/m³ are due at the end of 2014. While these designations are not known, it is evident that a significant decrease in annual concentrations has occurred over the past few years. It appears that at least some of this decrease is due to decreases in the contribution of sulfates – which, in turn, is associated with large decreases in SO₂ emissions over the same time period, including reductions in Maryland due to implementation of the Healthy air act. The decreasing trend in SO₂ emissions is likely to continue, and anticipated national initiatives (the eventual reinstatement or replacement of CSAPR) are likely to contribute to future decreases in NO_x emissions and thus nitrate contributions. If the nonattainment designation remains for the 2012 annual PM_{2.5} NAAQS, a state implementation plan (SIP) will have to be developed that demonstrates attainment. PPRP and MDE-ARMA note that design values for the 24-hour averaging period for these two monitors show compliance with the 2006 24-hour NAAQS of 35 ug/m³.

PPRP and MDE-ARMA extracted emissions information from the 2008 national emissions inventory (NEI) to help understand the spatial distribution of those emissions and the possible contributors to PM_{2.5} concentrations measured at the York and Lancaster monitors. Figure 5 displays the locations and relative magnitude of point sources of primary PM_{2.5} emissions extracted from the NEI, in relation to PM_{2.5} monitors and Wildcat Point.

The 2008 NEI contains emissions of primary PM_{2.5} over all source sectors. The total for York County is 8,460 tons/year; the total for Lancaster County is 3,840 tons/year. This is in contrast to the total primary PM_{2.5} emissions from Wildcat Point (the potential to emit) of 272 tons/year. A review of PM_{2.5} point source locations displayed in Figure 5, and consideration of the relative magnitudes of existing and Wildcat Point proposed PM_{2.5} emissions, supports the conclusion that local sources close to the monitors in York and Lancaster counties are likely to contribute significantly to the monitored values and that a distant source such as Wildcat Point would not be expected to contribute significantly. Additionally, the lower PM_{2.5} concentrations recorded at the Fairhill PM_{2.5} monitor – located in a rural setting in Cecil County – suggest that the rural parts of York and Lancaster counties likely experience lower PM_{2.5} concentrations than York and Lancaster.

Figure 5: Point Sources of PM2.5 – 2008 NEI



PPRP and MDE-ARMA conducted modeling with the CALPUFF model to further investigate possible impacts of emissions from Wildcat Point at the PM2.5 monitors in York and Lancaster. The distance from Wildcat Point to these two monitors is approximately 53 and 42 km to York and Lancaster, respectively. At these distances a non-steady state puff model such as CALPUFF can provide useful insights into potential impacts of primary and secondary species including sulfates and nitrates.

PPRP and MDE-ARMA conducted modeling with CALPUFF of the primary PM2.5, NO_x, and SO₂ emissions from Wildcat Point in a domain and on a receptor grid that extended from the facility to the monitors in York and Lancaster. The modeling was conducted using the same meteorology and model options as the Class I analysis described above. The CALPUFF modeling resulted in a predicted impact of primary PM2.5, annual average, of 0.007 and 0.004 ug/m³ at the York and Lancaster monitors. Predicted

impacts of secondary PM_{2.5} (sulfates and nitrates), annual average, were 0.0009 and 0.0006 ug/m³ at the York and Lancaster monitors. The spatial distributions of primary and secondary predicted PM_{2.5} concentrations are displayed in Figures 6 and 7.

Figure 6: Primary PM_{2.5} Concentrations (Annual Average) Predicted by CALPUFF

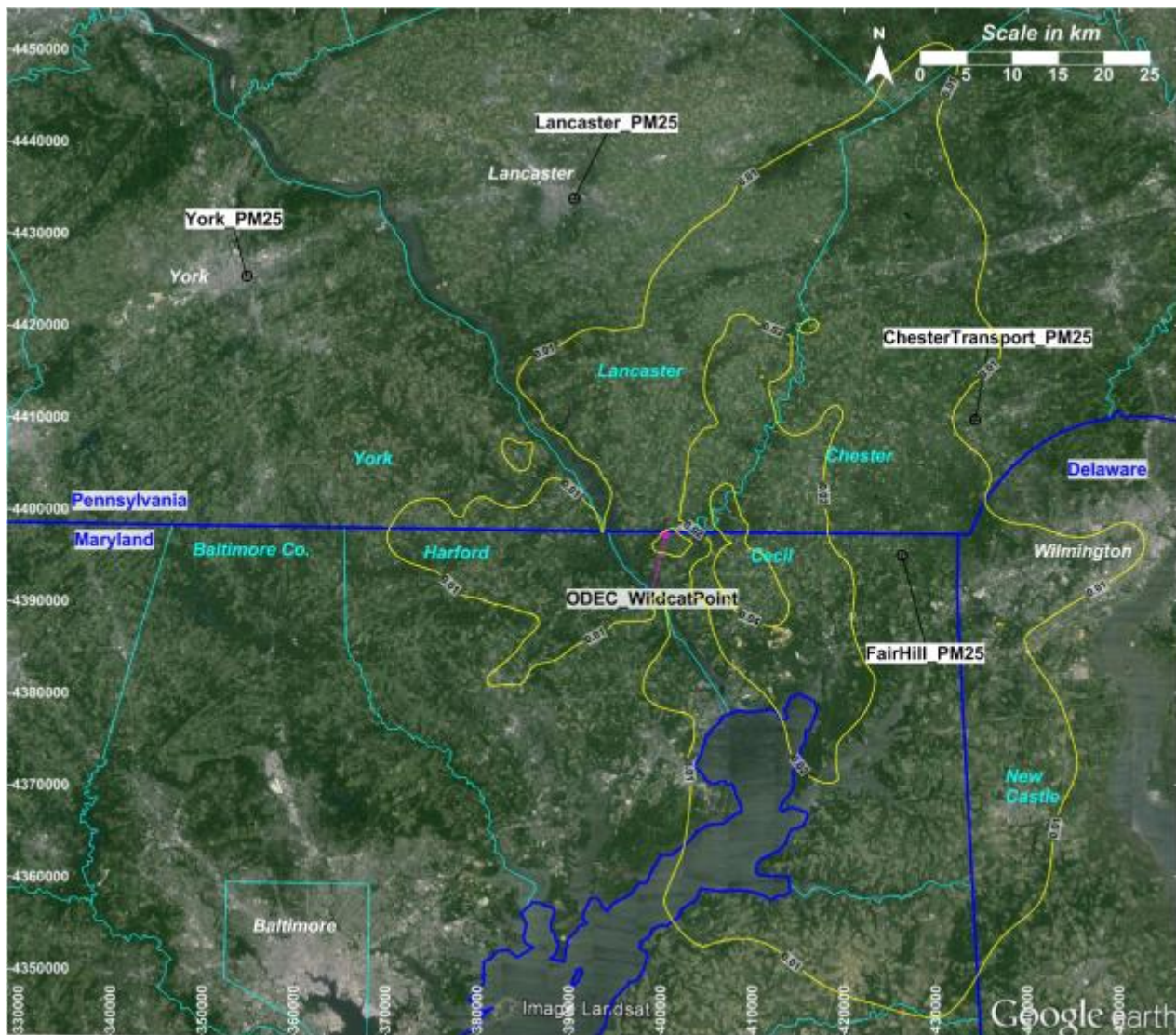
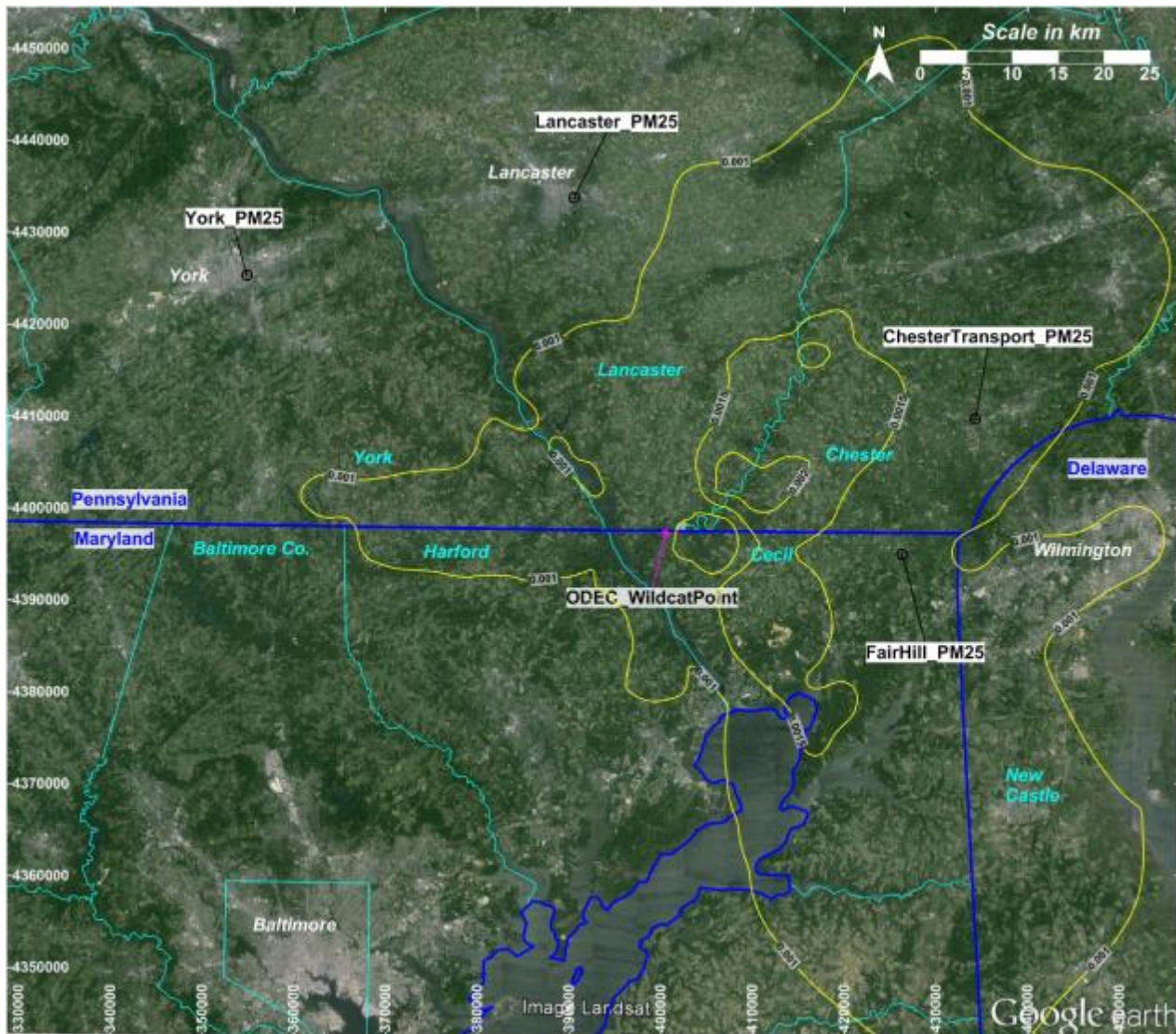


Figure 7: Secondary PM_{2.5} Concentrations (Annual Average) Predicted by CALPUFF



CALPUFF is a model that is recommended by EPA for analyses involving receptors greater than 50 km from a source. Although this application of CALPUFF involved distances less than 50 km, the results are not intended to replace concentration predictions in the near-field made by AERMOD. They are intended to provide insights into possible PM_{2.5} impacts near the nonattainment monitors in York and Lancaster.

Based on a review of the information provided by ODEC, supplemented by the additional analyses described above, PPRP and MDE-ARMA conclude that emissions from the Wildcat Point Project will have a negligible PM_{2.5} impact in York and Lancaster, and therefore will not contribute to the current nonattainment status in York and Lancaster. Furthermore, the Wildcat Point Project should not interfere with the process that may have to be undertaken to bring those locations into attainment of the new 2012 PM_{2.5} NAAQS.

Treatment of Secondary PM_{2.5} Precursors

In the CPCN application (Section 8.13), ODEC discussed the impacts of NO_x and SO₂ emissions from the project on the formation of secondary PM_{2.5}. ODEC discussed the modeling analysis performed for the CSAPR regulations, where the benefits of reduction in SO₂ and NO_x emissions for PM_{2.5} ambient concentration decrease were predicted. ODEC indicated that the ratio of NO_x or SO₂ to PM_{2.5} serves as a guide to the projected ambient impacts resulting from the emissions increases associated with the Project. ODEC's conclusion is that secondary PM_{2.5} due to NO_x and SO₂ emissions from the Wildcat Point Project will have a negligible impact on overall PM_{2.5} concentrations. PPRP and MDE-ARMA have reviewed the analysis presented by ODEC and agree with this conclusion, and furthermore conclude that the analysis is consistent with draft EPA guidance related to secondary formation that calls for a "qualitative" evaluation in most cases. The CALPUFF modeling conducted by PPRP and MDE-ARMA, discussed previously, further supports this conclusion.

Appendix E
Federal and State Air Regulatory
Review

COMAR Requirements									
		Applicability		Source Covered					
Citation	Applicable Requirement	Federally Enforceable	State-Only	Facility-wide	CTs/HRSGs	Aux Boiler	Dew Pt Heater	Generators	Cooling Tower
COMAR 26.11.01.01 - Definitions (General Administrative Provisions)	Varied	Y		Y	Y	Y	Y	Y	
COMAR 26.11.01.02 - Relationship of Provisions in this Subtitle	NA	NA	NA	NA	NA	NA	NA	NA	
COMAR 26.11.01.03 - Deliniation of Areas	The ODEC project is located in Area VI of the State, which means the eastern shore area of the State comprising the counties of Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, and Worcester.	Y							
COMAR 26.11.01.04A-C - Emissions Test Methods	Compliance with the emissions standards and limitations in this permit shall be determined by the test methods designated and described in these conditions or other test methods submitted to and approved by MDE-ARMA. Additionally MDE-ARMA may require ODEC to maintain records and make reports on these emissions to MDE- ARMA in a manner and on a schedule approved by MDE- ARMA	Y							
COMAR 26 11.01.05-1 - Emissions Statement	Requires ODEC to submit a certified, facility-wide emission statement to MDE-ARMA by April 1 of each year for the previous calendar year	Y							
COMAR 26.11.01.05-1 - Emissions Certification Report	Requires ODEC to certify annual emissions of regulated pollutants from the facility on a calendar year basis. The certification shall be on forms obtained from the Department and submitted to the Department not later than April 1 of the year following the year for which the certification is required; the individual making the certification shall certify that the information is accurate to the individual's best knowledge. The individual shall be familiar with each source and responsible for the accuracy of the emission information.		Y						
COMAR 26.11.01.06 - Circumvention	NA	NA	NA						
COMAR 26.11.01.07 A,B,E,F - Malfunctions and Other Temporary Increases of Emissions		Y							
COMAR 26.11.01.07C-D - Malfunctions and Other Temporary Increase of Emissions	Requires ODEC, in the case of any occurrence of excess emissions expected to last or actually lasting for 1 hour or more, to report the onset and the termination of the occurrence to MDE-ARMA by telephone. Telephone reports of excess emissions shall include the following information:	Y		Y	Y				
	(a) The identity of the installation and the person reporting;								
	(b) The nature or characteristics of the emissions (for example, hydrocarbons, fluorides);								
	(c) The time of occurrence of the onset of the excess emissions and the actual or expected duration of the occurrence; and								
	(d) The actual or probable cause of the excess emissions.								
	When requested by MDE-ARMA, ODEC shall submit a written report to MDE-ARMA within 10 days of receiving the request regarding excess emissions								
COMAR 26.11.01.08 - Determination of Ground Level Concentrations	ODEC shall demonstrate compliance with all applicable NAAQS.	Y		Y					
COMAR 26.11.02.19A - Fee Schedule	ODEC is required to pay annual Title V operating fees.	Y		Y					
COMAR 26.11.01.09 - Vapor Pressure of Gasoline	NA	N							

COMAR Requirements									
		Applicability		Source Covered					
Citation	Applicable Requirement	Federally Enforceable	State-Only	Facility-wide	CTs/HRSGs	Aux Boiler	Dew Pt Heater	Generators	Cooling Tower
COMAR 26.11.01.10 - Continuous Opacity Monitoring Requirements	Does not apply to gas-fired facilities	N							
COMAR 26.11.01.11 - Continuous Emission Monitoring Requirements	Before installing a CEM, ODEC should submit to MDE a plan containing the CEM design specifications, proposed location, and a description of a proposed alternative monitoring method. The location of the CEM, the amount and recording of measurements, and reporting requirements are specified by this rule.	Y			Y				
COMAR 26.11.02.02-21 Permits, Approvals, Registrations	NA								
COMAR 26.11.03.01 -Permits, Approval, and Registration: Title V Permits	B.(4) The owner or operator of a source that becomes subject to the requirement to obtain a Part 70 permit, as provided in Regulation .01 of this chapter, after the effective date of the Part 70 permit program, shall submit a complete application to the Department not later than 12 months after the date that the source commences operations or becomes subject to the requirements for a Part 70 permit, whichever is later. If an existing Part 70 permit prohibits construction or change in operation, the source shall obtain a permit revision before commencing operation. ODEC shall be required to obtain a new Title V permit within 12 months of commencing operation	Y		Y					
COMAR 26.11.04.01 - State Ambient Air Quality Standards	NA - Fluorides not emitted in this project	N							
COMAR 26.11.04.02 - Ambient Air Quality Standards, Definitions, Reference Conditions, and Methods of Measurement	ODEC shall comply with applicable NAAQS using dispersion modeling	Y		Y					
COMAR 26.11.05.01 - Definitions (Air Pollution Episode System)	NA - Not applicable to individual facilities	N		N					
COMAR 26.11.06.01 - Definitions (General Emission Standards, Prohibitions, and Restrictions)	B.(1) "Installation", for the purpose of Regulation .06 of this chapter, means an installation as defined in COMAR 26.11.01.01 that can operate independently and that causes VOC emissions to the atmosphere. If equipment at a premises does not operate independently but operates as part of a process line, the process line is considered to be the installation.	Y			Y	Y	Y	Y	
COMAR 26.11.06.02 A,B - Visible Emissions	NA	Y		Y					
COMAR 26.11.06.02C -Visible Emissions Standards	C.(1) In Areas I, II, V, and VI a person may not cause or permit the discharge of emissions from any installation or building, other than water in an uncombined form, which is greater than 20 percent opacity.	Y			Y	Y	Y	Y	Y
COMAR 26.11.06.03B(1) - Particulate Matter Emissions	B.(1)(a) Installations Constructed On or After January 17, 1972. A person may not cause or permit particulate matter to be discharged from any installation constructed on or after January 17, 1972 in excess of 0.05 gr/SCFD (115 kg/dscm).	Y			Y	Y	Y	Y	

COMAR Requirements									
		Applicability		Source Covered					
Citation	Applicable Requirement	Federally Enforceable	State-Only	Facility-wide	CTs/HRSGs	Aux Boiler	Dew Pt Heater	Generators	Cooling Tower
COMAR 26.11.06.03D - Particulate Matter From Materials Handling and Construction	Particulate Matter from Materials Handling and Construction. A person may not cause or permit any material to be handled, transported, or stored, or a building, its appurtenances, or a road to be used, constructed, altered, repaired, or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne. These reasonable precautions shall include, but not be limited to, the following when appropriate as determined by the control officer:	Y		Y					
COMAR 26.11.06.04 - Carbon Monoxide in Areas III and IV	NA - Only applicable in Areas III and IV	N							
COMAR 26.11.06.05 - Sulfur Compounds from Other than Fuel-Burning Equipment	B.(1) A person may not cause or permit the discharge into the atmosphere from installations other than fuel burning equipment of gases containing more than 500 ppm of sulfur dioxide. Installations constructed before January 17, 1992, are limited to not more than 2,000 ppm sulfur dioxide.	Y			Y	Y	Y	Y	
COMAR 26.11.06.06 - Volatile Organic Compounds	A.(1)(e) Installations subject to an emissions limitation which specifies the lowest achievable emission rate for VOC under COMAR 26.11.17.03B(2) B.(2)(c) Installations Constructed On or After November 15, 1992. Except as provided in §E of this regulation, a person may not cause or permit the discharge of VOC from any installation constructed on or after November 15, 1992 in excess of 20 pounds (9.07 kilograms) per day unless the discharge is reduced by 85 percent or more overall.	Y			Y	Y	Y	Y	
COMAR 26.11.06.07 - Control of Sources of Fluoride Emissions	NA - Not a fluoride emitting source	N							
COMAR 26.11.06.08 - Nuisance	Prohibits ODEC from operating or maintaining a source in such a manner that a nuisance or air pollution is created		Y	Y					
COMAR 26.11.06.09 - Odor	Prohibits ODEC from causing or permitting the discharge into the atmosphere of gases, vapors, or odors beyond the property line in such a manner that a nuisance or air pollution is created		Y	Y					
COMAR 26.11.06.10 - Refuse Burning Prohibited in Certain Installations	NA	N							
COMAR 26.11.06.12 - Control of NSPS Sources	Prohibits ODEC from constructing, modifying, or operating, or causing to be constructed, modified, or operated, a New Source Performance Standard (NSPS) source as defined in COMAR 26.11.01.01B(23), which results or will result in violation of the provisions of 40 CFR §60, as amended;	Y			Y	Y	Y	Y	
COMAR 26.11.06.14 - Control of PSD Sources	Prohibits ODEC from constructing, modifying, or operating, or causing to be constructed, modified, or operated, a Prevention of Significant Deterioration (PSD) source, as defined in COMAR 26.11.01.01B(37), which will result in violation of any provision of 40 CFR §52.21, as published in the 2009 edition, as amended by the "Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule" (75 FR 31514) and the "Deferral for CO2 Emissions from Bioenergy and Other Biogenic Sources under the Prevention of Significant Deterioration and Title V Programs" (76 FR 43490);	Y		Y					
COMAR 26.11.06.15 - Nitrogen Oxides from Nitric Acid Plants	NA	N							
COMAR 26.11.06.16 - Tables	NA	N							

COMAR Requirements									
		Applicability		Source Covered					
Citation	Applicable Requirement	Federally Enforceable	State-Only	Facility-wide	CTs/HRSGs	Aux Boiler	Dew Pt Heater	Generators	Cooling Tower
COMAR 26.11.07 - Open Fires	Prohibits ODEC from causing or permitting an open fire except as provided in .03 through .05 of this chapter	Y		Y					
COMAR 26.11.08 - Control of Incinerators	NA	N							
COMAR 26.11.09.02 - Applicability	Any source which is subject to the provision of this chapter is also subject to the provisions of any other chapter. However, when this chapter establishes an emission standard for a specific installation which differs from the general emission standard in COMAR 26.11.06.01--09, this chapter takes precedence	Y			Y	Y	Y	Y	
COMAR 26.11.09.03 - General Conditions for Fuel-Burning Equipment	Applicable	Y			Y	Y	Y	Y	
COMAR 26.11.09.04 - Prohibition of Certain New Fuel-Burning Equipment	NA - Only applicable to oil and coal facilities								
COMAR 26.11.09.05 - Visible Emissions	A.(1) Areas I, II, V, and VI. In Areas I, II, V, and VI, a person may not cause or permit the discharge of emissions from any fuel burning equipment, other than water in an uncombined form, which is greater than 20 percent opacity.	Y			Y	Y	Y	Y	
COMAR 26.11.09.06 - Control of Particulate Matter	No - only applicable to coal and oil facilities	N							
COMAR 26.11.09.07 - Control of Sulfur Oxides From Fuel Burning Equipment	A.(1)(a) The combustion of all solid fuels on a premises where the sum total maximum rated heat input of all fuel burning equipment located on the premises is 100 million BTU (106 gigajoules) per hour or greater may not result in a total emission of oxides of sulfur in excess of 3.5 pounds per million BTU (1.50 kilograms per gigajoule) actual heat input per hour A.(1)(c) Distillate fuel oils, 0.3 percent;	Y			Y	Y	Y	Y	
COMAR 26.11.09.08B(1)(c) - Fuel Burning Equipment with a Rated Heat Input of Less than 100 MMBTU/hr	The NOx emissions from the aux boiler, dew point heater, and emergency units subject to the applicable emission standards in COMAR 26.11.09.08B(1)(c)	Y				Y	Y	Y	
COMAR 26.11.09.08C(2)(c) - Fuel Burning Equipment with a Rated Heat Input of greater than 250 MMBTU/hr	The NOx emissions from the CT is subject to the applicable emission standards in COMAR 26.11.09.08C(2)(c)	Y			Y				
COMAR 26.11.09.08E(1-5)	ODEC shall meet the following requirements for operator training for the fuel burning equipment:	Y				Y	Y	Y	
	i. For purposes of this regulation, the equipment operator to be trained may be the person who maintains the equipment and makes the necessary adjustments for efficient operation.								
	The operator training course sponsored by the Department shall include an in-house training course that is approved by the Department								
	ODEC shall be required to do the following for as per COMAR 26.11.09.08E(1-5):								
	i. Submit to MDE-ARMA (for each installation) identification, information on the rated heat input capacity of the unit, and the type of fuel burned.								
	ii. Perform a combustion analysis at least once each year.								
	iii. Maintain the results of the combustion analysis for at least 2 years.								
	iv. Once every 3 years, require an operator to attend operator training programs on combustion optimization.								
	Prepare and maintain a record of training program attendance								

COMAR Requirements									
		Applicability		Source Covered					
Citation	Applicable Requirement	Federally Enforceable	State-Only	Facility-wide	CTs/HRSGs	Aux Boiler	Dew Pt Heater	Generators	Cooling Tower
COMAR 26.11.09.08G(2) - Control of NOx Emissions for Major Stationary Sources, Requirements for Fuel-Burning Equipment with a Capacity Factor of 15 Percent or Less, and Combustion Turbines with a Capacity Factor Greater than 15 Percent—	Requires that ODEC, as the owner/operator of a CT with a capacity factor greater than 15%, shall meet an hourly average NOx emission rate of not more than 42 parts per million (ppm) when burning gas (dry volume at 15% oxygen) or to meeting applicable PSD limits, whichever is more restrictive	Y			Y				
COMAR 26.11.09.08K - Quarterly emissions reporting for CEMS	When demonstration of compliance with the NOx emission standards in this regulation is based on CEM data, quarterly emission reports shall be submitted to the Department on or before the thirtieth day of the month following the end of each calendar quarter.	Y			Y				
COMAR 26.11.09.09 - Tables and Diagrams	NA	N							
COMAR 26.11.09.10 - Requirements to Burn Used Oil and Waste Combustible Fluid as Fuel	NA	N							
COMAR 26.11.09.11 - Control of Particulate Matter from Small Wood Boilers	NA	N							
COMAR 26.11.10 - Control of Iron and Steel Production Installations	NA	N							
COMAR 26.11.11 - Control of Petroleum Products Installations, Including Asphalt Paving and Asphalt Concrete Plants	NA	N							
COMAR 26.11.12 - Control of Batch Type Hot-Deip Galvanizing Installations	NA	N							
COMAR 26.11.13 - Control of Gasoline and VOC Storage and Handling	NA	N							
COMAR 26.11.14 - Control of Emissions from Kraft Pulp Mills	NA	N							
COMAR 26.11.15.01 - Definitions (Toxic Air Pollutants)	Applicable to NESHAP sources		Y						Y
COMAR 26.11.15.02 - Control of NESHAP and MACT Sources -	C. A person may not construct, reconstruct, or operate, or cause to be constructed, reconstructed, or operated, a MACT source which results, or will result, in violation of any provisions of 40 CFR Part 63.		Y						
COMAR 26.11.15.03 - Applicability and Exemptions	A.(1) Sources Subject to Permit Requirements. Except as provided in this regulation and in Regulation .06 of this chapter, any installation or source that discharges a Class I or Class II TAP into the ambient air is subject to the requirements of this chapter if the installation or source. B.(2) General Exemptions. The following installations or sources are exempt from the requirements of this chapter: B.(2)(a) Fuel-burning equipment as defined at COMAR 26.11.09.01, other than equipment burning refuse-derived fuel		Y						Y

COMAR Requirements									
		Applicability		Source Covered					
Citation	Applicable Requirement	Federally Enforceable	State-Only	Facility-wide	CTs/HRSGs	Aux Boiler	Dew Pt Heater	Generators	Cooling Tower
COMAR 26.11.16 - Procedures Related to Requirements for Toxic Air Pollutants	Applicability to 26.11.15 covers this requirement		Y						Y
COMAR 26.11.17.02 - Applicability	Applicable only to Ozone (Nox and VOC as precursors)	Y		Y					
COMAR 26.11.17.03B(3)(a), (3)(b)(1-7), (3)(D) - Requirements for Major New Sources and Modifications, General Conditions	Requires ODEC to meet the reasonable further progress requirements in §173(a)(1)(A) of the Clean Air Act by obtaining emission reductions (offsets) of the same pollutant from existing sources in the area of the proposed source, whether or not under the same ownership, at a minimum ratio of 1.3 to 1 for sources of NOx and VOCs in Cecil County, Maryland.	Y							
COMAR 26.11.17.04 - Creating Emission Reduction Credits (ERCs)	NA - New plant	N							
COMAR 26.11.17.05 - Information on Emission Reductions and Certification	NA	N							
COMAR 26.11.17.06 - Transferring Emission Reduction Credits	NA	N							
COMAR 26.11.17.07 - Plantwide Applicability Limit (PAL) - General	NA	N							
COMAR 26.11.17.08 - Plantwide Applicability Limit (PAL) - Permits	NA	N							
COMAR 26.11.17.09 - Plantwide Applicability Limit (PAL) - Monitoring, Record Keeping, and Reporting	NA	N							
COMAR 26.11.18 - Control of Agriculturally Related Installations	NA	N							
COMAR 26.11.19.16 - Control of VOC Equipment Leaks (VOC from Specific Processes)	NA	N							
COMAR 26.11.20 - Mobile Sources	NA	N							
COMAR 26.11.21 - Control of Asbestos	NA	N							
COMAR 26.11.22 - Vehicle Emissions Inspection	NA	N							
COMAR 26.11.23 - Asbestos Accreditation of Individuals, and Approval of Training Courses	NA	N							
COMAR 26.11.24 - Stage II Vapor Recovery at Gasoline Dispensing Facilities	NA	N							
COMAR 26.11.25 - Control of Glass Melting Furnaces	NA	N							
COMAR 26.11.26 - Conformity	NA	N							
COMAR 26.11.27.01 - Definitions (Emissions Limitations for Power Plants)	NA - Only to coal-fired power plants	N							
COMAR 26.11.28.01 - Definitions (Clean Air Interstate Rule Authority)	Applicable - CAIR SO2 Annual trading, NOx Annual Trading, and Nox O3 Season trading	Y			Y				

COMAR Requirements									
		Applicability		Source Covered					
Citation	Applicable Requirement	Federally Enforceable	State-Only	Facility-wide	CTs/HRSGs	Aux Boiler	Dew Pt Heater	Generators	Cooling Tower
COMAR 26.11.29 - NOx Reduction Requirements for Non-Electric Generating Units	NA - Electrical Generating Unit proposed	N							
COMAR 26.11.30 - Control of Portland Cement Manufacturing Plants - Pending	NA	N							
COMAR 26.11.31 - Quality Assurance Requirements for COMs	NA - No COMS required for gas-fired unitsd	N							
COMAR 26.11.32 - Control of Emissions of VOCs from Consumer Products	NA	N							
COMAR 26.11.33 - Architectural Coatings	NA	N							
COMAR 26.11.34 - Low Emission Vehicle Program	NA	N							
COMAR 26.11.35 - VOCs from Adhesives and Sealants	NA	N							
COMAR 26.11.36 - Distributed Generation	The emergency diesel generator (and not fire pump) shall meet all applicable Distributed Generation requirements, including, but not limited to, the following regulations:	Y						Y	
	i. ODEC shall not operate the emergency generator except for emergencies, testing, and maintenance purposes.								
	ii. ODEC shall not operate the emergency diesel generator engine for testing and engine maintenance purposes between 12:01 a.m. and 2:00 p.m. on any day on which MDE-ARMA forecasts that the air quality shall be a code orange, code red, or code purple unless the engine fails a test and engine maintenance and a re-test are necessary. [COMAR 26.11.36.03A(5)]								
COMAR 26.11.37 - Outer Continental Shelf Air Regulations	NA	N							
COMAR 26.09 -MD CO2 Budget Trading Program	Requires ODEC to participate and adhere to the requirements of COMAR 26.09. An initial CO2 Budget Permit will be issued in conjunction with the Part 70 permit.		Y		Y				

Federal Requirements

Citation	Applicable Requirement	Compliance Demonstration
(I) COMBUSTION TURBINES, HEAT RECOVERY STEAM GENERATORS (HRSGS) AND DUCT BURNERS		
General Requirements		
Lowest Achievable Emission Rate (LAER)		
	The emissions of nitrogen oxides (NOx) and volatile organic compounds (VOC) from the CTs/ HRSGs and duct burners shall be subject to the LAER requirements of COMAR 26.11.17.03(b)(2). ODEC shall comply with the following LAER emission limitations for each CT/HRSG, at all times except during periods of startup and shutdown, with the use of selective catalytic reduction (SCR) systems, low-NOx burners, and oxidation catalysts, as specified below:	ODEC shall operate the selective catalytic reduction (SCR) systems, low-NOx burners, and oxidation catalysts, at all times, except during periods of startup and shutdown.
		Initial Compliance Demonstration: Initial compliance with the NOx and VOC emission limits shall be demonstration using stack testing. Subsequent stack tests shall be conducted annually.
	NOx emissions shall be limited to 2.0 parts per million by volume (ppmv) corrected to 15% oxygen on a 3-hour block average basis, with and without duct burners; except during periods of startup and shutdown. VOC emissions shall be limited to 0.7 ppmv corrected to 15% oxygen on a 3-hour block average basis without duct burners and 1.6 ppmv corrected to 15% oxygen with duct burners on a 3-hour block average basis; except periods of startup and shutdown.	Continuous Compliance Demonstration: 1(a) To ensure continuous compliance with the VOC LAER for each CT/HRSG, ODEC shall utilize CO CEMS data as a surrogate for VOC emissions. ODEC shall develop a correlation between CO and VOC emissions from an initial stack test following EPA Reference Method 18, 25A or equivalent. Stack testing of the CT/HRSG is to be conducted annually after the initial test to verify the CO and VOC emission correlation, or establish a new one. (b) The facility shall submit a monitoring plan 60 days before performance of the stack tests. 2. NOx emissions shall be continuously monitored via CEMS [40 CFR §60.4340(a)(b)].
	NOx emissions shall be limited to the following during SU/SD events: 870 lb/event (cold startup), 610 lb/event (warm startup), 340 lb/event (hot startup), and 100 lb/event (shutdown)	NOX emissions during SU/SD periods shall be measured using the certified CEMS.
	NOx emissions from the project shall be limited to 231.7 tons per any rolling 12-month period, including periods of startup and shutdown.	Monthly NOX and VOC emissions shall be calculated based on fuel throughput (MMSCF) through the CTs/HRSGs and the emission factors established either using stack tests or CEMS, as applicable. Monthly emissions shall be used to calculate the 12-month rolling period emissions for comparison with the emission limits.
	VOC emissions from the project shall be limited to 340.4 tons per any rolling 12-month period, including periods of startup and shutdown.	
Best Available Control Technology (BACT)		

Federal Requirements

Citation	Applicable Requirement	Compliance Demonstration
	The emissions of NO _x , carbon monoxide (CO), particulate matter (PM, PM ₁₀ , and PM _{2.5}), VOC, SAM, and greenhouse gases (GHG) pollutants from the CTs/HRSGs and duct burners shall be subject to the BACT requirements of COMAR 26.11.02.09 and 40 CFR §52.21, as specified below:	Initial compliance with the NO _x , CO, VOC, PM, PM ₁₀ , PM _{2.5} , and SAM emission limits shall be demonstration using stack testing. Subsequent stack tests for NO _x , CO, VOC, PM, PM ₁₀ , and PM _{2.5} shall be conducted at least once annually. Subsequent stack test for SO ₂ and SAM shall be conducted once every five years.
	(b) CO Emissions Limit:	
	i. CO emissions shall be limited to 1.5 ppmv corrected to 15% oxygen on a 3-hour block average basis without duct burners and 2.0 ppmv corrected to 15% oxygen with duct burners on a 3-hour block average basis except periods of startup or shutdown.	
	ii. CO emissions from the project shall be limited to 510.6 tons per any rolling 12-month period, including periods of startup and shutdown.	Continuous Compliance Demonstration: CO emissions shall be continuously monitored via CEMS [COMAR 26.11.01.04B].
NA	(c) PM Emissions Limit (c) PM emissions from each CT/HRSG with duct burner shall each be limited to 22.8 lb/hr on a 3-hour block average basis and CTs without duct burner shall each be limited to 15.0 lb/hr on a 3-hour block average basis, except during periods of startup and shutdown.	Compliance with the PM emissions limitation shall be demonstrated based on stack tests as described above. Compliance testing for PM emissions from the combustion turbines shall be conducted according to EPA Method 5 or equivalent method approved by MDE.
NA	(d) PM₁₀ Emissions Limit (d) PM ₁₀ (filterable and condensable) emissions from each CT/HRSG with duct burners shall be limited to 38.0 lb/hr, based on three stack test runs and each CT/HRSG without duct burner shall be limited to 25.1 lb/hr, except during periods of startup and shutdown.	Compliance with the PM ₁₀ emissions limitation shall be demonstrated based on stack tests as described above. Compliance testing for PM ₁₀ shall be conducted according to EPA Method 201/201A and 202 or equivalent method approved by MDE.
	(e) PM_{2.5} Emissions Limit (d) PM _{2.5} (filterable and condensable) emissions from each CT/HRSG with duct burners shall be limited to 38.0 lb/hr, based on a three stack test runs and each CT/HRSG without duct burner shall be limited to 25.1 lb/hr, except during periods of startup and shutdown.	Compliance with the PM _{2.5} emissions limitation shall be demonstrated based on stack tests as described above. Compliance testing for PM _{2.5} shall be conducted according to EPA Method 201/201A and 202 or equivalent method approved by MDE.
	(f) SAM Emissions Limit (e) SAM emissions from each CT/HRSG with duct burners shall be limited to 12.5 lb/hr, on a 3-hour block average basis and each CT/HRSG without duct burner shall be limited to 9.7 lb/hr on a 3-hour block average basis, except during periods of startup and shutdown.	Compliance with the SAM emissions limitation shall be demonstrated based on stack tests as described above. Compliance testing for SAM shall be conducted according to EPA Method 8 or equivalent method approved by MDE.

Federal Requirements

Citation	Applicable Requirement	Compliance Demonstration
	(g) SO₂ Emissions Limit (e) SO₂ emissions from each CT/HRSG with duct burners shall be limited to 8.2 lb/hr, on a 3-hr block average basis and each CT/HRSG without duct burner shall be limited to 6.3 lb/hr, on 3-hr block average basis, except during periods of startup and shutdown.	Compliance with the SO₂ emissions limitation shall be demonstrated based on stack tests as described above. Compliance testing for SO₂ shall be conducted according to EPA Method 6C or equivalent method approved by MDE.
NA	(h) GHG Emissions Limit (e) GHG emissions from each CT/HRSG shall be limited to a carbon dioxide equivalent (CO₂e) of 946 lb/MWh (gross MW basis), on a 12-month rolling average basis. The GHG emissions from the project shall be limited to 3,489,206 tons per year (tpy) of CO₂e per any 12-month rolling period, including periods of startup and shutdown of the CTs.	CO₂ emissions from the CTs/HRSGs shall be continuously monitored via CO₂ CEMS [COMAR 26.11.01.04B], installed, calibrated and maintained in accordance with 40 CFR §75. Emissions of nitrous oxides (N₂O) and methane from the CTs and associated duct burners shall be calculated using the methodology described in 40 CFR Part 98, Subparts C and D. Using the fuel consumption measured as per Condition IV.20, and the global warming potentials (25 for CH₄ and 298 for N₂O), the CO₂e emissions for the CTs/HRSGs and duct burners shall be calculated on a monthly basis. Records of monthly CO₂e emissions calculations shall be used to determine compliance with the 12-month rolling CO₂e emission limit.
NA	Other Emissions Limits (j) ODEC shall limit emissions of ammonia resulting from unreacted ammonia (ammonia slip) emitted from the SCR to 5 parts per million by volume, dry basis (ppmvd), corrected to 15 percent oxygen. Compliance with the ammonia slip limit shall be determined based on a 3-hour block average basis.	Initial Compliance Initial testing for ammonia shall be conducted to demonstrate compliance with the ammonia slip emissions limitations. Compliance testing for ammonia shall be conducted using EPA Test Method CTM-27 or alternative test methods approved by ARMA. Continuous Compliance ODEC shall demonstrate continuous compliance using performance stack test at least once every five years.

Federal Requirements

Citation	Applicable Requirement	Compliance Demonstration
NA		Testing Requirements: 1. At least 30 days prior to conducting any compliance stack test, ODEC shall submit a test protocol to ARMA for review and approval. Compliance stack testing shall be conducted in accordance with ARMA Technical Memorandum (TM) 91-01, "Test Methods and Equipment Specifications for Stationary Sources" (January 1991), as amended through Supplement 3 (October 1, 1997), 40 CFR §51, 40 CFR §60, or subsequent test protocols approved by ARMA. 2. The initial stack test shall be conducted within 180 days of commencement of operation of each CT. The stack testing shall be conducted as per the appropriate EPA and MDE-approved stack testing procedures. 3. Test ports shall be located in accordance with TM 91-01 (January 1991), or subsequent or alternative measures approved by ARMA. 4. ODEC shall maintain records of stack tests onsite for at least five years.
NA		Notification Requirements: ODEC must submit a notification letter to MDE within 30 days after commencing construction. The letter must contain the date of original construction or reconstruction, anticipated startup, the design heat-input capacity of the boiler, and the annual capacity. ODEC must submit notification within 15 days of actual startup.
Standards for Performance for New Stationary Combustion Turbines (NSPS)		
NSPS Subpart KKKK		
NA	ODEC shall be subject to the following emissions limits for the CTs and duct burners:	
	(a) Standard for NO _x (40 CFR §60.4320 & Table 1)—NO _x emissions from the CTs shall not exceed 15 parts per million (ppm) at 15% oxygen or 0.43 pounds per megawatt-hour (lb/MWh) (54 nanograms per joule, ng/J) of useful output	Continuous compliance based on: 1. Annual stack test. Reduce frequency of annual stack test to once every 2 years, if the results of the performance test is less than 75% of the limit. 2. Alternatively, ODEC shall demonstrate compliance with the NO_x emission standard using NO_x CEMS. ODEC shall install, calibrate, maintain, and operate a continuous NO_x emissions monitoring system as described in 40 CFR §60, Appendix B and the Quality Assurance Procedures under 40 CFR §60, Appendix F, 40 CFR §60.4335(b) and §60.4345 [(40 CFR §60.4340(a)-(b))].
	(b) Standard for NO _x from the duct burner (40 CFR §60.4320)—NO _x emissions from the HRSGs shall not exceed 54 ppm at 15% oxygen or 0.86 pounds per lb/MWh (110 ng/J) of useful output.	ODEC shall follow the calculation procedures set forth in 40 CFR §60.4350 for purposes of identifying excess emissions [(40 CFR §60.4350)]

Federal Requirements

Citation	Applicable Requirement	Compliance Demonstration
NA	(c) Standard for SO ₂ (40 CFR §60.4330)—SO ₂ emissions from the combustion turbines shall not exceed 110 ng/J (0.90 lb/MWh) gross output. Alternatively, ODEC shall not burn any fuel in the combustion turbine which contains total potential sulfur emissions in excess of 0.060 lb SO ₂ /MMBTU (26 ng SO ₂ /J) heat input.	Compliance with the SO₂ emission standard shall be demonstrated by either of the following: i. The fuel quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the fuel, specifying that the maximum total sulfur content for natural gas is 20 grains of sulfur or less per 100 standard cubic feet, has potential sulfur emissions of less than 26 ng SO₂/J (0.060 lb SO₂/MMBTU) heat input. ii. Representative fuel sampling data which show that the sulfur content of the fuel does not exceed 26 ng SO₂/J (0.060 lb SO₂/MMBTU) heat input. At a minimum, the amount of fuel sampling data specified in Section 2.3.1.4 or 2.3.2.4 of Appendix D to 40 CFR §75 is required.
		ODEC may elect not to monitor the total sulfur content of the fuel combusted in the turbine, if the fuel is demonstrated not to exceed potential sulfur emissions of 26 ng SO ₂ /J (0.060 lb SO ₂ /MMBTU) heat input using one of the methods given in 40 CFR §60.4365. If ODEC elects to comply with the minimum fuel sulfur content limit under 40 CFR§ 60.4330, ODEC must monitor the total sulfur content of the CT's fuel using the methods described in 40 CFR §60.4415 at a frequency described in 40 CFR §60.4370. Alternatively, if the total sulfur content of the gaseous fuel during the most recent performance test was less than half the applicable limit, ASTM D4084-82, 94, 05, D4810-88 (1999), D5504-01, or D6228-98 (2003), or Gas Processors Association Standard 2377-86, may be used to assess compliance with the applicable fuel sulfur limit [40 CFR §60.4360].
		ODEC shall follow the calculation procedures set forth in 40 CFR §60.4350 for purposes of identifying excess emissions [(40 CFR §60.4350)]
NESHAP 40 CFR Part 63		
Subpart UUUUU	Not applicable to gas-fired facilities	
CAIR	A. Obtaining NO_x Allowances. A.(1) The owner or operator of a new affected trading unit may request allowances from the set aside pool by March 15 of the year following the year the unit began commercial operation and by March 15 for each year thereafter until the control period for which the unit is first allocated allowances under 40 CFR §§96.142(b) and 96.342(b).	
26.11.28.04		

Federal Requirements

Citation	Applicable Requirement	Compliance Demonstration
Acid Rain Program		
	The CTs and HRSGs and associated duct burners shall be subject to the applicable requirements of Acid Rain Program under 40 CFR Part 72.6(a)(3)(i), and are subject to the applicable requirements under 40 CFR part 72, including but not limited to,	ODEC shall maintain a copy of the Acid Rain Program permit application.
	Subpart A – 72.30(b)(2)(ii) requires ODEC to submit an application for an Acid Rain Permit for the CT/HRSG units at least 24 months prior to the commencement of operation of the units;	
	Subpart A - 72.9(b)(1) requires ODEC, to the extent applicable, to comply with monitoring requirements in 40 CFR §75;	
	Subpart A – 72.9(c) requires ODEC to hold allowances in the unit's compliance subaccount not less than the total annual emissions of SO ₂ for the previous year and comply with applicable Acid Rain limits for SO ₂ ;	
	Subpart A- 72.9(d) requires ODEC to comply with applicable Acid Rain limits for NO ₂ ;	
	Subpart A - 72.9(e) requires ODEC to submit a proposed offset plan if emissions allowances are exceeded; and	
	Subpart A - 72.9(f) requires ODEC, unless otherwise provided, to retain required documents for a period of 5 years from the date that the document was created.	
	Subpart I – 72.90 requires ODEC to submit an annual compliance certification for the CTs/HRSGs within 60 days after the end of the calendar year.	
(II) Natural Gas-Fired Auxiliary Boiler		
Lowest Achievable Emission Rate (LAER)		
NA	Emissions from the auxiliary boiler shall not exceed the following emission limits to meet LAER:	Compliance shall be demonstrated based vendor provided performance guarantees.
	i. NO _x emissions shall not exceed 0.01 lb/MMBTU on a 3-hour block average basis.	ODEC shall submit the results of the stack test to the Department within 45 days after completion of the test.
	ii. VOC emissions shall not exceed 0.0033 lb/MMBTU on a 3-hour block average basis	
Best Available Control Technology (BACT)		
	i. Compliance with the LAER emissions limits for NO _x shall ensure compliance with BACT limits for NO _x .	
	ii. Emissions of CO shall not exceed 0.033 lbs/MMBTU on a 3-hour block average basis.	Compliance with the CO emission limits shall be demonstrated based on manufacturer provided specification data.
	iii. Emissions of PM, PM ₁₀ , and PM _{2.5} shall each not exceed 0.0075 lbs/MMBTU on a 3-hour block average basis.	Compliance with the PM and PM ₁₀ emission limits shall be demonstrated based on manufacturer provided specification data.
	iv. Emissions of SO ₂ shall be limited to 0.0006 lb/MMBtu on a 3-hour block average basis.	Compliance with the SO ₂ emission limits shall be demonstrated based on manufacturer provided specification data.

Federal Requirements

Citation	Applicable Requirement	Compliance Demonstration
Operational Limits		
Standards for Performance of Industrial, Commercial, Institutional Steam Generating Units		
40 CFR Part 60 Subpart Dc	ODEC shall record and maintain records of the amount of natural gas combusted during each calendar month. Records shall be maintained onsite for at least two years following the date of record (60.48c(g)(1) through (g)(3)).	NA
	Notification	
	ODEC must submit a notification letter to MDE within 30 days after commencing construction. The letter must contain the date of original construction or reconstruction, anticipated startup, the design heat-input capacity of the boiler, and the annual capacity. ODEC must submit notification within 15 days of actual startup. [§60.48c(a)]	NA
NESHAP for ICI Boilers		
40 CFR Part 63 Subpart JJJJJJ	The Wildcat Point facility is an area source of MACT and therefore, exempt from the requirements of this regulation.	
(III) Dew Point Heater		
Lowest Achievable Emission Rate (LAER)		
NA	Emissions from the dew point heater shall not exceed the following emission limits to meet LAER:	Compliance shall be demonstrated based on vendor provided performance guarantees.
	i. NO _x emissions shall not exceed 0.049 lb/MMBTU on a 3-hour block average basis.	ODEC shall submit the results of the stack test to the Department within 45 days after completion of the test.
	ii. VOC emissions shall not exceed 0.005 lb/MMBTU on a 3-hour block average basis	
Best Available Control Technology (BACT)		
	i. Compliance with the LAER emissions limits for NO _x shall ensure compliance with BACT limits for NO _x .	
	ii. Emissions of CO shall not exceed 0.036 lbs/MMBTU on a 3-hour block average basis.	Compliance with the CO emission limits shall be demonstrated based on manufacturer provided specification data.
	iii. Emissions of PM, PM10, and PM2.5 shall each not exceed 0.0075 lbs/MMBTU on a 3-hour block average basis.	Compliance with the PM and PM10 emission limits shall be demonstrated based on manufacturer provided specification data.
	iv. Emissions of SO ₂ shall be limited to 0.0006 lb/MMBTU on a 3-hour block average basis.	Compliance with the SO ₂ emission limits shall be demonstrated based on manufacturer provided specification data.
	v. Emissions of SAM shall be limited to 0.0004 lb/hr on a 3-hr block average basis.	Compliance with the SO ₂ emission limits shall be demonstrated based on manufacturer provided specification data.
Operational Limits		

Federal Requirements

Citation	Applicable Requirement	Compliance Demonstration
Standards for Performance of Industrial, Commercial, Institutional Steam Generating Units		
40 CFR Part 60 Subpart Dc	Not applicable as the dew point heater is not a steam generating unit	
		NA
NESHAP for ICI Boilers		
40 CFR Part 63 Subpart JJJJJJ	The Wildcat Point facility is an area source of MACT and therefore, exempt from the requirements of this regulation.	
(IV) Diesel-Fired Emergency Generators		
40 CFR Part 63 Subpart ZZZZ	ODEC is subject to the National Emission Standards for Hazardous Air Pollutants For Stationary Reciprocating Combustion Engines ("RICE MACT") and the associated fuel, monitoring, compliance, testing, notification, reporting, and recordkeeping requirements [40 CFR §63, Subpart ZZZZ]. Compliance with the requirements of RICE MACT shall be ensured by complying with applicable requirements in New Source Performance Standards for RICE engines, 40 CFR Part 60 Subpart IIII.	NA
40 CFR Part 60 Subpart IIII	The emergency diesel generators and firewater pump engines shall each be designed to meet applicable requirements of 40 CFR §60 Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (40 CFR §60.4200, <i>et seq.</i>) and related applicable requirements of 40 CFR §60 Subpart A – General Provisions (40 CFR §60.1, <i>et seq.</i>), including, but not limited to the following:	Initial and Continuous Compliance Demonstration 1. Compliance with the emissions rate limitations shall be demonstrated by maintaining a vendor guarantee onsite at all times. 2. ODEC shall monitor the hours of operation on the emergency generator in
	Each emergency diesel generators shall be designed to meet applicable requirements of 40 CFR §60 Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (40 CFR §60.4200, <i>et seq.</i>). Emission limits as listed below shall be achieved through the exclusive use of ultra-low sulfur diesel fuel and a restriction on hours of operation of 500 hours in any consecutive 12-month period:	
	i. Combined NO _x and non-methane hydrocarbons (NMHC) emissions shall not exceed 4.8 grams per horsepower-hour (g/hp-hr).	
	ii. CO emissions shall not exceed 3.5 g/hp-hr.	
	iii. PM/PM10 emissions shall not exceed 0.15 g/hp-hr.	

Federal Requirements

Citation	Applicable Requirement	Compliance Demonstration
	The nominal 477 hp firewater pump engine shall meet the applicable requirements of 40 CFR §60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (40 CFR §60.4200, <i>et seq.</i>). These emission limits as listed below shall be achieved through the exclusive use of ultra-low sulfur diesel fuel and a restriction on hours of operation of 100 hours each in any consecutive 12-month period:	2. ODEC shall monitor the hours of operation on the emergency generator in any 12-month period.
	Fire water pump i. Combined NO _x and NMHC emissions shall not exceed 3.0 g/bhp-hr ii. CO emissions shall not exceed 2.6 g/bhp-hr iii. PM/PM10 emissions shall not exceed 0.15 g/bhp-hr iv. VOC emissions shall not exceed 1.12 g/bhp-hr	
	2250 kW Emergency Generator i. Combined NO _x and NMHC emissions shall not exceed 4.8 g/bhp-hr ii. CO emissions shall not exceed 2.6 g/bhp-hr iii. PM/PM10 emissions shall not exceed 0.15 g/bhp-hr iv. VOC emissions shall not exceed 0.29 g/bhp-hr	
	Best Available Control Technology (BACT)	
	The emergency diesel generator shall be designed to operate as per manufacturer's specifications. Compliance with the NSPS emission limitations shall ensure compliance with the BACT emissions limitations	NA
	Lowest Achievable Emission Rate (LAER)	
NA	Compliance with the emission limitation for NO _x as specified shall ensure compliance with the LAER requirements for both the emergency generators and the fire water pump engine.	NA
NA	Compliance with the combined NO _x and NMHC emissions limits for emergency generators and the firewater pump shall ensure compliance with the VOC LAER requirements for these units.	NA
	Operational Restrictions	
	ODEC shall purchase an engine certified to the emission standards in §60.4204(b), or §60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's emission-related specifications [40 CFR 60.4211(c)].	
	ODEC must operate and maintain the stationary CI ICE according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer, over the entire life of the engine. [40 CFR 60.4206].	

Federal Requirements

Citation	Applicable Requirement	Compliance Demonstration
	Emergency generators may be operated for the purpose of maintenance checks and readiness testing limited to 100 hours per year, provided that those tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. [40 CFR 60.4211(e)].	ODEC shall monitor the hours of operation on the diesel-fired generators using a non-resettable meter. Records of the hours of operation and the reasons for operation of the engine shall be maintained onsite
	There are no restrictions on hours of operation on the use of emergency stationary RICE in emergency situations.	
	ODEC may operate the emergency generator for the following non-emergency activities provided the engine is limited to 100 hours of non-emergency operation annually:	
	a. Conduct maintenance check and readiness testing,	
	b. Operate for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §60.17), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3, and/or	
	c. Operate for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.	
	Up to 50 of the allowable 100 hours may consist of peak shaving or nonemergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity ONLY if the following conditions are met:	
	a. The engine is dispatched by the local balancing authority or local transmission and distribution system operator	
	b. The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.	
	c. The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.	
	d. The power is provided only to the facility itself or to support the local transmission and distribution system.	
	e. The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.	

Federal Requirements

Citation	Applicable Requirement	Compliance Demonstration
	ODEC must install a non-resettable hour meter prior to startup of the engine. [40 CFR 60.4209(a)].	NA
(V) Cooling Tower		
Best Available Control Technology (BACT)		
	The mechanical draft cooling tower shall be designed with high efficiency drift eliminators to achieve a drift loss not to exceed 0.0005% of recirculating water flow. ODEC shall operate the drift eliminator as per manufacturer's specification and develop a maintenance plan to ensure that the vendor guaranteed drift efficiency is achieved at all times.	ODEC shall maintain the following records onsite: a. Vendor guarantee on the drift eliminators associated with the cooling tower. b. Any maintenance performed on the cooling tower.
(VI) Circuit Breakers		
Best Available Control Technology (BACT)		
NA	ODEC shall monitor the SF6 emissions annually in accordance with the requirements of the Mandatory Greenhouse Gas Reporting rules for Electrical Transmission and Distribution Equipment Us (40 CFR Part 98 Subpart DD). The annual SF6 emissions shall be calculated according to the mass balance approach in Equation DD-1 of Subpart DD.	ODEC shall install and operate the circuit breakers as per manufacturer's specification.
		ODEC shall develop and implement a leak detection and maintenance program to minimize the leakage of SF6 from the circuit breakers.
(VII) Fugitive Sources		
NA	Fugitive emission sources at the ODEC facility include natural gas pipeline, valves, pumps, and flanges. The use of audio, visual, and olfactory (AVO) leak detection program is recommended as BACT for CH4 emissions from the fugitive components at the facility.	NA

Appendix F
PPRP Summary of Construction
Plan Modifications

ODEC Wildcat Point, PSC Case No. 9327 – Change in Project Property and Boundaries for Construction Support Activities

Introduction

In April 2013, Old Dominion Electric Cooperative (ODEC) received a Certification of Public Convenience and Necessity (CPCN) in Case No. 9327 before the Maryland Public Service Commission (PSC). The CPCN granted conditional approval for ODEC to construct a 1000 MW natural gas-fired combined cycled power plant in Cecil County, Maryland. The Maryland Department of Natural Resources (DNR) Power Plant Research Program (PPRP) has been in discussions with ODEC regarding construction plans for the facility. As the company's plans have progressed, they have acquired additional properties adjacent to the Wildcat Point site and are seeking to include those properties as part of the certificated power plant project, subject to the CPCN granted in Case No. 9327. The company's filing with the PSC dated October 29, 2014, requests Commission approval of this approach.

The purpose of this memo is to summarize the construction plan adjustments that ODEC is proposing and to describe PPRP's review of those changes. Based on our review, and subject to the existing CPCN conditions applicable to the Wildcat Point construction activities, PPRP believes that the adjustment to the construction plans does not present any adverse impacts to environmental or socioeconomic resources.

Proposed Adjustments

The Wildcat Point project is located on the same site as the existing Rock Springs generating facility, which ODEC owns jointly with Essential Power LLC. The attached figure shows the Rock Springs/Wildcat Point site boundaries (labeled "ODEC PROPERTY") as well as the delineation of the two additional parcels, the Moore and Justice properties.

In discussions between ODEC and PPRP, the company stated that its initial purpose for adding these properties was to provide additional buffer distance to reduce construction impacts on receptor locations. The company now plans to utilize the Moore parcel to store topsoil that is removed during construction grading activities. Its filing with the Commission on October 29, 2014, also requests permission to use parts of the Moore property for temporary construction purposes, for example, the storage of construction materials or equipment.

Condition D-4 of the Wildcat Point CPCN requires ODEC to plant two acres of trees to mitigate for tree loss as a result of construction. ODEC proposes to also use the Moore property for the required tree planting.

There are no construction activities planned for the Justice parcel.

Site Description Summaries

Moore parcel. This property consists of 8.8 acres immediately adjacent to the west of the existing Rock Springs/Wildcat Point site. There is an occupied residence on the southern portion of the property. ODEC reports that its purchase agreement allows the residents to remain in the house through

December 2015. To the north of the residence is a large mowed field, where the construction-related activities will take place. ODEC plans to plant a minimum of two acres of trees in this area (to comply with CPCN Condition D-4). The company proposes to use the remaining space to store topsoil removed from the active construction areas during site grading, and for temporary storage of other construction materials and equipment. ODEC will construct a new roadway to the east of the Moore residence to provide access for trucks and equipment. This construction will require removal of a small portion of forest (estimated to be less than a half-acre). Even with removal of these trees, the total tree loss resulting from the Wildcat Point construction project will not exceed the two acres of mitigation required by CPCN Condition D-4. The access road construction will also entail removal of an abandoned outbuilding to the east of the Moore residence. Based on previous reviews done during the CPCN application review, the structure has no historic significance.

Justice parcel. This is a completely wooded property of 12.6 acres adjacent to the Moore property to the west. There is an unoccupied trailer in the interior of the parcel. ODEC does not plan to conduct any construction-related activities on this property.

PPRP Review

PPRP visited the Wildcat Point site and reviewed both properties, with particular focus on the Moore parcel. We also reviewed the following documents prepared by Burns & McDonnell on behalf of ODEC:

- Wetland Delineation Report, Moore property, 22 July 2014
- Wetland Delineation Report, Justice property, 22 July 2014
- Moore Property Habitat Assessment, 23 July 2014
- Justice Property Habitat Assessment, 23 July 2014
- Draft Cultural Resources Survey of a Laydown Yard Area and Access Road Associated with the Proposed Wildcat Point Generation Facility in Cecil County, Maryland, July 2014
- Cultural Resources Survey of the 12.6-Acre Justice Parcel in Cecil County, Maryland, July 2014

We have confirmed with Maryland Department of the Environment, Nontidal Wetlands Division that there are no regulated wetlands or waterways on the property, in concurrence with the wetland delineation reports prepared by ODEC's consultant. In addition, DNR's Wildlife and Heritage Service agrees with ODEC that there are no concerns regarding impacts to protected species as a result of the proposed construction plans.

Based on the surveys provided by ODEC, the proposed construction-related activities will not have any impact on cultural resources. Maryland Historical Trust has agreed that the Moore farmstead is not historically significant (correspondence is attached as the last page of this submittal).

From a noise perspective, the addition of buffer distance will be beneficial. Operational noise levels at the new property boundary will likely be lower than the projected noise levels calculated during the CPCN application review.

Conclusions

PPRP's review found no significant adverse impacts associated with ODEC's proposed adjustment to its construction plans. The additional parcels, and any construction activities performed by ODEC and its contractors, will be subject to all applicable conditions of the CPCN granted in Case No. 9327, in particular the following:

- Condition D-1, requirements for protection of surface water quality and nontidal wetlands, and preparation of erosion and sediment control plans
- Condition D-2, stabilization of disturbed areas in accordance with approved erosion and sediment control plans
- Condition D-3, stormwater management
- Condition D-4, mitigation for tree loss
- Condition E-1, Best Management Practices for stormwater management and erosion and sediment control
- Condition J-2, response to discovery of unforeseen archaeological or historic resources

If conducted in accordance with these conditions, the modified construction plans proposed by ODEC are not expected to result in any unacceptable impacts to natural or socioeconomic resources.



PENNSYLVANIA / MARYLAND
STATE LINE

ODEC PROPERTY

MOORE PROPERTY

JUSTICE PROPERTY



DATE: OCTOBER 17, 2014
 DRAWN BY: R. OWENS
 CHECKED BY: R. BAUER

ODEC
 Old Dominion
 Electric Cooperative

WINDCAT POINT GENERATION FACILITY

APPENDIX A
 PROPERTY BOUNDARIES

APPENDIX A - 0

PRELIMINARY - NOT
 FOR CONSTRUCTION



Sustainable — Attainable

Maryland Department of Planning
Maryland Historical Trust

November 19, 2014

Susan Gray
Department of Natural Resources
Power Plant Assessment Division
Tawes State Office Building, B3
580 Taylor Avenue
Annapolis, MD 21401-2397

Re: Wildcat Point Generation Facility, Cecil County

Dear Ms. Gray:

The Maryland Historical Trust (MHT) has received additional information about the above-referenced undertaking and is writing to continue consultation regarding its possible effects on historic properties. As the State Historic Preservation Office, MHT reviews all proposed federal and state actions in Maryland in accordance with Section 106 of the National Historic Preservation Act and Sections 5A-325 and 5A-326 of the State Finance and Procurement Article. We understand that the planned expansion of the Wildcat Point Generation Facility requires a Certification of Public Convenience and Necessity and/or other approvals from state agencies.

MHT first received notice of the planned project in March of 2013 and, based on the scope of the project at that time, determined that it would have "no adverse effects" on historic properties. In August 2014 we were notified that the project area had been expanded to include two adjacent parcels, known as the Moore and Justice properties. Since the Moore Farmstead is recorded in the Maryland Inventory of Historic Properties (CE-1570), MHT determined that the property warrants formal evaluation with a Determination of Eligibility (DOE) form to establish whether or not it is eligible for listing in the National Register of Historic Places and therefore "historic" for the purpose of our review.

MHT received a DOE form for the Moore Property from Burns & McDonnell on November 10 and supporting materials from Dutton + Associates on November 12. The completed form complies with the *Guidelines and Resources for Compliance-Generated Determinations of Eligibility (DOEs)* and has been accessioned into the Maryland Inventory for the benefit of future researchers. Based on the recommendations and information in the DOE form, MHT agrees with the preparer that the Moore Farmstead is not historic. Therefore, the expansion of the Wildcat Point Generation Facility will have "no adverse effects" on historic properties. No additional consultation with MHT about this undertaking is necessary.

Thank you for providing us this opportunity to comment. We appreciate your and the project proponents' conscientious efforts to comply with Section 106 and ensure that historic resources are appropriately considered. If you have any questions or we may be of assistance, please contact me at jonathan.sager@maryland.gov or 410-514-7636.

Sincerely,

Jonathan Sager
Preservation Officer
Maryland Historical Trust

JES \ 201405875

CC: Andrew Gottsfield (Burns & McDonnell)
Robert Taylor, Jr. (Dutton + Associates)

Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor

Richard Eberhart Hall, AICP, Secretary
Amanda Stakem Conn, Esq., Deputy Secretary

Prepared by the Maryland Department of Natural
Resources Power Plant Research Program

Tawes State Office Building, B-3
580 Taylor Avenue
Annapolis, Maryland 21401-2397
Toll Free in Maryland: 1-877-620-8DNR, ext. 8660
Outside Maryland: 1-410-260-8660
TTY users call via the Maryland Relay
www.dnr.Maryland.gov/Bay/pprp



Printed on Recycled Paper